



ICOMOS

international council on monuments and sites

ICOMOS
General Assembly

18

Symposium

Firenze, Italia

9/14 novembre 2014

Edited by

Maurizio Di Stefano

***Heritage and Landscape
as Human Values***

Conference Proceedings

Poster

Volume 2 - Themes 3,4,5

***Patrimoine et Paysages
en tant que Valeurs
Humaines***

Actes de la conference

Poster

Volume 1

Heritage and Landscape as Human Values
Conference Proceedings - Posters

Paysage et Patrimoine en tant que Valeurs Humaines
Actes de la Conférence - Poster



Dedicated to Khaled al Asaad, Syrian archaeologist, "example of a hero of our times", brutally murdered by ISIS in the extreme attempt to defend Palmyra from the iconoclastic fury.

Dédié à Khaled al Asaad, archéologue syrienne, "exemple d'un héros de notre temps»,brutalement assassinés par ISIS dans la tentative extrême pour défendre Palmyra de la furie iconoclaste.

The real chance to guarantee the future of mankind is based, among other things, on the ability of modern society to ensure a “future for the past”, whose subsistence suggests that of a heritage totality, belonging to citizens of all the world: the totality of cultural heritage, of which architectural monuments and environment of ancient centers are an essential part.

La reale possibilità di assicurare l'avvenire del genere umano si basa, tra l'altro, sulla capacità della moderna società di garantire un “futuro per il passato”, la sussistenza del quale implica quella di un enorme patrimonio, appartenente agli uomini civili di tutto il mondo: quello dei beni culturali, di cui i monumenti di architettura e gli ambienti dei centri antichi sono parte essenziale.

18 I C O M O S General Assembly

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Heritage and Landscape
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CONFERENCE PROCEEDINGS POSTERS Volume 2 - Themes 3,4,5

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Heritage and Landscape as Human Values

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**The Florence Declaration
Heritage and Landscape as Human Values
(2014)**

The Florence Declaration on Heritage and Landscape as Human Values (2014)

Declaration of the principles and recommendations on the value of cultural heritage and landscapes for promoting peaceful and democratic societies

Preamble

Over 1,650 participants from 94 countries came together in Florence from 9-14 November 2014 for the 18th General Assembly of the International Council on Monuments and Sites (ICOMOS). 1300 technical proposals and the exchange between heritage specialists have culminated in the following Declaration of principles and recommendations on the value of cultural heritage and landscapes for promoting peaceful and democratic societies.

All individuals and communities have the right to benefit from cultural heritage and landscape to the same extent that they have a duty to preserve its authenticity and cultural diversity as a human right. This declaration encourages deep reflection on heritage management ethics and practices so that the challenges facing present and future generations can be addressed. ICOMOS can steer this process thanks to a holistic vision of harmonious development focused on the potential of cultural heritage as a testimony of peace and cohesion. In 2014 ICOMOS celebrated its 18th General Assembly and Scientific Symposium dedicated to the theme of “Cultural Heritage and Landscape as Human Values”. This declaration reflects the aims of ICOMOS and its work with UNESCO in assessing tangible and intangible values associated with World Heritage properties, and is an opportunity to bring together the organisation’s specialist skills.

Among other discussions that took place at the Florence Symposium, it was suggested that evaluating and assessing a site as World Heritage should be considered as an ethical commitment to safeguarding and respecting human “values” in order to protect the spirit of place ¹ and people’s identity so as to improve their quality of life. This is also an extraordinary occasion for the ICOMOS community to celebrate the 50th Anniversary of the Venice Charter and the 20th Anniversary of the Nara Document. We therefore celebrate both our own founding act, demonstrating its potential, and also a key document resulting from many scientific and philosophical debates on authenticity ², that has promoted the diversity of cultural expression ³. In response to today’s challenges, the main aim of the 2014 Symposium was to facilitate the inclusion and participation of people and groups from a variety of cultures and to move forward in defining principles, strategies, standards and practices that can contribute both to the recognition of the human values of cultural heritage, as well as to safeguarding and encouraging cultural diversity, working together to develop the necessary organizational frameworks and skills ⁴. These principles have been well expressed in previous international documents ⁵ and founding charters on safeguarding and protecting human rights and cultural heritage ⁶.

ICOMOS views the Symposium theme in the context of sustainable development (UN Sustainable Development Goals), making up for the lost opportunity caused by the exclusion of culture from the UN Millennium Development Goals. UNESCO is already working towards this end through its contributions to the Post-2015 Development Agenda, which were discussed in October 2014 in Florence ⁷.

ICOMOS, together with some of the world’s largest cultural, intergovernmental and non-governmental organizations, has discussed these issues, presenting its reflections on them at the recent Symposium.

The Symposium Declaration

The ICOMOS 2014 Florence Declaration promotes a broad debate that will enable ICOMOS to provide insights for encouraging sustainable, harmonious and intercultural development, placing people at the centre of the cultural debate where cultural diversity is expressed through heritage and landscape values.

We recognize our responsibility for fully integrating culture into society and the need for shared tools that can be used to translate ICOMOS’s ethical commitment into concrete action. We recognize the responsibility of ICOMOS members to cooperate actively in the development of resolutions, documents and conventions to improve quality of life through the management of the world’s cultural heritage, producing shared technical resources that contribute to integration and interculturality. We acknowledge that landscapes are an integral part of heritage as they are the living memory of past generations and can provide tangible and intangible connections to future generations. Cultural heritage and landscape are fundamental for community identity and should be preserved through traditional practices and knowledge that also guarantees that biodiversity is

safeguarded. Landscapes currently face unexpected threats that need be managed by applying new approaches to safeguarding the relationship between cultural and natural heritage by sharing practical experiences. An approach is needed that is based on the protection of human rights and on strengthening new and traditional knowledge and local governance.

The participants at the 18th General Assembly address this Declaration to intergovernmental organisations, national and local authorities and all organizations and specialists, recommending the following actions:

1. Sharing and experiencing community identity through tourism and interpretation

1.1 Sharing community identities: opportunities to empower communities and tourists

a. Community identity is rarely uniform or static but is a living concept that is constantly evolving thanks to an interplay of past and present in the context of current geo-political circumstances.

Around the world, contrasting - and often conflicting - community identities are expressed through (and can be shaped negatively or positively by) the range of activities and service provision offered at cultural heritage tourist destinations that are intended to take advantage of the economic, social and cultural benefits of tourism.

b. Community engagement in tourism through service provision, entrepreneurship, cultural production or volunteer activities can mediate an appreciation of their cultural heritage and provide opportunities (supported by capacity building) for promoting the diverse identities of resident communities in a positive way.

c. Community traditions - festivals, dances and culinary traditions - shared with visitors subtly change over time and this can lead to an inferior experience for residents and visitors alike. A community with highly-developed cultural awareness and the capacity to identify unique cultural values within their community is in a position to be empowered to protect the integrity, authenticity and continuity of the cultural heritage recognised within that community.

d. Community involvement with cultural heritage sites affected by disaster and conflict offer opportunities for healing and reconciliation. In rebuilding the fabric of their own lives in the face of painful memories, communities retain or create physical memorials in the landscape recording the psychological damage of 'crimes against humanity' or devastation of disasters in terms of human lives lost. In turn, as visitor attractions, opportunities arise for a range of community interpretations and ongoing dialogue with tourists.

e. Increasing knowledge and cultural awareness of the heritage of a place - tangible and intangible - among a host community and visitors fosters meaningful inter-cultural dialogue, engenders respect for cultural differences at a personal level and enhances the quality of the tourist experience, linked to the concept of travel for knowledge. It is the foundation for peaceful co-existence.

1.2 Cultural interactions and communication: building knowledge and changing perception through experience

a. Sustainable conservation and safeguarding intangible cultural heritage in a local tourism context can be achieved only by fostering awareness, in-depth knowledge and understanding among local communities of the significance of their heritage and diverse influences that have come together to create - and continue to create - a unique culture.

b. Building intergenerational capacity among local community members, especially in young people, to support them in engaging with and interpreting their heritage and in communicating successfully with visitors, has the dual benefit of enhancing visitor experiences and strengthening their own sense of self-worth and identity.

- c. Two-way communication between visitors and communities can also stimulate curiosity, allow multiple interpretations (when appropriate), and enable hosts to recount their own stories in a personal way.
- d. Community-based tourism development responds to increasing visitor expectation for more personalized and life-enhancing experiences. Collaborative and ethical local tourism networks are drivers of specialist tourism where cultural interactions are central to active visitor participation.
- e. Authentic holistic immersive experiences of cultural heritage are a key component of intercultural dialogue through tourism and an important element of a community's diaspora reengaging with its past as tourists.
- f. Cultural events are strategic tools for many communities seeking to attract tourism. Sharing and enhancing the balance of mutual knowledge, sorrow and enjoyment through a carefully structured inclusive approach to local rituals - religious or secular - and entertainment through cultural festivals can, if well managed, lead incrementally towards an enhanced territory.

1.3 Cultural places: finding frameworks for cultural heritage developments

- a. Creative solutions to planning the physical environment can lead to a deeper symbiotic relationship with a place for both visitors and communities. Cultural corridors, for example, can highlight the value of historic research and cultural significance with the sensitive reinstatement of traditional routes.
- b. Access to cultural heritage places at tourist destinations requires a multi-layered approach to planning and interpretation in order to be effective. Physical, intellectual, emotional and economic access need to be reconciled within bespoke strategies for interpretative planning and quality assurance mechanisms.
- c. Creative spaces - virtual and real - are dependent on the interwoven interrelationship between tangible and intangible cultural heritage. Memories of the ephemeral is itself an integral part of the visitor experience and new methods must be found to preserve them and enhance them for the future.
- d. Coherent community-led strategies for cultural tourism development depend on the recognition of the significant nexus between places and dynamic cultural traditions.
- e. Governance related to safeguarding, protecting and managing cultural heritage sites within tourist destinations requires a holistic set of integrated plans, policies, regulations and practices that embrace but go beyond conservation planning.
- f. Integrated spatial and tourism planning can: promote the role of communities; set an agenda for the co-creation of quality cultural products and cultural heritage experiences; support innovation and adaption to changing priorities across the global tourist and heritage industries in a particular place at a specific moment in time, thereby reinforcing community identities.

2. Landscape as cultural habitat

2.1 A community-based approach

- a. The concept of landscape, whether urban or rural, is increasingly becoming a new paradigm for harmonious development, offering an approach that can integrate economic, social and environmental processes.
- b. There are multiple interrelationships between urban and rural landscapes related to cultural, socio-economic and environmental processes, as well as to the well-being of the population.
- c. The involvement of local communities, the recognition of, and respect for, their cultural heritage, as well as innovative and traditional practices can favour more effective management and governance of multifunctional landscapes, contributing to their resilience and adaptability.

2.2 Landscape as a fusion of culture and nature

- a. Cultural landscapes should not only be interpreted as conservation areas but also as places where sustainable development strategies can be successfully applied.
- b. In many landscapes, concepts such as “natural” and “cultural” have lost much of their meaning, being replaced by a biocultural understanding, where not only settlements and agriculture, but also species and habitats are determined and preserved by people.
- c. The time has come to challenge the artificial separation between conservation and innovation, seeing cultural landscapes as lessons to be learnt in light of new models of economic development, responses to climate change, risk management, biodiversity conservation and the human wellbeing.

2.3 The landscape as a driver for growth a. In order to gain a better understanding of the interplay between biological and cultural diversity at a landscape level and its implications for livelihood and wellbeing, further interdisciplinary and trans-disciplinary research is needed.

- b. It is necessary to overcome major intellectual differences arising from the distinction between the natural sciences and the social sciences and humanities. Wide-ranging cooperation between these disciplines is needed in order to develop new tools for landscape planning, management and conservation.
- c. Public awareness and political action are needed to implement effectively national and international commitments related to cultural landscapes.

3. Sustainability through traditional knowledge

3.1 Quality of daily life produced by traditional knowledge

- a. Study and awareness raising of the role of traditional knowledge systems for development that are based on what has been handed down from previous civilizations should be promoted.
- b. The importance of identities, social cohesion, community involvement and quality of life produced by traditional knowledge should be recognized.
- c. Further research is required into the meaning, symbolism and rituals related to traditional techniques and procedures.
- d. Traditional systems held by communities with regard to well-being, nutrition and ways of life should be identified.
- e. Support is required for the rights of local communities and indigenous people who are the holders of traditional and indigenous knowledge and systems.

3.2 The value of traditional knowledge and practices as the basis for balanced technological, innovative development programmes and sustainable development

- a. Knowledge of traditional systems should be enhanced in order to promote a new technological paradigm.
- b. A typology identification system for traditional knowledge should be created, as should a database of case studies and best practice.
- c. A balanced use of traditional and modern techniques and technologies should be promoted using a holistic non-invasive and sustainable approach.

3.3 Respect for sites and the decision processes that safeguard communities and people

- a. Methods should be assessed for the protection of traditional knowledge that can be implemented by individuals, communities, disseminators and innovators of traditional techniques.

b. Resilient traditional techniques should be promoted, as should their use in every country in order to face global challenges and risks, such as climate change, natural catastrophe, migration, and poverty. Identify resilient technologies and promote the use of traditional knowledge to achieve energy efficiency and reduce CO2 emissions.

c. The emergence of virtuous collective responses and participatory actions for the prevention of catastrophes should be encouraged, in order to better protect those heritage sites and properties at greater natural and anthropic risk.

d. Communication and interpretation should be facilitated in order to create sustainable policies and programmes supported by learning systems and legislation.

4. Community-driven conservation and local empowerment

4.1 Community engagement in the enhancement of heritage

a. The connection between communities and their heritage should be recognized, respecting the community's right to identify values and knowledge systems embodied in their heritage. Heritage places, be they sites or landscapes, may take on different values for the various communities associated with them and the process of value identification must take each group into consideration.

b. Collaborative networks should be set up at different levels among multiple stakeholders in order to address issues related to heritage and create new value chains through innovative synergies.

c. Dynamic, flexible, inclusive and integrated processes of engagement need to be employed for assessing long-term social impacts of heritage conservation programmes.

4.2 Bottom-up approach for effective conservation and management of heritage

a. It is important to establish an active role for communities within formal planning/management systems giving the community a voice within conservation decision-making processes.

b. The role of heritage professionals should be recognized as being that of providing technical advice in community-led conservation initiatives and that of a facilitator when a community's engagement with its heritage is fragmented.

c. The 'human' scale of development as a foundation for creative bottom-up approaches should be reinstated.

4.3 Linking heritage conservation and sustainable local socio-economic development.

a. Heritage conservation should contribute to sustainable development objectives.

b. Good practices (based on measurable evidence) should be promoted, connected to the contribution of heritage to well-being, social cohesion, and sustainable economic development.

c. Innovative approaches and tools, such as crowd-funding, should be used that can stimulate a proactive role for community networks, transforming desirable future visions into reality.

5. Emerging tools for conservation practice

5.1 Cultural heritage objectives need to drive the development of emerging tools, not vice versa, so they can consolidate the centrality of cultural heritage

- a. New tools and technologies should support the various steps of the conservation process, as a means and not an end, promoting the centrality of cultural heritage as a human right.
- b. Guidelines and networks should be drawn up and shared for theoretical and methodological objectives and applications to ensure authenticity in conservation practice.
- c. Guidelines should be developed for interdisciplinary research (including those related to funding policies) in a collaborative way in order to fill gaps - technological, but primarily cultural – between technology specialists and heritage practitioners, between managers and users of information.

5.2 Promote new technologies that are accessible and inclusive for shared cultural growth

- a. Local and traditional knowledge should be respected in order to ensure a fair and profitable balance between cultures, knowledge, materials, traditional and innovative technologies.
- b. The key role of non-governmental organisations in strategic partnerships should be recognized in order to improve conservation outcomes.
- c. Platforms and tools for the dissemination of knowledge should be consolidated and shared in order to overcome cultural and social inequalities.
- d. There should be an active contribution to the exchange of best practice in conservation processes through debate and discussion in professional communities, while seeking to avoid the duplication of efforts.

5.3 Facilitate collaborative standardization and simplification of procedures and tools

- a. Internationally recognised and applicable tools should be developed in order to ensure accuracy, reliability, and verifiability of results and ensure the possibility of comparative analysis both geographically and over time.
- b. Priority should be given to user-friendly and low-cost technologies to ensure the adoption of tools that can be used for cultural heritage documentation, conservation and monitoring, as part of a virtuous circle.
- c. On-line toolkits and open source platforms should be developed as a priority, to provide access to standards and procedures in cultural heritage conservation practice in a democratic way.
- d. It should be ensured that the application of technologies to cultural heritage responds to welldefined key objectives, avoiding the risk of only making progress in the technological sector without improving conservation practice.

Florence, 14 November 2014

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1. ICOMOS, *Declaration on the spirit of place (Quebec, 2008)*.
 2. ICOMOS, *Nara+20: On heritage practices, cultural values and the concept of authenticity (2014)*.
 3. UNESCO, *Convention on the Protection and Promotion of the Diversity of Cultural Expressions (Paris, 2005)*. 4 ICOMOS, *Heritage as a driver for development (Paris Declaration 2011)* 5 Hangzhou Declaration, *Placing Culture at the Heart of Sustainable Development Policies (2013)*.
 4. UNESCO, *Recommendation on Historic Urban Landscape (2011)*.
 5. *Barbados Declaration - Global Conference on the Sustainable Development of Small Island Developing States (1994)*. 6 *Council of Europe Framework Convention on the Value of Cultural Heritage for Society (2005) known as the Faro*.
 6. *Declaration. It recognises UNESCO's concerns that "...rights relating to cultural heritage are inherent in the right to participate in cultural life, as defined in the Universal Declaration of Human Rights"*.
 7. UNESCO, *Dichiarazione di Firenze 4 Ottobre 2014 " Cultura, creativita e sviluppo sostenibile. Ricerca, innovazione, opportunita", Terzo Forum Mondiale dell'UNESCO sulla Cultura e le Industrie Culturali (2014)*.

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I C O M O S
General Assembly

Symposium
Heritage and Landscapes
as Human Values
Florence, Italia
2014 November 2014

Theme 3
Sustainability
through traditional knowledge

Thème 3
Le développement
durable à travers les savoirs
traditionnels

Semantic and cognitive palimpsest
Outfitting and communication project

Sustainability and tradition

The place material culture which is survived
let people interact with the whole world.
It's the key to a sustainable development.



Theme 3
Sustainability
through traditional knowledge

Thème 3
Le développement
durable à travers les savoirs tradition-
nels

Quality of daily life value of traditional knowledge and practices as the basis for balanced technological, innovative development programmes and sustainable development - respect for sites, and decision processes that safeguard communities and people - reacting in an adaptive and participatory way to risk and catastrophes.

Qualité de vie quotidienne - Valeur des savoirs et savoir-faire traditionnels comme bases de programmes de développement technologique équilibrés entre innovation et développement durable - respect des sites et processus de décision qui sauvegardent les communautés et les populations – réaction aux risques et catastrophes selon un mode adapté et participative.

Sub-themes

- 3-1 Quality of daily life produced by traditional knowledge**
- 3-2 Value of traditional knowledge and practices as the basis for balanced technological, innovative development programmes and sustainable development**
- 3-3 Respect for sites and decision processes that safeguard communities and people**
- 3-4 Reacting in an adaptive and participatory way to risk and catastrophes**

Heritage and Landscape as Human Values: Domestic Unit and Everyday Life in a Mayan Community of Yucatan Today

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Abstract

The family, the children, the sky, the light, the water, the trees all are still there, as they were in the XVI century. The purpose of this paper is to share experiences and to expand international knowledge of housing achievements of a Mayan community. It is not a nostalgic collection of dates, it is thinking in synergies of knowledge and traditional wisdom.

Keywords: *Vernacular House in Yucatán; Tradition and Quality of Life; Domestic Unit and Every Day Life; Synergy of Academic Knowledge and Traditional Wisdom*

1. Introduction

The cultural heritage, as a source of knowledge and cultural diversity in vernacular architecture and housing, is an example of “ordinary things with extraordinary role”¹. In the rural territory of Yucatan, many Mayan communities in popular housing are households with multiple features of Mayan vernacular dwellings, where its current inhabitants continue to exert largely an ancestral cultural association with the natural landscape in South-eastern Mexico. Socioeconomic status may be considered rich in wisdom and cultural demonstrations and poor in economic resources if they are related to a contemporary globalized economy.

We know that it is very difficult to recognize the value of vernacular heritage environment which may contribute to the sustainability and cultural diversity, and often, as authors Lindsay Asquit and Marcel Vellinga says: “Vernacular architecture continues to be associated with the past, underdevelopment and poverty, and there seems to be little interest among planners, architects and politicians in the achievements, experience and skills of the vernacular builders or the environmentally and culturally appropriate qualities of the buildings they produce.”² In this sense some discourses indicate that there is no future for the vernacular in the processes of modernization and globalization, however essential to the present. Yet, there are others who consider that the vernacular revitalizes values of identity and cultural memory. Another sector I in favor of it for its role as a provider of sustainable architectural elements and still others consider it as an important source of codes for contemporary architecture.³

The main purpose of this work is to share experiences and expand international knowledge of the achievement and perpetuation of the cultural heritage, focusing in the necessity of working in synergies between academic knowledge and traditional wisdom, to expand not only the environment diversity but also to build issues of learning in housing qualities with support of the international community. In order to achieve this purpose three parts are presented in this work and then the final reflections as conclusions.

This work addresses with astonishment the short-sightedness, blindness and attitude that exists towards the values and importance of the vernacular housing as a complex unit, and how the collective attitudes discard its values. We are conscious of the risk that exists: if one work with the vernacular, the environment changes and it is possible that this kind of architecture will disappear but if nobody takes part in it, it may disappear as well. On the other hand, although it has been frequently defined as weak and poor, the Mayan vernacular housing has survived through almost five centuries in Yucatan México after the Spanish occupation.

2. Context

¹ As pointed out Kurt W. Forster, (2011), XIII “The Extraordinary Role of Ordinary Things” in (Sabatino, 2010).

² (Lindsay Asquit and Marcel Vellinga, ed. 2006), 294.

³ Part of this is mentioned for (Asquit and Vellinga,2006) *op.cit.p.4 and 5*, but also for authors as (Sabatino, 2010), (Sánchez, 2006), (López, 1987), (Tello, 1992).

The context where the architecture and mainly the vernacular housing to which is referred in this work is located is the southeast region of México, Yucatán. The vernacular landscape is on a huge limestone, with a landscape of humid tropics, full of diversity and surrounded by cultural legacies of great size and importance, including the *Puuc* area with the archaeological site of Uxmal declared a World Heritage Site since 7 December 1996.

In fact the ground is a huge limestone mass as the bishop and chronicler of the sixteenth century Fray Diego de Landa referred to it: “Yucatán is the country with least earth that I have seen, since all of it is one living rock and has wonderfully little earth, so that there are few places where one can dig down ... (The land) ... is very good for lime ... and it is marvelous ... the fertility of this land”⁴.

This limestone only allows the existence of underground rivers which surface are sinkhole or *cenotes*. “Nature worked so differently in this country in the matter of rivers and springs, which in all the rest of the world run on top of the land, that here in this country all run and flow through secret passages under it.”⁵ The stage is full of light and shadow, great sites full of trees, flora and fauna of the humid tropics and other caverns and vernacular dwellings with domestic crops and many caves and sometimes very shallow wells where water is obtained even today.

It is the second largest region of the state where Mayan population is concentrated, and its inhabitants developed agricultural and horticultural as primary activities. In the region are the archaeological sites Uxmal, Kabah, Sayil, Xlapac and Labná. Uxmal, the second most important site in the Yucatan region and the most important of the Puuc region, has a great diversity and multiplicity of buildings, crests, frets and hieroglyphics. It belongs to the Late Classic Period. Its most important buildings are the Pyramid of the Magician, the Nunnery Quadrangle, and the house of the doves. There is a ballgame with inscriptions and steles. The site’s most important structure is an oval pyramid with a staircase that reaches to its top.

Region VII where communities to which we are referring live, It is an area of fertile land in comparison to others in Yucatan, a whole range of grains and legumes growth, as well as citrus and other fruits. Also there are a wide variety of native medicinal and ornamental plants.

There is a great diversity of local wildlife birds and others species such as the Jaleb peccaries, poultry, ducks, turkey and rabbits. There are also snakes, bats, frogs and “armadillos” and sometimes deer.

The collective expressions of the landscape in this region are shaped both by permanent and temporary buildings such as churches, convents (or their ruins), markets, henequen haciendas, ancient rails used as roads, community wells, cemeteries, open meeting spaces, and popular and vernacular houses. Among the non-permanent buildings are for example the *ruedos* that are built annually by the community for their *corridos*⁶. After the annual celebration the temporary building is dismantled until the next year. They do not have good economic conditions but they have a culture that move them.

The role of the traditional knowledge of the ancient Mayan civilisation has allowed people to survive centuries and to create the definition of living space, light, use of colours, the relationship everywhere even under the trees, the use of hammock (now), the sense of time. All are related to concepts of quality of life defined by cultural heritage.

3. Vernacular housing as a domestic unit

The residents of small communities in Yucatán have cultural characteristics in terms of their habitat very similar to those enunciated since the sixteenth century in relation to Mayan inhabitants. Friar Diego de Landa wrote in relation to that:

“The way they built their houses was to cover them with Straw which they have of very good quality and great abundance, or with palm leaves, which is very well fitted for this, and they have very steep slopes, so that the rain water may not penetrate. And then they build a Wall in the middle dividing the house lengthwise, leaving several doors in the Wall into the half which they call the back of the house,..., and the other half they whitened very nicely with lime”⁷

In our days there are two areas, the first space is elliptical built of stone masonry, with mortar or daub. The roof is made with: “four major pitchforks that will support the roof structure (which) should be chosen with similar dimensions, so that their joint effort is stable. The wooden columns that complement the efforts of

⁴ (Landa, Fray Diego, 1941, 186).

⁵ (Landa, Fray Diego, 1941, 184).

⁶ Local bullfight.

⁷ (De Landa, 1941. 86).

cover support in apsidal part are smaller as well as providing rigidity to the walls of wattle. The beams that close the frame formed by wooden columns must also be very strong, as are the woods to give the scissors to ceiling height and tilt. Other elements are snap frame which will then be covered with guano.”⁸ (image 1, vernacular housing).

“Over time they have integrated the different modalities of urban traces, with its covered with lime walls, necessary for the protection of daub, and provide brilliance, extending in well arranged *albarradas* (stone walls without mortar) that with your break diagonal invite to enter the house.”⁹

Each specific building block of the house has its name in Maya and meaning since it is all done guidance, all done in the wisdom of the Mayan tradition. For example the wood is cut at a certain time of the year and according to the time of day and the cycle of the moon.

The main space has two larger openings, one in the front part and other in the back. Sometimes, it has a door. These gaps also allow the entrance of fresh air. The activities that are performed in this area are multiple and adapted according to the age of each family member and their economic consolidation. In this space they sleep, they take a rest, they keep their domestic goods and they pray. Inside this area there is also a space considered bathroom, but it is only an area to throw water with a pail. This bath is divided by a curtain.

The interior of the largest enclosed space is a dark place that allows you to rest from the bright outside light and produce shadows that reinforce the hierarchy of family members and the poetics of space. The orientation of the house was very important in ancient times. It had to do with the possibility that the sun served as a source of blessing. Some authors such as Damaso Rivas tells us that the orientation even had to do with ways of life and culture “*Cuando él se dirigía a su casa con el sol a espaldas, su sombra entraba a la casa antes que él, ya fuera por la puerta si la hubiera o delisándose por entre las paredes.*”¹⁰

The smaller space for cooking is halfway open. The smoke of the wood stoves which is still in use can go out very easily because the walls of the kitchen are of guano without mortar.

(image 2, space for cooking).

It is essential to understand that the vernacular housing is a combination of closed and open spaces. It is a domestic unit that allows the dissemination and development of cultural traditions.

The domestic unit is the space each family needs to develop all its activities. They need the inner space but also the open ones, to sleep, to cook, to wash, to pray, to farm, to prepare the ground for planting. Each member of the family contributes to a diversity of activities whose amount is dictated by age, social roles and hierarchies.

The transformations in the use of space are a process related also with the constant and gradual changes due to new technologies and economic conditions. New building materials and the inclusion of plumbing services are often proposed by external agents, such as politicians or academics, who believe it is good to have a bathroom, or a “biodegradation container”, or a water cistern to have running water inside the house. The rural inhabitants always accept. After, they assess the new proposals and if they are satisfied, they use the object otherwise it stays in some part of the open space as an invisible object or a testimony of a rejected “modernity” or “progress”.

The house is built with the participation of the users and members of the community.

During the construction process actions can be seen with a sense of magic, ritual and religion.

Adults plant, harvest and sell their products. Women cook everyday food and make colorful embroidery used primarily in the making of his clothes.

4. Synergies and collaborative aspects between academics and rural Mayan inhabitants

From the Mayan vernacular inhabitants you can learn systematization in relation of what it is possible to use of the environment. The building process is adapted to climate conditions. Nothing is wasted in this domestic unit, the house is transformed and adapted and it is flexible. It serves to protect, but also to educate the children in relation to the natural elements, the cosmos, the day, the night, the wind, the plants, the animals, anything that involves a cultural tradition is practised in the house.

⁸ (Sánchez, 2006, 84).

⁹ (Sánchez, 2006, 83).

¹⁰ (Damaso, 2012, 33). “When he was driving home with the sun behind his shadow entered the house before him, either by the door if available sliding by or between the walls.”

Among the climatic adaptations are the use of open, half way open and close spaces, a main space has a ceiling which pyramidal form allows warm air to go up and exit through the ceiling material.

Different actions and activities take place in these vernacular spaces: to learn the language, to pray, to speak, to see the needs and wisdom of adults and elderly, to knick hammocks, to plant and to cultivate crops and plants in order to maintain the house and to eat, to raise domestic animals, to cook for everyday life or for special celebrations of the community.

There are scents in the front of the house derived from flowers planted in it and there are also medicinal plants. In these houses physical protection needs but also sensory development are taken into account.

When students and teachers look to these communities, they can learn from all aspects mentioned above which are very important for habitability and quality of life. They can teach for example the use of natural compost to improve production and to avoid chemicals fertilising, they can also demonstrate the benefits of technologies such as biodigesters or water tanks or other sanitation facilities.

There is a need not only to learn instruments such as those carried out by ICOMOS Mexico, around vernacular housing but also to disseminate and reinforce its meaning in the everyday life of the regions. The protection for the permanence of this regional habitat will allow the contribution to global cultural and environmental diversity. It is important to be proud of having around vernacular cultural landscape with housing but learning its essence in functional aspects, type of space, handling extreme weather like the one (extreme) in Yucatán, and in general the specific use of elements which allow to increase a deep perception of the landscape. (e.g. light, shadows, variety of textures and so on).

In this work, features of Maya housing are considered as an achievement of adaptation to the environment and culture, whose physical codes respond to the cultural and everyday life of this great civilization. Community networks have played an important role in achieve protection features and transmitted this culture of habitat through thousands of generations.

It seems that we are to one step of losing all these tracks, but in spite the blindness attitude of some, the ancestral wisdom is still there giving values to a big environmental diversity and giving us the opportunity of learning. The University of Yucatan has started working in rural communities supported on occasion by international organizations, which aims to use synergies of ancestral wisdom and academic skills for a chance to teach in real learning scenarios and assist in the retention of a more heritage diversity in our rural setting.

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Image 1: Vernacular housing.



Image 2: Space for cookin

Restoration of Defensive Watergate Bridge Using Traditional Technology in Korea

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Abstract

Mungyeong-Saejae, a National historic site (Claim No. 147) in Korea, is a high and tough mountain pass so that it was considered difficult even for birds to pass over it. This place was fortified with three gates in 1708 and became a strategic place for the national defense while serving as the traffic gateway. However, the site lacked of the cultural context due to the loss of watergate bridge on the west side of the lowest gate. This watergate bridge equipped with a defensive device within the two voosoir arches was now restored using traditional construction method.

Keywords: *Defensive Watergate Bridge; Stone Arch; Stability; Strengthening*

1. Introduction

Types of fortresses had been evolved in various ways considering political, military, economic and cultural aspects. Thanks to topological and geographical conditions in Korea, numerous mountain fortresses were adopted compared with town fortresses since early times. Mungyeong-Saejae, a National historic site (Claim No. 147) in Korea, is a high and tough mountain pass so that it was considered difficult even for birds to pass over it. This place was fortified with three gates in 1708 and became a strategic place for the national defense while serving as the traffic gateway from Gyeongsang Province to Hanyang City during the Chosun Dynasty period. Apart from having a purely military and defensive purpose, the landscape perspective of Mungyeong-Saejae is striking and is actually one of the most scenic areas in Korea. This area was declared as Mungyeong-Saejae Provincial Park on June 4 in 1981. However, when this place started to obtain public attention the importance of cultural significance of the region was not adequately appreciated because it lacks of integrity. Figure 1 shows the old map that was drawn in 1872, which explains the layout of major structures and constituent of the fortress. When comparing the heritage structures and monuments remained at the site with the old map, the watergate bridge located on the west side of the lowest gate was not seen. Fortunately, the old photo describing the lowest gate in detail was found in 2005 (fig. 2), which provided a great momentum for the restoration of the watergate bridge.

Recently the lost watergate bridge was restored based on the photo together with the related historical records. The restoration strategy had been studied in depth based on the traditional construction method that were commonly used for the construction of stone type of watergate bridges at that time. However, some aspects that are related to the structural instability were carefully checked. This paper has focused on how the old watergate bridge once lost was restored following the traditional construction method while addressing the issues about structural stability.

2. Traditional Construction Method for Old Watergate Bridges in Korea

An intensive investigation of old watergate bridges that had been built in Korea was carried in this study focusing on the following two aspects: (1) the classification of structural systems and (2) the construction method. The classification of structural systems was done to understand important variables affecting structural behavior because the structural stability of a stone arch structure has a close relationship with its geometrical shape. For the construction method of the original bridge, not only the traditional construction method for stone arch systems but also strengthening technique available at the time of the construction of the original bridge were studied because the strengthening technique must be compatible with the traditional construction method.

Watergate bridges are bridge-like structures that carry the two important roles of (1) flowing out water and (2) being a gateway to the bounded area. To provide a frictionless pass for the waters flowing through the watergate bridge, the bridges must be designed to endure possible loads due to water flow phenomena including flooding and scouring. Being a gateway, the watergate bridge must protect the community people against enemies' attacks. Figure 3 summarizes the overview of old watergate bridges constructed using traditional construction method in Korea. Representative types including mounting fortress bridges and city fortress are arranged according to the number of arches that consist of one watergate bridge system. It has been understood that various types of arch systems were used depending on characteristics of the site where a watergate bridge was located. Among the site characteristics, topographical and military conditions were considered the most dominant factors determining the size and structural shape of watergate bridges. The major variables that characterize each watergate bridge are identified based on the investigation, as shown in the top middle of the figure. Due to the roles imposed on watergate bridges, the structural system of a prototype for old watergate bridges appeared as a stone arch with iron grill fencing or with an intel beam on pillars, as shown in the left bottom corner of the figure. For the construction of old stone structures in Korea, the dry construction method without mortar was commonly adopted. Therefore, the stone structural systems that are strong in compression but very weak in tension need of strengthening techniques. Some evidences¹ about mechanical devices were found on the base structures of stone bridges, as shown in the right bottom corner of the figure. This evidence helped to develop strengthening methods for the watergate bridge of Mungyeong-Saejae.

3. Description of the Watergate Bridge of Mungyeong-Saejae

The photo that unveiled some detailed information and the related documentation were investigated in comparison with the major variable and important features of the bridge were identified: (1) an iron fence was installed in the middle of the bridge to defend against enemy attack; (2) the bridge consists of two separated arches; (3) the arch type is a semi-circular voussoir arch with 29 wedge-shaped granite units; (4) the voussoir arch is 8.76m wide and placed on the springings at 2.7m high; (5) the stone masonry was built using dry construction method without mortar; and (6) the bridge is located in the downstream of the curved path. It was noted that one possibility of losing the bridge might be the force of downstream flow and this safety issue must be addressed. The structural model and the hydraulic section for the watergate bridge of Mungyeong-Saejae is detailed based on the understanding through the available resources, as shown in Figure 4.

Safety Analysis for the Bridge before Strengthening

The safety analysis was done for two aspects: (1) the structural stability of the bridge and (2) the water flow stability of the bridge site against scouring. First, the structural stability was analyzed with only one arch ring. Because the iron fence was inserted in the middle of the two arches, it is considered that this bridge consists of two parallel but separated arch rings. According to Heyman's extension of limit design to masonry structures, the safety of stone arches is a purely geometrical matter (Heyman J., 1982). It is also noted that mean compressive stresses are low even in structures showing several cracks. Considering this, the limit analysis was adopted focusing on the stability of the geometric shape of the bridge under various loading conditions. The limit analysis provides a conceptually simple and robust means of analyzing the ultimate collapse state of masonry arch bridges. To perform an analysis the followings are assumed: (1) the masonry in the arch has no tensile strength; (2) the masonry in the arch is incompressible; and (3) sliding between masonry units cannot occur.

Upon the assumptions, the ultimate load at collapse is obtained through an iterative process using either the lower bound theorem or the upper bound theorems. the lower bound theorem of plastic analysis can be stated as: if a line of thrust satisfies the equilibrium and yield conditions, then the applied load will be a lower bound on the true plastic collapse load. Note that the thrust line is the locus of the points through which the resultant forces pass in an arch. Similarly the upper bound theorem of plastic analysis can be stated as: if a line of thrust satisfies the equilibrium and mechanism conditions, then the applied load will be an upper bound on the true plastic collapse load. Using either an upper or lower bound approach, a hand limit analysis could be performed until the critical one has been found. The numerical analysis was done using the structural analysis program of RING 1.5 (Gilbert, 2005) which is specialised software designed to compute

¹ This evidence was taken from the site of Woljeong gyo in Gyeongju.

the ultimate load carrying capacities of single and multi-span masonry arch bridges. The results of the limit analysis for the bridge under consideration shows that this bridge is unstable under asymmetric loading while stable under symmetric loading, as shown in Figure 5. To understand how the parameters selected for this study affect the structural safety of the bridge, one of the most critical point loading case was applied to the structure by varying the length of the arch span and pier height, as given in Figure 6. The simulation results are plotted in terms of the minimum thickness and the pier height over the span length. As seen in this figure, the safety of the original watergate bridge whose reference value is beyond the figure is predicted to be unstable. This means that this bridge might be unstable under some loading conditions and must be enhanced from the point of structural stability.

Also, scour of foundations is one of the most common causes of damage and failure in masonry arch bridges in waterways. Recently, due to climatic change and land development nearby, the volume of water flow has been greatly changed. This bridge was checked if it can satisfy the total scour depth required for the 100-year flow event². The required design flow rate for the bridge site is estimated as 263.43 m³/sec, which is to be checked with that of the supplied value from a hydraulic section of the bridge site under consideration. Using Manning's equation for open channel, the discharge rate Q for the hydraulic section can be calculated as follows:

$$Q = \frac{K_n}{n} R^{2/3} S^{1/2} A \quad (1)$$

where

K_n : unit conversion 1.0 for SI units, n : Manning's roughness coefficient, R : hydraulic radius=(A/P), A : cross sectional area of flow, P : wetted perimeter, S : slope of the channel.

For the hydraulic section of the Mungyeong-Saejae bridge, the values for the coefficients are obtained from the topographical condition of the site: 0.035 for Manning's roughness coefficient and 0.04 for the slope of the channel. Then the discharge rate Q for this bridge is obtained as follows:

$$Q_{original} = \frac{1.0}{0.035} \left(\frac{18.4}{12.96} \right)^{2/3} 0.04^{1/2} (18.4) = 132.79 (m^3/sec) \quad (2)$$

The discharge rate for the original bridge section $Q_{original}$ is far below than the required design value of 263.43 m³/sec, which requires larger space for the water flow such as larger width of the arch span. Therefore, it is needed that the original watergate bridge must be strengthened to satisfy structural stability and the required design discharge rate.

Strengthening Strategy for the Modified Watergate Bridge

Upon the previous safety analysis, the strengthening strategy must consider structural safety requirement of the watergate bridge together with some amount of the required discharge space that can not be satisfied only with the side box for water passage. Considering such requirements, several alternatives had been studied including the use of mechanical devices and the change of structural geometry. Figure 7 shows the three most feasible alternatives. Alternative 1 was to strengthening the structural safety by inserting mechanical devices between the units of the piers that restrain displacements against rotation and sliding. The resulted structural system becomes stable under various loading conditions. However, this alternative does not increase the discharge rate for the water flow. And, the enhancement of the arch shape was been done through Alternative 2 to increase the span length while lowering the ratio of pier height over arch span (i.e., 'p/L') by repositioning the center of the arch. The resulted structural system provides the structural stability as well as the increased discharge capacity. Moreover, Alternative 3 was to pursue better safety margin by strengthening the Alternative 2 with respect to its structural stability by adding the mechanical devices. As expected, the resulted structural system becomes the best among the three alternatives so that this alternative was selected to be implemented for the restoration.

With Alternative 3, an additional space for the water discharge was made under the pedestrian passage as shown in Figure 8, which increases the cross sectional area for the flow in parallel with the wetted perimeter. For the proposed bridge structure with the increased hydraulic section, the discharge rate $Q_{modified}$ is calculated as follows:

² (Sung-Gul Hong and Namhee-Kim Hong, 2007).

$$Q_{modified} = \frac{1.0}{0.035} \left(\frac{37.8}{26.4} \right)^{2/3} 0.04^{1/2} (37.8) = 274.315 (m^3/sec) \quad (3)$$

It is verified that the discharge rate for the modified bridge section $Q_{modified}$ satisfies the required design value of 263.43 m³/sec.

4. Concluding Remarks

One of the high and tough mountain passes in Korea, Mungyeong-Saejae, a National historic site (Claim No. 147) in Korea, has been appeared forming the integrated cultural context by restoring the lost watergate bridge located on the west side of the lowest gate. This paper has first discussed on what reasons caused the loss of the bridge by performing the safety analysis considering both the structural stability of the bridge and the water flow stability of the bridge site against scouring. Then, the strengthening strategy was developed for the original arch shape by adopting the traditional construction method. However, the design requirement about water flow stability of the bridge site against scouring was not satisfied with the original shape of the bridge. Finally, the restoration of the watergate bridge was implemented by enlarging the arch shape while reinforcing the structural system using the traditional strengthening method toward much safer structural behavior.

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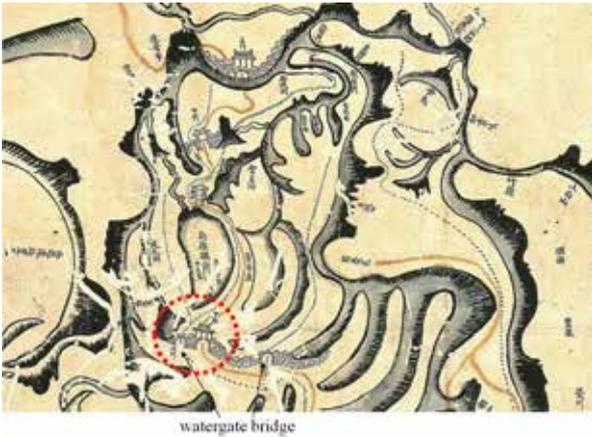


Figure 1: Old map drawn in 1872.

Figure 2: Photo found in 2005.

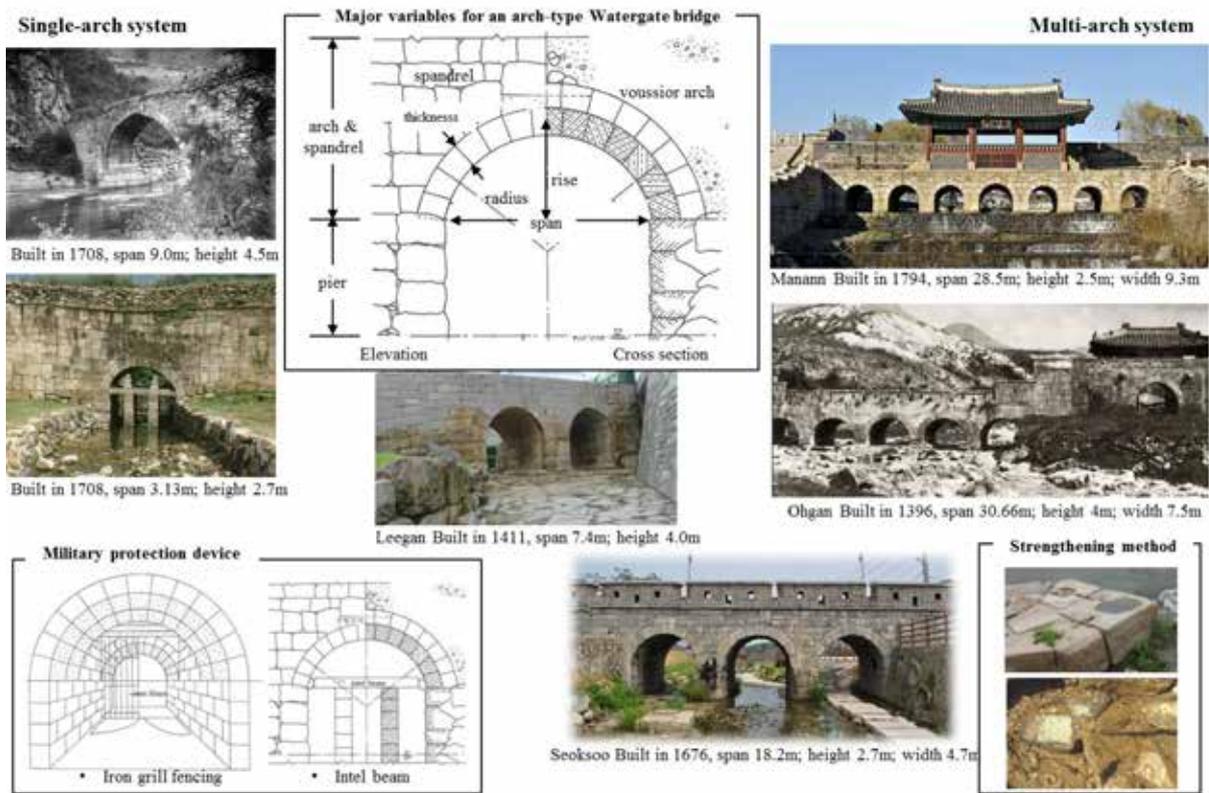


Figure 3: An overview of old watergate bridges in Korea.

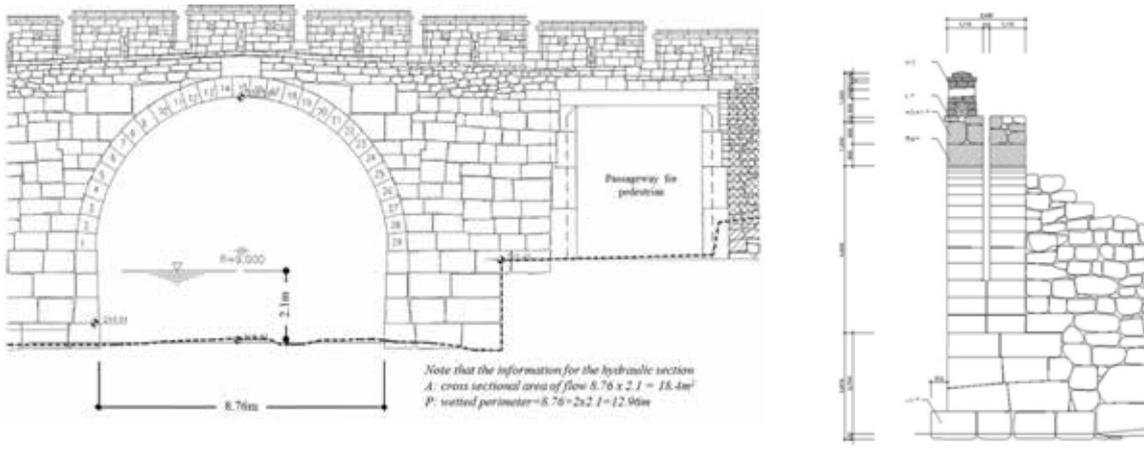


Figure 4: The original bridge structure with the hydraulic section.

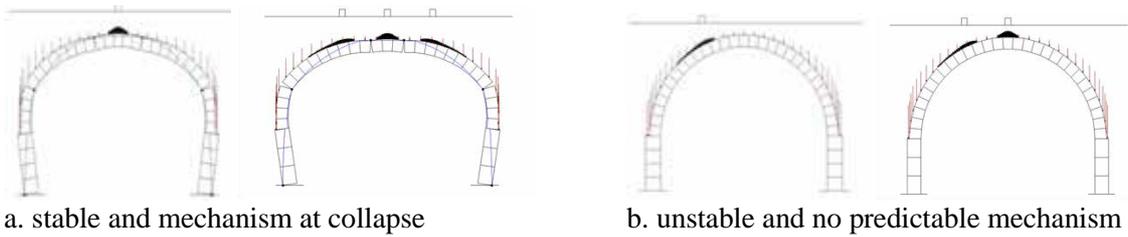


Figure 5: Structural behavior of the Mungyeong-Saejae watergate bridge

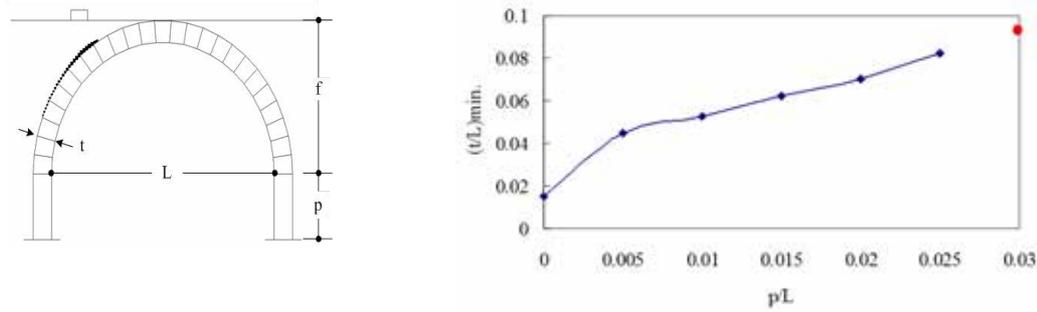


Figure 6: Investigation of geometric shape of arch structure on piers.

Alternative 1	Alternative 2	Alternative 3 (Selected)
Structurally stable failure load = 46.96kN	Structurally stable failure load = 11.92kN	Structurally stable failure load = 264.196kN
Discharge capacity unchanged	Discharge capacity increased	Discharge capacity increased

Figure 7: Comparison of Alternatives for strengthening of the Mungyeong-Saejae watergate bridge.

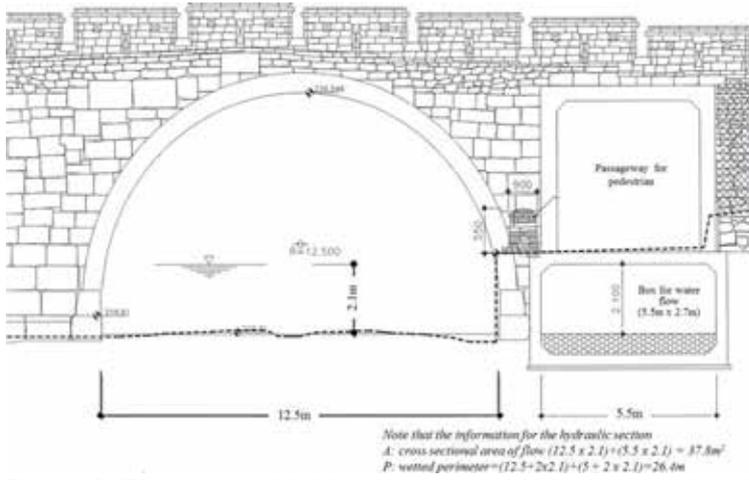


Figure 8: The proposed bridge structure with the increased hydraulic section.



Figure 9: Restoration of the Mungyeong-Saejae watergate bridge in the context of cultural heritage.

Traditional Craftsmanship and Community-based Preservation of Wooden Churches in Ukraine

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Abstract

Due to the big number of historical wooden heritage in Ukraine and the problems of heritage law implementation related to budget scarcity and remoteness of some areas from administrative centres, there is a need to encourage community-based preservation. The character of local community's initiatives highly depends on the state of traditional craftsmanship in a region, therefore, should be considered in the development of heritage protection policies. We will show distinct patterns of community-based preservation on the example of two villages with different state of traditional craftsmanship.

Keywords: *Traditional Craftsmanship; Community; Wooden Architecture; Religious Heritage*

1. Introduction

Recent trend in heritage preservation research and practice has been an intention to delegate heritage protection rights and responsibilities to local communities in order to empower them and reckon with their "first voice".¹ This is especially necessary when dealing with living religious heritage, since, according to the conclusion of ICCROM 2003 Forum on Living Religious Heritage, "the religious context is too sensitive for conservation professionals to treat with objectivity and fairness".² As a rejoinder to this point one might argue that cultural heritage should be entrusted to local communities with caution considering the numerous monuments and sites humanity had lost due to local community's neglect or destructive actions.

In this article, the discussion will point to a different character that community-based preservation takes according to the state of traditional craftsmanship preserved in a region. Evidently, the integrity of local building traditions, lifestyle and customary knowledge induces sustainability of community's conservation activities, but, more importantly, it defines the values and attitudes community adopts towards their heritage. Using the case of wooden architecture preservation in Ukraine, I will examine different patterns of community-based preservation in two regions with different state of traditional craftsmanship and analyze the character of government involvement in each case.

Present study is based on fieldwork in the Carpathian region of Ukraine during August 2013, January 2014 and June 2014 and materials provided by Ukrainian scientific restoration institute "Ukrzahidproektrestavratsia". Two case studies are introduced as an example of community-based preservation: Church of the Synaxis of the Blessed Virgin Mary (1724) in Loni village, Lviv Oblast and Church of Dmytro the Saint (1838) in Matkiv village, Lviv Oblast that was recently inscribed as part of Polish-Ukrainian transnational World Heritage in 2013.

2. Preservation Problems of Wooden Churches in Ukraine

Over the centuries, the population of forested Carpathian highlands had developed a unique architectural style of ecclesiastical architecture. With a prevailing on this territory technique of blockhouse building, local carpenters created masterpieces of folk architecture grounded in Eastern Byzantine canon and Orthodox liturgy intertwined with local traditions and beliefs. Main distinctive features of Ukrainian churches (or *tserkvas*) are tripartite ground plan with three square or octagonal log-house chambers located on one axis and open roof spaces repeating exterior dome lines. In 2013, eight most representative and well-preserved wooden churches were inscribed to World Heritage list as component properties of Ukrainian-Polish

¹ (Galla, 2008).

² (Stovel et al., 2005).

transnational heritage. Apart from these, there are more than 2,500 historical wooden churches remaining on the territory of Ukraine, of which most historically and artistically significant were inscribed to Ukrainian heritage protection registers, nevertheless being in a disastrous condition - in need of repair or disfigured by uncertified additions. Such state of affairs is an evidence of the problems of heritage law implementation in Ukraine, related to budget scarcity, poor management, remoteness of some areas from administrative centers and lack of educated personnel on sites.

From 1989, after 70 years of materialistic Soviet regime, when religious services were banned, churches - closed and turned into storages or museums, religious property started to return in possession of Orthodox and Greek Catholic churches. Meanwhile, proper heritage legislation of independent Ukraine had yet years to evolve. As a result, religious communities acquired ownership rights for the monuments of national importance without signing protective agreements with the government - the fact that complicates the enforcement of heritage legislation until today. There are scarce examples of positive preservative actions from the initiative of local communities, but regrettably in most cases communities choose to either abandon the old church or subject it to excessive refurbishment according to communities' tastes and capacities.

One guaranteed way to safeguard wooden masterpieces is to transfer best representatives to an open-air museum, where a team of professional conservators and managers can rationally organize their conservation and exploitation. Currently, there are 15 open air museums of rural architecture in Ukraine that became a second home to more than 500 important wooden buildings and 16 wooden churches maintained in good conservational state (fig. 1).

While the practice of open-air architectural museums is indispensable for safeguarding the most aesthetically and historically significant wooden churches, museumification cannot be a one-suit-all decision. Article 5 of Venice Charter stresses the importance of giving a function to heritage in the life of the community³. Moreover, preservation of wooden churches in property of religious communities can be much more sustainable, considering money donations for church maintenance being a part of religious practice.

Most of the heritage practitioners in Ukraine reasonably argue that the government has to regain control over important religious heritage in order to safeguard it; however state resources will only allow to perform it selectively. To preserve bigger number of churches, we have to acknowledge community-based preservation and distribute the amount of governmental involvement according to the needs and abilities of each community. In the next two sections, we will show the different character of community-based preservation in the regions of traditional and non-traditional building custom.

3. Community-driven Conservation in Loni Village

Until the end of the XVIII century, wooden building was so wide-spread and conventional on the whole territory of Ukraine, that living in a stone or brick house was even considered unhealthy.⁴ However, traditional log-house construction is resource consuming and soon became unaffordable with advancing deforestation. The territory of the present Western Ukraine can be divided into two eco-cultural zones: forested, mountainous regions with prevailing traditional way of life and more industrially developed forest-steppe regions, where traditions of log-house building are in decline. One example of the latter is Loni village.

Loni village is located in the eastern part of Lviv Oblast, 61 km from oblast centre - Lviv. First evidence of the village dates back to 1515 AC. Its official population record is 289, but, from the testimonies of the villagers, population had significantly dropped since the last national census in 2001, now totaling in merely 60 villagers. Many had moved to the city yet didn't break ties with the village - some of them are still commuting from Lviv regularly to visit old relatives or to attend their *dacha* garden.

Rich in deposits of clay, the village turned completely from wooden to brick until the end of 19th century. Hence, the village church has been the only surviving blockhouse wooden structure which now is on the verge of destruction. Wooden Church of the Synaxis of the Blessed Virgin Mary is located in the northern part of the village on a hill beside a cemetery. Present structure was built in 1724, though there is an evidence of earlier existing church on the same place. From 1950s, the church was closed by Soviet government, yet villagers continued to perform religious services illegally. Later on with the independence of Ukraine in 1992, it was re-opened and returned to the property of Greek Catholic church however was rarely used due to its lamentable state. Even though, the church had been registered as national heritage of

³ (UNESCO, 1974).

⁴ (Vechersky, 2006).

Ukraine (highest level of protection), no measures had been taken to safeguard the church from an imminent destruction.

Present appearance of Loni church bears evidence of hasty emergency repairs: deformed and slanting walls are propped up with trusses; drifting basement was lifted from one side with a concrete fixing; metal sheets are layered over rotted wooden shingles, further emerging roof openings are covered with any available material starting from rubber to cardboards. (fig. 2) Aforementioned is as much as villagers could do by themselves without risking to face charges for uncertified repairs; meanwhile, the church needs a careful restoration with dismantlement to replace rotted elements and reinforce basement and corner joints - an undertaking for a team of professional conservators and experienced craftsmen.

Eventually, in 2010 villagers decided to take action to restore the church in accordance with conservational standards. The motivation for such initiative was threefold: 1) for the villagers who continue to reside in Loni this church is important as a memory of people's resistance during Soviet Era; 2) for the activist who are descendant from Loni but had moved to the city, the church is an important symbol of their "little homeland" and part of their identity; 3) from the side of village administration, the loss of the national heritage on their territory would be unfortunate for political reasons.

First stage of community efforts was successful - a group of activists from Loni village with the assistance of regional government had organized fundraising among villagers to pay for the architectural investigation and restoration project plan at the Ukrainian scientific restoration institute. When the project was completed, during 2011 community organized more fundraising this time among locals and outsiders through the Internet and NGOs and began to look for a contractor.

In Ukrainian realities, actual restoration works are rather detached from the stage of investigation and planning and can be performed by any building contractor that holds an appropriate license from the National Building Architectural Inspection. One recognized leader in this field is "Lviv Restavratsia" - a restoration company that regularly gets contracts from the government, therefore, more experienced and resourceful. However, Loni community could not afford their services, so they hired another licensed company that offered a lower price for the list of works, but turned out to be incompetent. Reconstruction that commenced in 2012 had stopped after very initial reinforcement and inappropriate additions.

Now the activists from Loni village are searching for another contractor and struggling to get the money refunded from initial company while the rest of local villagers seem to be utterly discouraged from participating in community initiatives ever again.

In essence, the failure of community efforts was caused by the shortfalls of the state heritage management system: lack of consultation, not transparent and not efficient architectural licensing system and ineffectiveness of author control over the restoration project. Currently, there is no adequate governmental support system in cases where initiative and funding for the preservation comes from a local community.

4. Heritage Preservation in Traditional Eco-Cultural Zone. Matkiv Village

We use the term traditional eco-cultural zone for rural forested regions of Western Ukraine that roughly coincide with Carpathian Mountains ridges. Apart from the cities, people of this region are still living from traditional crafts and trades and use century's old building techniques for both sacred and secular architecture. When it comes to heritage preservation, it is a common practice to hire local craftsmen that would perform most of technical tasks under the supervision of a conservational expert, thus cutting the costs and ensuring the quality and coherence of building tradition. Instead, the main problem characteristic for this area is uncertified repairs of cultural property.

One of the places where traditions of vernacular architecture are still viable is Matkiv village in Lviv region. Located in 153 km from Lviv, close to the Polish border, before the First World War this region was part of the Austrian Empire. Houses here are made of wood by local carpenters or carpenters from neighboring villages with the use of traditional blockhouse technique. (fig. 3)

Matkiv community takes care of two wooden churches: Church of St. Dmytro built in 1838 and Church of St. Trinity built in 1899. The former recently was inscribed to World Heritage list as a component part of Poland-Ukraine transnational cultural property.

Church of St. Dmytro is a prominent representative of the Boyko architectural style, three-partite, with tall octagonal towers formed by series of projecting roofs - a silhouette that is noted for its oriental charm.

Throughout its history the church underwent two major restorations: in 1928 and in 1939⁵, during which the structure acquired some additions in plan, walls were clad with board-and-batten and roofs were covered with metal sheets instead of traditional wooden shingles. Despite these alternations the present building is maintained in a good state, regular repairs are being made by local craftsmen with supervision of heritage authorities. Moreover, the owner of the property - Ukrainian Greek Catholic congregation of Matkiv - has signed a protection agreement with the State National Cultural Heritage Service.

As asserted in the Nomination file for World Heritage list inscription: “Steps were taken to carry out urgent procedures required to restore the monument’s appearance, namely the restoration of the shingled roofs and walls above the skirt roof, and the uncovering of small domes and log-constructions within the first tier. [...] A reproduction of a traditional fence with gate and wicket is planned.”⁶ The aforementioned reconstruction of the fence is currently in progress as it can be seen at the picture taken in June 2014 (fig. 4). However, the replacement of metal roof sheets and uncovering of the first tier wooden structure is unlikely to happen due to the reluctance of local community.

In response to my question, whether or not the church will be covered by wooden shingles, old lady living nearby answered proudly: “Wooden shingles? No, no, now that it’s World Heritage, they are going to cover it with something really expensive”. Another senior villager told us how he was supplying heritage authorities and investigators with documents from the village archive to prove the point, that this is how the church used to look like in the “golden age” of the village, when it was part of the Austrian Empire, therefore, it should be remained in the present state.

Wooden shingles - *gont* - were traditionally used to cover the roofs of wooden buildings; they protected the building from precipitations meanwhile allowing enough ventilation for the structures. *Gont* needs to be renewed every 30 years and requires a lot of manual labor since the shingles need to be chopped by axe for better water repellence. With progressing deforestation, another cheaper and practical solution was found and from the beginning of the 20th century almost all wooden churches were covered with sheet metal. What had started as a necessity very soon turned into fashion, and nowadays gilded, decoratively pressed and curved roof sheets that glitter in the sun became an inhere feature of any church, their light associated with holiness in hearts of believers (fig. 5). Thus, churches coated with *gont* are very rear and signify outstanding conservation efforts of community, highly appreciated by art historians and folk architecture enthusiasts. More importantly, the restoration of authentic *gont* roofing is essential not merely for aesthetic satisfaction but also for the better preservation of the whole structure: metal parts condensate humidity under temperature fluctuations thus leading to a quicker wood decay.⁷

The preferences of the local community in design and material towards shiny metals reflect the present situation of uncertified changes and additions to historic wooden churches all over Ukraine. Having bigger capacities than Loni village in terms of resources and traditional carpentry, Matkiv community has a different vision of their heritage. Depending on the point of view, it can be seen as a tradition yielding to the pop-culture or, on the contrary, the evolution of a living tradition. After all, there has always been a tendency to imitate famous sacred architecture with the existing means as well as the desire to make a local church outstanding among the neighbors.

In the case of Matkiv village, series of concessions had been done from both sides - the government and the local community - which resulted in a very successful heritage preservation example. In other cases, however, over-forcing the authentic design and government control over repairs and additions in traditional communities may lead to church abandonment or even destruction.

5. Conclusion

State-community relations in heritage preservation in Ukraine can be described by 3 models: 1) state-controlled, - when the state has an actual control over all aspects of preservation (open-air museums, churches in state property); 2) state-assisted, - when community bears initiative and funding but relies on governmental assistance in management and execution (Loni case); 3) community controlled, - when community de facto has an ability to control all aspects of preservation and government makes efforts to enforce heritage legislation through prohibitions, education or negotiation.

⁵ (Slobodyan, 1998).

⁶ (Wooden Tserkvas of the Carpathian Region in Poland and Ukraine, 2011).

⁷ (Bolotskih et al., 2006).

Given that Ukrainian heritage authorities are able to control and subsidize only a small part of historical churches spread all over the country, in order to preserve the rest as an important part of local identity and linkage of generations, there is an urgent need to support community-based preservation initiatives.

As we saw on examples of Loni and Matkiv villages, communities with functioning carpentry traditions and without have different needs, values and preferences when it comes to heritage preservation activities (tab.1). The differences in perception of heritage in traditional and non-traditional environments reflect the conceptual shift in the heritage philosophy from preserving the *unicum* to preserving the *typicum*.⁸ In Loni village the old church is the only remaining evidence of traditional craftsmanship, therefore, there is a common intention to preserve it as a landmark. Meanwhile, in Matkiv village where traditional timber structures are typical, there is less desire to maintain authenticity of material and design of the monument. Wooden church here is an important part of community's life, perceived more like a second home that community would sustain in good condition autonomously but according to their preferences. Such reality calls for a thorough revision of the values embodied in sacred wooden heritage and policies for their effective preservation in cooperation with local communities.

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⁸ (Cominelli, 2011).



Figure 1: Wooden Church from Kryvka village transferred to the Lviv Museum of Folk Architecture and Culture demonstrating an exemplary conservational state (June, 2014).



Figure 3: Modern wooden house in Matkiv village built with traditional dove:tail blockhouse technique (June, 2014).

Figure 2: Wooden Church of the Synaxis of the Blessed Virgin Marry after unsuccessful community:driven conservational efforts (June, 2014).



Figure 4: Church of St. Dmytro in Matkiv village. Reconstruction of the traditional fence. (June, 2014)



Figure 5: Church of St. Trinity in Matkiv village acquiring new shiny roof covers (June, 2014).

	Loni	Matkiv
Needs (Assistance from government)	Consultation Documentation Management Craftsmanship	Consultation Documentation
Values	Historical Social Identity	Functional Religious Aesthetic
Preferences	Authentic design Scientific conservation Cheaper costs	Expensive:looking design Functionality Freedom of access and maintenanc e

Figure 6: Comparative table of Loni and Matkiv communities needs, values and preferences in terms of the restoration of cultural property.

Conservation and Rehabilitation Plan for the Earthen Kasbah of Taourirt in Southern Morocco

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Abstract

The pre-Saharan valleys of southern Morocco are home to thousands of earthen *kasbahs* and *ksour*, or fortified earthen settlements. These historic sites are unfortunately being lost at an alarming rate. In 2011 the Getty Conservation Institute (GCI) partnered with the *Centre de Conservation et de Réhabilitation du Patrimoine Architectural des Zones Atlasiques et Subatlasiques* (CERKAS) to develop a Conservation and Rehabilitation Plan (CRP) for one of the region's most significant earthen sites, the Kasbah of Taourirt in Ouarzazate. The CRP aims to develop a methodology for preserving this traditional ensemble as a model for similar sites in the region. This paper presents a summary and critical view of the different activities involved in producing the CRP.

Keywords: *Earthen Architecture; Rehabilitation; Traditional Building Techniques; Conservation Planning*

1. Introduction

Home to a rich tradition of earthen construction, the pre-Saharan region of southern Morocco, which includes the Draá, Dadès, Ounila and Ziz valleys, is an important center of Berber culture and earthen architecture that contains approximately 300 *kasbahs* and 4,000 *ksour* (*ksar* in the singular). A *ksar* is a fortified earthen village, while a *kasbah* is a fortified home built for a ruling family. These magnificent earthen sites are nationally and internationally recognized as culturally significant for their aesthetic, social and cultural values, and as physical evidence of the historical development of Berber culture in southern Morocco. However, through obsolescence and abandonment, these sites are increasingly threatened and many of them may eventually be lost. This is due partly to changes in the economic and social structures that originally supported them - an issue common to many regions with an earthen building tradition.

The *Ksar* of Taourirt is an emblematic earthen settlement and oasis dating from the 17th century that is strategically located at the intersection of major trans-Saharan trade routes and is now incorporated within the modern city of Ouarzazate. Located at its core is the fortified Kasbah of Taourirt (fig. 1). Registered as a National Monument in 1954, Kasbah Taourirt was originally one of the residences of the Glaoui, a powerful family of tribal rulers which controlled the region during late 19th and early 20th centuries. It is a nationally recognized symbol of the Berber culture and is composed of different earthen buildings types of high architectural, social and historic significance.

In 2011 the Getty Conservation Institute (GCI) joined forces with CERKAS (*Centre de Conservation et de Réhabilitation du Patrimoine Architectural des Zones Atlasiques et Subatlasiques*) to develop a Conservation and Rehabilitation Plan (CRP) for Kasbah Taourirt. The CRP aims to develop a methodology for the conservation and rehabilitation of the kasbah as a model for other similar sites in the region. The objective of the CRP is to establish an appropriate conservation process that respects

the original fabric, preserves traditional earthen building techniques, promotes earthen architecture, develops a participatory process for planning conservation activities, and builds local capacity.

The project is being implemented in three phases: phase one includes documentation of the site and emergency stabilization of critical areas; phase two aims to develop a conservation and rehabilitation plan for the kasbah; phase three will develop a strategy for the dissemination of information about the site and its conservation to local authorities, scholars, and the community.

All phases of the project include workshops and hands-on training in aspects related to the conservation of earthen sites including documentation, rehabilitation planning, wall paintings conservation, analysis of earthen materials, and practical conservation approaches. This paper will present a summary and a critical view of the different activities developed to produce the conservation and rehabilitation plan for Kasbah Taourirt.

2. The kasbah and its evolution

Kasbah Taourirt is located in the city of Ouarzazate at an elevation of 1,160 meters in the middle of a plateau south of the High Atlas Mountains. The kasbah encompasses nearly 12,000 square meters spread over a low ridge and is composed of various interlinked structures including the Caid Residence; the *Médiathèque* and offices of CERKAS; and the Stara, a large area with several residences enclosed by defensive walls. The buildings and defensive walls of the kasbah were built primarily in rammed earth, with adobe bricks used for the construction of the upper parts of towers and cornices, particularly where decorative patterns enrich the facades.

Oral history states that portions of Kasbah Taourirt were constructed beginning in the 17th century, though little fabric from that period remains. The majority of the kasbah dates from the late 19th century, when it became the residence of Si Hammadi el Glaoui, the representative in Taourirt of the Glaoui family who ruled all of Morocco from their stronghold at Telouet. In this period, Si Hammadi expanded the kasbah from an agglomeration of smaller buildings into a large defensive complex encircled by walls and complete with stables, servants quarters, workshops, a market, wells and *hamams*, and residences for his ten wives and numerous children. The Caid's private residence, located in the northeast corner of the site, was richly decorated with painted ceilings and carved plasterwork on the interior, while wrought iron windows and traditional Berber designs adorned the exterior.

Kasbah Taourirt was occupied by the Glaoui family until the end of the French protectorate. In 1954, the kasbah was added to the Moroccan National Heritage List and in 1956, control of the property passed to the Moroccan state. In the early 1960s, the state returned ownership to the Glaoui and in 1972 the kasbah was sold by the Glaoui heirs to the municipality of Ouarzazate. With no inhabitants or maintenance in this period, it rapidly fell into ruin and was largely abandoned until the late 1980s. In 1987, CERKAS was established and with support from the United Nations Development Program (UNDP) and UNESCO, began to restore parts of the building for use as a *Médiathèque*, offices, and spaces for public events.¹ Part of the Caid's private residence was also restored and opened as an architectural museum to the public. Despite these restorations, large areas of the kasbah remained unrestored and suffered gradual deterioration in the intervening years.

Phase 1: Documentation, emergency stabilization and research

The first phase of the project began in 2011 and addressed the documentation of the site and the need for emergency stabilization. While previous documentation surveys had been carried out in portions of the kasbah, they were often incomplete or inaccurate. These drawings, however, were adequate for use in the assessment of urgent conservation measures until a proper survey could be carried out. The conditions assessment in the Stara area of the site identified several areas at risk of immediate collapse, and included a study of drainage patterns aimed at addressing the common problem of basal erosion. Based on the assessment, several critical walls were supported with wooden shoring and water was diverted away from the base of vulnerable buildings. Other basic remedial measures were carried out in the Stara such as debris removal, cleaning and repairs to drainage and roofing. During

¹ (Boussalh, 2009).

this first phase of the project, CERKAS and the GCI worked with Sebastien Moriset of CRAterre to develop the basic remedial measures, wooden shoring and drainage improvements.

In order to develop accurate architectural drawings, a new survey of the kasbah was begun in 2012. Working with Carleton University's Immersive Media Studio, the GCI and CERKAS carried out a comprehensive survey of the kasbah and its various sectors (fig. 2, 3). The survey team employed Total Station and photogrammetry to develop a complete set of drawings including plans, sections and elevations of the kasbah as well as rectified photographic images of principal facades (fig. 4).

In addition to documentation and stabilization, archival and oral history research was carried out. As the largest kasbah in the region, Taourirt has been a favorite subject of artists and photographers and there is a large collection of archival materials including historic photographs and aerial views dating from as early as the mid-19th century. In concert with the documentation work, this archival material was gathered and organized chronologically in a database. Oral history was also an important source of information about the historical use of spaces within the kasbah, and several interviews were conducted with a 99-year-old former servant of the Caid. This research allowed the team to understand changes to the site over time, including additions, demolitions and loss of fabric, and to develop 3D models showing this evolution.

Phase 2: Conservation and rehabilitation planning for Taourirt

The second phase of the project is the development of a conservation and rehabilitation plan to guide future restoration activities and use of the site. With its location in the middle of an active historic city, conserving the kasbah demands a multidisciplinary approach that addresses economic, social, and cultural issues as well as technical challenges. An important component of this phase has been to facilitate discussions between CERKAS, the municipality of Ouarzazate, community groups, governmental organizations, and NGOs about issues and opportunities presented by the site with the objective of arriving at a common vision for Kasbah Taourirt's future use.

Activities carried out as part of the conservation and rehabilitation planning include:

- Community meetings to identify stakeholders and discuss priorities for the preservation and use of the kasbah.
- Identifying the values of the site, drafting a statement of significance, and mapping relative levels of significance and character-defining features in order to guide the rehabilitation proposal and insure appropriate uses of significant historic spaces.
- Carrying out a condition assessment of the kasbah, focusing on identifying critical conditions as well as those that can be addressed longer term.
- Developing overarching policies to guide the rehabilitation which respect international standards and take into account the condition, significance and values of the site.
- Defining physical intervention strategies, including practical conservation approaches and programming for future use of the structures and public areas; preparing technical specifications to guide interventions for the adaptive reuse.
- Developing operational guidelines for maintenance of the site.
- Presenting the conservation and rehabilitation proposal, including the policies and operational guidelines for the kasbah's future use and maintenance to the community.

To date the project has carried out workshops on the assessment of significance and values, as well as drafting the statement of significance. In collaboration with members of the community and local municipality, the project team identified aesthetic, scientific, social and historical values for Kasbah Taourirt. These values were then mapped on plans of the site. This work has assisted in identifying the most significant spaces of the kasbah in order to preserve them during future rehabilitation work.

The team has also worked on issues related to programming for future use of the spaces. This has included highlighting character-defining features and adapting designs for modern services such as electrical wiring, lighting and plumbing to fit within historic spaces without loss of important fabric.

Conservation of painted surfaces in the Caid Residence

An important consideration within the rehabilitation planning process is the care and conservation of significant areas of decorated surfaces at the site. Located in the protected center of the Caid Residence, the decorated rooms were used by the wives and children of the Caid and feature wall paintings, ornate friezes and sculpted plasterwork around doorways and arches (fig. 5).

Wall painting conservators are working with Carleton University and CERKAS staff to carefully document the decorated surfaces, assess current conditions, and research their history and iconographic significance. As part of the documentation, high resolution photographs of the decorated surfaces are taken and a photogrammetric model created from the images. Models are then exported to Meshlab, an open source software, to create orthographic photo elevations. These images are then scaled and arranged in AutoCAD, and printed for use as base images for mapping conditions such as cracks, detachment, and loss (fig. 6, left).² 3D models can then be created to allow a virtual flythrough of the captured rooms and are useful for analyzing structural conditions and for showing the correlation between the architecture and areas of fragile decoration (fig. 6, right). As part of this work, a glossary of conditions was developed to guide the assessment. Non-invasive examination techniques such as ultraviolet and infrared imaging, thermography, and microscopy were also used to study the layers of the paintings and their support.

The assessment has revealed numerous phases of decoration, as well as threats to their survival, including major structural problems in supporting walls, failure of the roof, and large areas of detachment of the painting substrate. In parallel with the detailed assessment of wall paintings, an assessment of structural issues and roofing conditions has been carried out in the Caid Residence. The next phase of this work will include the development of structural interventions that preserves the decorative surfaces intact and subsequent treatment and protection measures for the painted decoration that can be implemented during the restoration of the building.

Preserving traditional earthen building techniques

While rehabilitation planning work is ongoing, structures in the Stara are currently being stabilized and restored using traditional earthen construction and conservation techniques. Many of these structures were occupied by squatters from the 1970s through 1990s and were heavily altered through the demolition of historic walls and features and the construction of new elements in concrete.

The work in the Stara is reversing inappropriate alterations and re-establishing the traditional layout and form of the buildings, which was largely hidden under modern accretions. The restoration work is addressing priority conditions first such as replacing damaged roofs, repairing structural cracks and damaged walls, and eliminating moisture problems and basal erosion (fig. 7, left). This work is guided by the architectural drawings produced by the project as well as surveys carried out which identified new and historic construction.

A workshop has been established on site to facilitate the preparation of earthen materials including plaster, adobe bricks, and rammed earth (fig. 7, right). Roofing materials including wooden beams, reed matting and lime are also processed in the workshop. Local materials brought from the Ouarzazate area are being used in the rehabilitation and skilled craftsmen, known as *Maallem* in local dialect, are training laborers in traditional building crafts and techniques.

Next steps: opportunities and challenges

During the coming field campaigns in fall 2014 and in 2015, the project will continue to plan and implement urgent conservation works in the kasbah including the protection of wall paintings in the Caid Residence and rehabilitation of structures in the Stara. A set of conservation policies for the site as well as programming options for re-use of the buildings will also be developed. Once these elements of the CRP are complete, the project team will present these options to the community and work with local authorities to adopt the plan as a guideline for future conservation activities at the site. The project also aims to make information about Kasbah Taourirt and its conservation available to local authorities, scholars, and the community. To accomplish this, a website is planned that will function as a repository of information such as archival materials, project reports and architectural drawings. In addition, the project team will publish and disseminate the CRP document.

One challenge to the project and its sustainability is insufficient resources, both human and financial. There are few architects trained in conservation and no conservators in Ouarzazate, and little professional expertise outside of CERKAS and its staff. One of the activities of the project has been to reach out to local architecture schools in Marrakech and elsewhere to talk about Morocco's earthen heritage and expose the next generation of Moroccan architects and engineers to the importance of this

² (Ouimet, 2014).

heritage and its conservation. Similarly, building awareness of heritage concepts and approaches on the local level among municipal and cultural authorities is also critical to the long-term success of the project and to ensuring a viable future for Kasbah Taourirt.

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Figure 1: Kasbah Taourirt, view of the northern façade of the Caid Residence. (Scott Warren, 2014)



Figure 2: Project team carrying out survey in the Caid Residence. (Scott Warren, 2014)

Figure 3: Training with total station in the Caid Residence. (Scott Warren, 2014)



Figure 4: Ground floor plan of the Stara sector of Kasbah Taourirt. GCI, 2013.

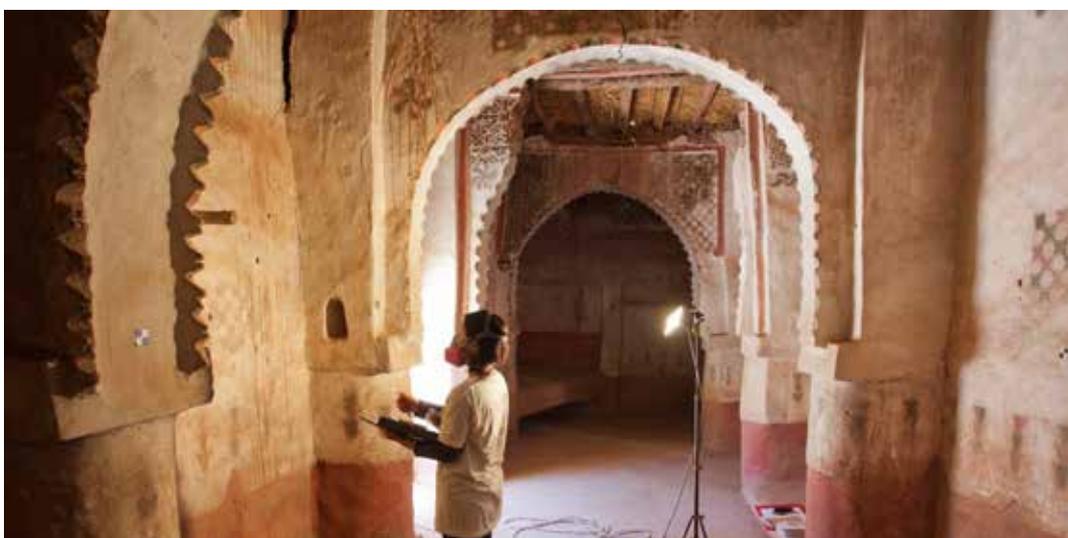


Figure 5: Conditions assessment of wall paintings in the Caid Residence. Photo: Scott Warren, 2014.



Figure 6: Map of conditions in the Caid Residence (left), and 3D orthographic model of a painted room highlighting structural problems (right). Images: Lori Wong and Samuel Whittaker, 2014.

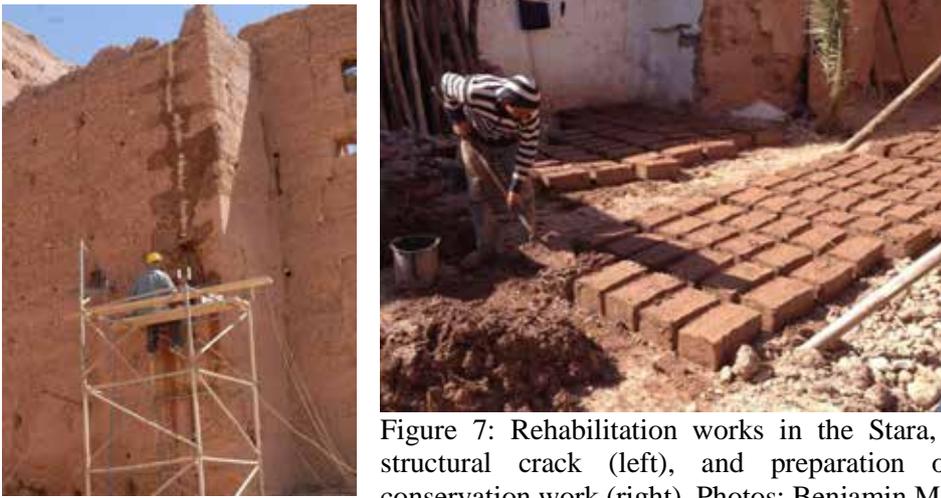


Figure 7: Rehabilitation works in the Stara, including repairing a structural crack (left), and preparation of adobe bricks for conservation work (right). Photos: Benjamin Marcus, 2014.

Agrarian Heritage as a Living Heritage: Principles for Its Recognition and Promotion in the Charter of Baeza on Agrarian Heritage

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Abstract

This contribution disseminates the Charter of Baeza on Agrarian Heritage with the aim to launch public scientific, social and institutional debate on the need to protect the universal importance of heritage properties linked to agriculture, livestock rearing practice and forestry. To do so, this Charter states a set of scientific criteria to identify, define, protect, manage and enhance Agrarian Heritage, basing on its productive and living aspects. Our paper summarizes and explains these criteria, provides a background on the emerging international recognition of Agrarian Heritage and discusses the preliminary results of a comparative analysis of the management of some World Heritage Agrarian Landscapes.

Keywords: *Charter of Baeza on Agrarian Heritage; Agrarian Heritage; Heritage Protection and Management; Cultural Landscapes; World Heritage List*

1. International recognition of Agrarian Heritage: the role of cultural landscapes

The emerging international recognition and protection of Agrarian Heritage has principally occurred in the framework of the GIAHS (Globally Important Agricultural Heritage Systems) of the FAO, and through the inscription of some of its tangible and intangible properties on the UNESCO World Heritage List (WHL) and Representative List of the Intangible Heritage of Humanity.

According to our previous research and analysis (Martínez, 2010, Castillo y Martínez, 2014), the WHL contains thirty-nine cultural properties whose outstanding universal value (OUV) is directly related to agriculture, livestock rearing practice and forestry. Cultural Landscapes are the main category under which these properties are inscribed on the WHL, since this category confers an especial importance to the need for harmonious coexistence with the natural environment, which is an essential attribute of many agrarian landscapes. This recognition is especially important, since the World Heritage Convention considers that farming activity, and its traditional forms of land-use and habitat, support biological and cultural diversity in many regions of the world and are therefore essential for the sustainable conservation and management of cultural landscapes. In some cases, these landscapes also bear witness to people's daily struggle for survival under extreme climatic and environmental conditions (i.e. Pyrénées - Mont Perdu mixed site; Laponian area or the *Aflaj* Irrigation Systems of Oman).

The first landscape of this type, the spectacular Rice Terraces of the Philippine Cordilleras (Province of Ifugao, Luzón Island and Cordilleras Region) (Image 1), was inscribed in 1995 and it 'established an important precedent by identifying the significance of landscapes that evolved in the production of significant staple and economic crops' (Cleere, 2004). By May 2014, thirty cultural landscapes whose OUV is mainly related to the agrarian activity have been inscribed on the WHL. According to the Operational Guidelines for the Implementation of the World Heritage Convention, most of them correspond to the category of organically evolved landscapes and continuing landscapes. Based on the criteria for their inscription they can be classified in nine typological and thematic blocks:

- Landscapes designed and created intentionally by man (Aranjuez Cultural Landscape; Medici Villas and Gardens in Tuscany).
- Vineyard Landscapes (Jurisdiction of Saint-Emilion; Wachau Cultural Landscape- ; Alto Douro Wine Region; Tokaj Wine Region Historic Cultural Landscape; Landscape of the Pico Island Vineyard Culture; Lavaux Vineyard Terraces).
- Landscapes related to other economic crops (Agave Landscape and Ancient Industrial Facilities of Tequila; Stari Grad Plain; Viñales Valley; Archaeological Landscape of the First Coffee Plantations in the South-East of Cuba; Coffee Cultural Landscape of Colombia).

- Landscapes devoted to staple crops (Rice Terraces of the Philippine Cordilleras; Cultural Landscape of Bali Province: the Subak System as a Manifestation of the Tri Hita Karana Philosophy; Cultural Landscape of Honghe Hani Rice Terraces).
- Landscapes whose OUV is mainly related to the vernacular infrastructures and buildings of the agrarian activity (Mill Network at Kinderdijk-Elshout; Palmeral of Elche).
- Landscapes related to nomadic, pastoral and transhumant societies (Madriu-Perafita-Claror Valley; Richtersveld Cultural and Botanical Landscape; Orkhon Valley Cultural Landscape).
- Associative landscapes (Orcia Valley; Sacred Mijikenda Kaya Forests; Koutammakou, the Land of the Batammariba).
- Landscapes significant for conserving all or part of the values and features mentioned above (Amalfitan Coast; Agricultural Landscape of Southern Öland; Landscape of Grand Pré; Bassari Country: Bassari, Fula and Bedik Cultural Landscapes).
- Fossil Landscapes (Ecosystem and Relict Cultural Landscape of Lopé-Okanda; Kuk Early Agricultural Site).

There are another four World Heritage categories under which agrarian heritage properties have been inscribed on the WHL: Mixed cultural and natural heritage (Pyrénées - Mont Perdu; Laponian area; Ecosystem and Relict Cultural Landscape of Lopé-Okanda); Serial properties (Decorated Farmhouses of Hälsingland; *Aflaj* Irrigation Systems of Oman; Fertö / Neusiedlersee Cultural Landscape); Groups of buildings (Trinidad and the Valley de los Ingenios; Provins - Town of Medieval Fairs); and Cultural routes (Incense Route - Desert Cities in the Negev).

In spite of these increasing nominations, there is a general lack of comprehensive studies on Agrarian Heritage, and the existing generally focus on specific case studies (World Heritage Centre, 2013), vineyard landscapes, rural landscapes and landscapes associated with pastoralism, nomadism and vernacular architecture (UNESCO, 2001, 2007; ICOMOS, 2004; Cleere, 2004; Van Olst, 2006). As a result, the establishment of criteria to guide the identification and formal recognition of this heritage, in all its meanings and manifestations, is a relatively recent and pressing subject of study: In contrast to what has been achieved for other heritage categories, such as industrial or vernacular heritage, the absence of a particular and appropriate recognition of Agrarian Heritage, as a multidimensional heritage which embraces different types of tangible and intangible, cultural and natural properties, has led to its underestimation and lack of consideration.

2. The Charter of Baeza on Agrarian Heritage: background and aims

The Charter of Baeza on Agrarian Heritage (Castillo dir., 2013) (image 2), whose main goal is to improve Agrarian Heritage recognition and protection, was drafted by the PAGO Project¹ and approved at the *Meeting of Experts on “The Agrarian Heritage: reasons for the cultural recognition of heritage properties linked to agricultural and livestock rearing practices”*, held at the International University of Andalusia in Baeza (Jaen, Spain) on October 2012. The human, productive, living, evolving and landscape dimensions of Agrarian Heritage, and the identification of creative tools for their enhancement are the keys of this Charter, whose recognition would help to achieve several objectives. The first of them would be the appreciation and respect of the properties and landscapes generated by farming activity throughout history. These properties, in spite of their obvious high value to humanity and universal significance are hardly socially or institutionally considered. To achieve this credit, the Charter promotes a stronger and much needed linkage between the universal values and concepts of modernity, progress and solidarity that exist in many areas of the agrarian world (biological and cultural diversity, sustainable development, sovereignty and security over food, organic agriculture, etc.) and the agricultural, forestry and livestock rearing practices, and most of all, with farmers, shepherds and livestock handlers, ending the derogatory concepts associated to them in many countries.

¹ The I+D+I PAGO Project (*The Agrarian Heritage: The cultural construction of the territory through farming activity*), financed by the Spanish Ministry of Economy, is formed by a broad interdisciplinary team (Art History, Architecture, Geography, Anthropology, Agricultural Engineering and Biology) which develops different lines of investigation (<http://www.patrimonioagrario.es/pago/PRESENTACION.html>) on the identification, protection and enhancement of Agrarian Heritage with the aim to propose its preservation as a new heritage category to the international community.

3. Definition of Agrarian Heritage

The Charter of Baeza defines Agrarian Heritage (Castillo, 2013: 53) as “the group of tangible and intangible, natural and cultural properties generated and used for farming activity throughout history”. The number and variety of properties that belong to this heritage is large: “Movable properties (growth utensils, transportation devices, storage units, documents and bibliographical properties...); Immovable properties (country estates, orchards, granaries, agrarian transformation centres, paddocks and allotments...); Groups of immovable properties (landscapes, rural habitats, irrigation systems, specific agrosystems, livestock trails ...); Intangible heritage (linguistics, traditions and beliefs, ritual and festive events, knowledge, gastronomy and cuisine culture, craftwork and artisanship techniques, living human treasures...); Natural and genetic heritage (local crops varieties, local livestock breeds, seeds, soils, vegetation and related wild animals)” (ibid).

Despite this rich diversity, two basic aspects clearly identify this heritage category and its attached landscapes. The first of them is their productive and alive dimension. The second is their cultural value, which must be regarded from a historical perspective, since agrarian landscapes and activities to be defended and preserved are specially those based on sustainable management traditional practices which are threatened today, among other causes, by highly intensive and industrialized agriculture, uncontrolled urban and infrastructural sprawl and the disappearance of related traditional management skills and trades.

The concept of Agrarian Heritage must embrace all the transcendent values and meanings that agriculture, livestock rearing practice and forestry represent and have represented to people:

- Its crucial and irreplaceable contribution to the feeding of humanity, not only as a fundamental human right-, but also for its importance to reach food sovereignty and a healthy, fair and harmonic way of life.
- Its harmonic integration within the landscape, evidenced in a sustainable and dynamic land use, a respectful adaptation to natural values and a minimal impact on the environmental conditions.
- Its essential identity as part of the relationship between culture and nature, built on the historic process of social and natural systems’ co-evolution. This relationship, and its ecological and sustainable ways of natural resources management, has generated some sustainable and valuable agrosystems and landscapes based on social and collective action, and on the ecological rationality of the farmers and communities that have interacted with the rural agrarian environment.
- Its indispensable contribution to biological diversity - shown in the genetic heterogeneity of local varieties and autochthonous breeds -, and to cultural diversity - evidenced in the large and diverse ways of agrarian management and agrarian landscapes existing worldwide.

For all these reasons, Agrarian Heritage protection can be an important tool to mitigate some of the essential problems of today society, such as environmental degradation, unsustainable resource exploitation and hunger.

4. Protection, planning and management of Agrarian Heritage

To achieve a system of protection consistent with the multidimensional and productive nature of Agrarian Heritage, two basic criteria have to be followed:

- 1) Considering agrarian activity as the cardinal attribute of Agrarian Heritage: Maintaining this productive activity in protected properties and landscapes is the main guarantee for their correct preservation, continuation and enhancement.
- 2) The instruments to protect Agrarian Heritage might be diverse, but they must have a landscape, territorial and inter-administrative scope, able to gather the several heritage manifestations of agricultural and livestock rearing practices and to coordinate them with all related public policies.
- 3) Public authorities should recognize and protect quality brands and local varieties, promoting the dialogue and organization amongst farmers and the exchange of seeds, knowledge and skills, and fostering a fair trade of their produce. There is also a wide range of non-commercial agrarian activities (urban orchards, therapeutic orchards, educational orchards, etc.), or associated to other roles of agrarian landscapes (preservation, leisure, tourism...) to be considered. They can offer an important added value to the main farming activity, especially due to their ability for diversifying social groups, uses and values related to it.

5. Transmission, social awareness, interpretation and tourist sustainable development

The safeguarding of farming traditional management systems and landscapes implies inventorying all its related practices and knowledge and the creation of a training and education system able to ensure its continuous and practice application. Specific territorial museums of the agrarian, like eco-museums, and *in situ* interpretive media able to explain the structure and features of agrarian landscapes, and to break the distance and isolation between farming activity and society through a direct dialogue with the field, should also be implemented.

Finally, creative and sustainable tourist initiatives might also be an excellent tool to achieve a better recognition of Agrarian Heritage and its practitioners. And this because cultural tourism is characterized by the search for new feelings and knowledge, which might be provided by some specific attributes of agrarian landscapes, such as their great visual variability (Image 3). Besides, the consideration of Agrarian Heritage as a living and productive heritage requires communities to lead its tourist management and promotion. Respecting this irrefutable demand will not only help to improve the living standards of farming communities, but also to disseminate their essential and truly universal significance as actors who play a multifunctional comprehensive role in quality food production, environmental protection, land management and the maintenance of rural landscapes, society and culture².

6. The management of Agrarian Landscapes inscribed on the World Heritage List

Although the 39 agrarian heritage properties inscribed on the World Heritage List represent a very positive step to recognize the universal value of this heritage, the comparative analysis of their management systems is very hard, due to several general gaps in the World Heritage protection and information system³.

In order to give a brief illustration of the degree of implementation of the principles identified in the Charter of Baeza as good practices for the protection and enhancement of Agrarian Heritage, it is worth stressing the Management Plans of the following World Heritage Agrarian Landscapes:

- Landscape of the Pico Island Vineyard Culture (Portugal, 2004): The nomination file of this Portuguese vineyard landscape identifies the lack of maintenance of traditional agriculture as the main negative factor affecting the property. It also states the following exemplary actions according to the values and attributes of Agrarian Heritage, and the development of sustainable tourism as a key activity to reinforce the living standards of local communities: "It is quite essential to highlight the role that agriculture can play as an element for landscape preservation. Tourism, as a factor of economic development, can also be beneficial for the local communities, as long as it can concur towards the correct dissemination of genuine cultural values of wine growing, associated to other cultural and natural values (...). To preserve their character, the Protected Regional Vineyards must come up as a factor for the sustained development of the island, no longer a memory of the past, but rather envisaging themselves as the near future (...)". Amongst the specific actions proposed, the following must be highlighted: A regulation decree which establishes the supporting system to the rehabilitation of the traditional landscape of vineyard culture in "currais"; Creation of tourist routes and information of related landscape places, and guided wine routes to previously selected private cellars; Support to the commercialization of small productions and creation of new brands; Creation of labels differentiated by crops and degree of quality; Creation of scholarships for research and study the historical evolution of the territory occupation with vineyard fields; etc.

² The diversity of new possible approaches to tourist activities in agrarian heritage properties is very significant: First, the high variability of agrarian landscapes can help us to adjust seasonal tourist demand and to repeat visits to particular sites and regions by very diverse target groups. And, second, agrarian landscapes demand a relaxed, paused and continuous observation, bringing an excellent opportunity to attract the very successful "slow movements" that advocate for new, creative and relaxing ways of tourist and citizen enjoyment. This includes all niches of active tourism and the enhancement of the economy of experience, which might be very useful for the tourist valorisation of many intangible manifestations of Agrarian Heritage, such as crafts, organic products and gastronomy.

³ The most important of them are the absence of public management plans in many listed properties and the lack of actualization of many of those existing.

- Decorated Farmhouses of Hälsingland (Sweden, 2014): The most remarkable contribution of this serial property is the recognition of the importance of the traditional knowledge associated to Agrarian Heritage. Its Management Plan is particularly interesting due to on-going farm support programs. Farmers can take advantage of the Environment and Countryside Programme jointly financed by Sweden and the European Union, partly through reimbursement paid in the form of support connected to cultivation, the keeping of cattle and other farm animals and the management of biological diversity and cultural or historic environments. Activities that lead to the diversification of agriculture, the improvement of agricultural products, the development of tourism and other rural industries are provided within the field of socially sustainable development. In addition, in 1999-2005 Sweden adopted 16 environmental quality objectives that focus on the need of varied agricultural activities for this landscape and the preservation and enhancement of the genetic variation in domesticated animals and plants, and biological, cultural and historical assets that are the result of long traditional management.

- Cultural Landscape of Bali Province - the Subak System as a Manifestation of the Tri Hita Karana Philosophy: As stated in its nomination file, Subak “is a unique Balinese social and religious institution; a self-governing, democratic organization of farmers who share responsibility for the just and efficient use of irrigation water to grow paddy rice”. In order to sustain this very significant and effective tradition, the Management Plan sets out several specific actions, amongst which we stress the following: Social learning and research; Conservation and promotion of ecosystem services and material culture; Comprehensive and participatory assessment, planning and design; Capacity building for adaptive co-management of complex social ecological system and appropriate tourism development.

7. Conclusions

Although its formal recognition and characterization is incipient, Agrarian Heritage begins to emerge as a subject that could have a significant international presence and valuation in the future, as evidenced by the growing interest shown by most important international organizations and programs on cultural and natural heritage and on food and agriculture.

The comparative analysis of the management plans of the agrarian heritage properties inscribed on the World Heritage List shows the validity of the principles of the Charter of Baeza. However, and despite almost all nominations stress the continuation of traditional agrarian activity as a critical factor to ensure the effective maintenance and enhancement of these properties, there is still a general social and institutional misunderstanding of the heritage value of these practices and their essential role in landscape conservation. To achieve their adequate consideration we need to implement creative, legal, sustainable, educative and socially inclusive tools able to protect Agrarian Heritage and to increase farming communities' living standards and social recognition. We hope that the dissemination of the Charter of Baeza within ICOMOS will be a significant contribution in this regard.

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Image 1: The Rice Terraces of the Philippine Cordilleras, inscribed on the World Heritage List in 1995, are an outstanding example of the strong linkage between the cultural, natural and intangible

Image 2: Publication of the Charter of Baeza on Agrarian Heritage. © PAGO Project

Image 3: The Vega of Granada (Spain) is an agrarian landscape of great cultural value constructed by Muslims in the eleventh century, which has preserved not only its entire original medieval structure, but also its extraordinary high visual variability. © José Castillo Ruiz.



Pierre sèche, la tradition au service des terroirs durables

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Résumé

Pour figurer sur la liste du patrimoine mondial, un site doit avoir une valeur universelle exceptionnelle. Ainsi les grands sites de terrasses de culture sont-ils à l'honneur. Cependant, à y regarder de plus près, certains ont remplacé la maçonnerie en pierre sèche qui préexistaient. Parce qu'elle a la conviction que la pierre sèche est un choix d'avenir, La Société scientifique internationale pluridisciplinaire pour la pierre sèche (SPS) met expertise et passion à disposition pour que soit exigé le maintien de la vraie pierre sèche dans les politiques de protection ou d'aménagement des paysages.

1. Une ressource locale : la pierre et les hommes

La compréhension d'un lieu par l'observation - des végétaux préexistant, des reliefs, des vents dominants, de l'ensoleillement selon les saisons et selon les masques autour de lui, également la pluviométrie - a conduit l'homme à façonner un terroir vivrier toujours cohérent avec ses capacités. En effet, tout en cherchant à répondre à ses besoins, il a su user de ressources avec parcimonie et ingéniosité. Gérer la ressource en eau, en terre, en pierre, en bois mais aussi organiser l'espace, dans l'objectif d'obtenir une terre à cultiver ou des terres d'élevage. La technique à pierre sèche permet tout cela. Les paysages qu'elle produit sont particulièrement plaisants, apaisants ou spectaculaires selon les dénivellés, et c'est pourquoi ils sont aujourd'hui mentionnés comme authentiques et leur pouvoir attractif est-il touristiquement marchands.

La pierre sèche est partout où la géologie et la géographie des lieux l'imposent en tant que matériau local à portée de main. Elle répond tant aux préoccupations viticoles et pastorales, qu'aux préoccupations environnementales. Autant de vecteurs favorables à une pratique durable et vertueuse pour nos campagnes.

2. Une pratique locale : la pierre sèche est ancestrale, universelle et durable

Si le système constructif à pierre sèche est indéniablement une pratique universelle et intemporelle, en vérité, la révolution des techniques du XXème siècle est responsable d'une mutation radicale. Dès lors, la pierre sèche subit une image négative qui la pénalise encore trop à ce jour. Elle est cataloguée d'obsolette, de trop fragile, de trop chère. Progressivement, en quelques décennies seulement les savoirs se sont taris. Mais comme elle est séduisante, elle est reproduite autrement : béton, enrochement, gabion (cage parallépipédique de fer remplie de pierres en vrac) ont définitivement eu raison de notre patrimoine routier en pierre ou pierre sèche, même les routes les plus touristiques subissent ces outrages. Allègrement répandu, ces choix mettent au rebus ce patrimoine matériel et marquent une rupture dans la transmission de ce patrimoine immatériel.

Certes, moins onéreux à l'investissement, plus rapide à la mise en oeuvre, le parpaing de béton industrialisé a rendu de multiples services. Néanmoins, dès lors que le béton est habillé d'un parement pierre, les coûts se rapprochent et de toute évidence les profils des murs sont alors trop minces, trop verticaux, trop raides et l'effet originel est perdu, le charme du lieu est édulcoré. Par ailleurs, c'est uniquement dans les cas où le chantier est inaccessible aux engins de chantiers, en haute montagne par exemple, que la vraie pierre sèche, celle qui ne nécessite que quelques outils en poche et beaucoup de savoir-faire, devient la solution: hélicopter les hommes est moins prohibitif qu'assurer un va et vient constant de matériels et de matériaux. Sans compter que la vraie pierre sèche fait preuve d'une durée

de vie bien plus performante et d'une analyse du cycle de vie (ACV) très pertinente. Constat non négligeable, les barbacanes d'un mur conventionnel s'obstruent plus vite que les vides d'un mur en pierre sèche. Cela fragilise considérablement l'ouvrage qui peut rompre sans prévenir, alors qu'un mur en pierre sèche se déformera et l'apparition d'un ventre saura inquiéter. Faire plus vite et moins cher, sans discernement, peut s'avérer être une vision lucrative à très court terme.

La Pierre Sèche est une technique tout à la fois ancestrale et innovante car elle engage les 3 piliers du Développement Durable : socio-économique, culturel, environnemental.

La Pierre Sèche ne touche pas, ou peu, le secteur de l'habitation, hormis qu'elle participe à l'émergence des matériaux premiers (pierre, terre crue) et bio-sourcés (bois - chanvre - paille de riz, de lavande, de seigle, de blé...) réapparus depuis peu avec cette notion d'écoconstruction, qualifiée d'innovante (et observées de près par les industriels à l'affût de "greenwashing" !). Finalement, n'est-ce pas simplement renouer avec des techniques oubliées sur lesquelles on pose un regard neuf et tout plein de calculs que l'on nomme approche de performances énergétiques ?

La Pierre Sèche construit les espaces d'accompagnement du bâti (clôture, jardin en terrasses, rampe, calade, plateforme...).

3. Un rôle notable : la pierre sèche entretient les qualités des paysages qu'elle a façonné

Spontanément, l'homme a cherché à valoriser les coteaux les mieux exposés au soleil. Pour en faciliter l'usage, il a dû les modeler. Quoi de plus cohérent que de recourir à la pierre d'épierrement ?

Le phénomène est spectaculaire notamment dans le Valais, en Suisse, où pour maintenir des terrasses viticoles dans une forte déclivité, la technique de pierre sèche est encore bien présente. Sur l'adret, la pierre accumule la chaleur du soleil pendant le jour. Le décalage conséquent à l'inertie des pierres va faire en sorte que cette chaleur se diffusera pendant la nuit, créant un micro climat propice au bien-être des pieds de vigne. L'humidité dans l'épaisseur des murs et les anfractuosités entre les pierres sont très appréciées par une faune et une flore qui s'y abritent et cet écosystème équilibre le milieu. L'absence de liant entre les pierres et la présence d'un drain à l'arrière des murs de soutènement, contribuent à lutter contre l'érosion des terres. En effet, par fortes pluies, non seulement l'aménagement des pentes en escalier permet de ralentir le ruissellement rapide et sert de bassin de rétention - l'eau a le temps de s'infiltrer sur chacune des banquettes - mais encore les interstices sur toute la surface du mur et dans toute son épaisseur, sont autant de mini barbacanes qui rejettent l'excès d'eau.

4. La mutation des pratiques, modernité ou impasse ?

Les systèmes constructifs conventionnels qui prennent place, nient le patrimoine, appauvrissent la biodiversité, leurs barbacanes s'obstruent et lorsqu'ils cèdent sous la pression de l'eau, aucune pierre n'est récupérable tant elle est enrobée de ciment. L'évacuation des gravats pose plusieurs autres inconvénients, qui pèsent sur la problématique mondiale des déchets.

A cette fonction essentielle de drainage, s'ajoute à la pierre sèche les fonctions de protection :

- seuils en pierre sèche dans les fonds de talwegs en montagne pour lutter contre l'érosion liée à la fonte des neiges,
- perrés des rives de lacs contre le ressac et perrés des berges des cours d'eau contre les périodes torrentielles - qui sinon arracheraient la terre des champs riverains et racleraient le sol jusqu'à la roche mère.

D'où l'intérêt des techniques ancestrales pour gérer les débits et préserver la terre !

- pare-avalanche en forme de proue de navire pour écarter les coulées de neiges et de boues des chalets de montagne,
- pare-éboulis en travers des couloirs, lesquels servent à tracer les chemins de randonnées en montagne,

D'où l'intérêt des techniques ancestrales pour diminuer les conséquences de catastrophes naturelles !

D'autres terroirs reviennent progressivement vers cette technique traditionnelle car ils acquièrent la conviction que ces ouvrages en pierre sèche participent non seulement à l'harmonie du patrimoine paysager - l'œuvre paysagère est la fierté des hommes et la clé marketing du terroir - mais également à la qualité sanitaire et gustative des cultures. Notamment, ce complexe terre/pierre/climat confère toute sa typicité au vin.

C'est pourquoi, certains territoires investissent dans la formation d'équipes d'entretien. Tel est le cas du *Grand Site de France Solutré, Pouilly, Vergisson* en Bourgogne et des *Domaines Schlumberger* en Alsace. Maintenir les ouvrages en pierre sèche, voire les multiplier, c'est bénéficier ainsi de valeurs qu'aucun autre système constructif ne parvient à cumuler. Qui plus est, certains agronomes ont pu constater combien négliger l'entretien des murs, ou avoir recours au béton, non seulement finissait par heurter l'identité du paysage qu'avaient façonné à grand peine leurs ancêtres, mais qu'à l'usage, les ouvrages étaient moins efficaces, moins pérennes et que certains prédateurs de vignes réapparaissaient. Les vignerons ont grand intérêt à se former pour être en capacité de déceler les faiblesses de leurs murs, d'intervenir ou de faire appel au murailleur pour réparer une brèche. L'authenticité et la beauté de leur vignes attirent un tourisme culturel et gourmet, pour lequel ils sont fiers de souligner leur soucis de protection du patrimoine et leur contribution à l'environnement.

Par ailleurs, dans leur quête permanente d'attractivité et de concurrence économique, les collectivités territoriales oublient que les vecteurs de développement de leur territoire sont liés aussi à ce qu'il est capable de capter. Cadre de vie, qualité de vie, gestion vertueuse et économe de l'espace vis à vis de l'environnement, sont des ingrédients essentiels pour une recette gagante et des retombées économiques.

5. Une expertise internationale : savoir-faire, convictions et passions, mutualisés au service de la pierre sèche

Si au départ, l'homme a apprivoisé son milieu naturel, la mise à disposition de machines et de produits industriels l'a propulsé dans une conquête effrénée, faisant table rase des pratiques ancestrales.

Cette surconsommation est compromise aujourd'hui. Une prise de conscience des limites, puis, dans la réappropriation de ces savoir-faire oubliés, une approche innovante. La pierre sèche profite de cet éveil : l'orientation « produire autrement » en utilisant mieux les ressources locales, concerne au plus haut point les acteurs de la pierre sèche que nous représentons.

Depuis bientôt 30 ans, sur plusieurs continents, dans plusieurs disciplines, les précurseurs se regroupent en biennale et échangent inventaires, méthodes et savoirs pour sauvegarder ce patrimoine vernaculaire, paysager et immatériel. Cette coopération réunit praticiens, chercheurs, institutions et territoires. Ainsi, en renouant avec cette technique, une filière professionnelle s'est régénérée, une commande s'exprime et s'oppose aux techniques normalisées pour encourager ce choix alternatif, mais pourtant approuvé, par des siècles d'usages aux quatre coins du monde. L'acculturation des donneurs d'ordres, en passant par celle des assureurs, des bureaux de contrôle techniques et jusqu'aux enseignants, est un de leur fer de lance. Car seule la connaissance apportée aux secteurs du bâtiment, des routes, de l'agriculture, de la gestion des eaux dans les bassins versants, donnera raison et confiance à ce système constructif traditionnel.

Les membres de notre *Société scientifique internationale pluridisciplinaire pour la pierre sèche (SPS)* estiment que l'usage d'autres modes constructifs que le béton, et notamment la pierre naturelle, doivent désormais être réhabilités, voire inventés. Nous constatons, en France, combien la méconnaissance du matériau pierre et de ces techniques, freine considérablement leur usage. Pour ce faire, il est impératif que la pierre naturelle puisse d'une part, être à nouveau enseignée comme matériau du futur dans le secteur du bâtiment - écoles d'ingénieurs, écoles d'architecture, Centre de Formation d'Apprentis (CFA) du bâtiment - mais d'autre part, les valeurs des ouvrages en pierre sèche, doivent être étudiées dans le secteur de l'agriculture, de la forêt, des paysages et de l'environnement.

C'est pourquoi, l'expertise de notre réseau est à disposition pour introduire la pierre sèche dans les politiques de protection ou d'aménagement des paysages.

6. La pierre sèche: un allié incontournable à inscrire et prescrire dans les sites culturels du patrimoine mondial

Tandis que certains paysages sont d'une beauté particulière, non signalée, comme ces murets qui serpentent dans le Jura, ces enclos tirés au cordeau qui trament l'île de Minorque aux Baléares, ou comme ces terrasses viticoles qui escaladent les pentes accidentées de la confluence du Rhin avec la Moselle en Allemagne, d'autres reçoivent les honneurs de l'UNESCO : Cinque Terre et Côte Amalfitaine, Italie ; Haut Douro, Portugal ; Lavaux, Suisse ; Sierra Tramontana, Majorque. Pour autant, si leur labellisation s'est construite sur l'authenticité de leurs terrasses soulignées par la pierre

sèche, curieusement rien ne mentionne ni n'exige l'entretien de ces murs et leur restauration à l'identique. A y regarder de près, en parcourant ces sites d'exception, nous avons constaté avec tristesse combien, cette absence de notification dans le cahier des charges de ces sites, concoure au remplacement de ces ouvrages, voire à leur disparition pure et simple.

Aussi, nous souhaiterions que la pierre sèche, ses ouvrages et son savoir-faire, soient reconnus et cités comme des ressources locales à promouvoir :

1. dans les politiques agricoles et environnementales mises actuellement en œuvre. La pierre est un matériau naturel, extrait à proximité ou de réemploi. Bâtie à sec, ces maçonneries sont adaptées au terrain et intégrées au paysage. Elles favorisent une terre saine propice à la culture bio.
2. Dans le cahier des charges d'entretien des grands paysages.

Notre *Société scientifique internationale pluridisciplinaire pour la pierre sèche (SPS)* sait à quel point collectivement on est plus fort pour aider au maintien, à l'avancement et à la diffusion de bonnes pratiques. C'est pourquoi,

- Constatant que le patrimoine en pierre sèche est toujours menacé de destruction, non seulement par l'absence d'entretien mais encore au nom des contraintes économiques évaluées sur la seule notion de coût d'investissement, et non sur la durée de vie globale et leur durée de service,
- Considérant que la disparition de ce savoir-faire immatériel aussi bien que ces ouvrages drainant constitue un appauvrissement des savoirs et une incohérence avec l'exigence de pratiques durables, dans une échelle humaine et en respect de notre planète, laquelle n'est pas renouvelable,
- Considérant que la protection de ce patrimoine à l'échelon national serait enrichie des savoirs des expériences et des apports d'autres continents que ceux déjà présents dans son réseau – Europe, Australie, Afrique du Nord, Amérique du Nord –
- Elle s'autorise à solliciter l'ICOMOS pour concevoir une convention, des recommandations et des résolutions internationales, en faveur du petit patrimoine rural en pierre sèche - murs de clôtures, soutènements, chemins de randonnées, routes touristiques, jardins remarquables ou jardins ouvriers, domaines agricoles...- . Une telle démonstration aurait valeur de caution scientifique et morale. Elle démontrerait l'importance que présente, pour tous les peuples du monde, la sauvegarde de ces ouvrages irremplaçables à quelque peuple qu'ils appartiennent.

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Image 1 : Murets qui serpentent dans le Jura. - photo Claire CORNU©

Image 2 : Enclos en vallée du Pas, Asturie, Espagne. - photo Claire CORNU©

Energy Performance of Architectural Heritage: Characteristics of the Historic Buildings in Palermo

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Abstract

The current researches on the energy and environmental improvement of historic architecture aim at developing strategies respectful to its aesthetic and material features. This requires a deep knowledge of the characters strictly connected to a local context. This paper focuses on the historic architecture of Palermo and analyses, among its features, those which particularly influence its energy and environmental performance. To this purpose the building typologies introduced by the urban regulations can be useful for a categorization on the basis of the most recent European researches.

Keywords: *Energy Efficiency; Historic Buildings; Thermo-physical Properties; Energy Retrofit*

1. Introduction

The principle of sustainable construction combines resource efficiency and healthiness of the built environment, according to the definition accepted by CIB in 1994¹. In regard to cultural heritage, it has to be applied considering historic architecture as a nonrenewable resource; therefore, measures aimed at its energy and environmental improvement have to respect primarily the needs of conservation. For this purpose, the European directive 2010/31/EU on the energy performance of buildings and almost all its national implementations allow officially protected architectures to be exempted from the achievement of minimum energy requirements, if this “unacceptably alter their character or appearance”. Nevertheless, protected historic constructions are just a part of the architectural heritage: thus many buildings without special artistic value, but important evidence of construction culture, are subject to these energy requirements, whose achievement would cause a heavy modifications of their features. Furthermore, it may be foreseen that the impulse to the improvement of energy performance, which public subsidies promote for private properties, could be extended in the future to monumental architecture: the directive 2012/27/EU, which allows the same exemption of the EPBD, assigns an exemplary role to public bodies’ buildings, often monumental ones, in order to achieve the targets of resource efficiency for 2020.

From a different point of view, historic buildings are a significant portion of the European building stock; therefore their restoration and management, which are aimed at preserving the artefact and assuring the users’ comfort, should be conformed to a lower environmental impact in terms of pollution and resource consumption. The main direction of the current researches is to take advantage from the allowed exemption in order to outline non-standardised improvement strategies; the latter would take into account the hygro-thermal behaviour of historic buildings and adapt to the peculiarities of each construction. To this end the reference to local contexts is important not only for climate conditions, but also for the strong connection it shows to the geometric, material and construction features of historic architecture. However, as for recent constructions, most researches deal with areas where the energy demand for heating prevails. Therefore, because of its variety and extent, the historic architecture of Palermo can be a significant case of study for the Mediterranean climate.

¹ (Kibert, 2013).

2. Legislative framework

The Italian legislation on the energy performance of buildings refers to the division of the national territory into six climate areas. For each of them energy performance requirements are set: some of them are expressed through parameters related to the whole building, while the others refer to the performances of systems and technical elements². Furthermore, the exemption allowed by the directive 2010/31/EU is applied to the architectures included within the framework of the Cultural Heritage and Landscape Code³. In this way no energy performance requirements have to be respected neither by the monumental buildings, nor by those urban fabrics and historic centres which are protected as landscapes. Nevertheless, for the latter the preservation is limited to the external appearance; thus the protection authority is not involved in controlling if possible indoor measures aimed at energy improvement are compatible with the features of the historic construction and its significance. Above all, a great proportion of old centres and minor architectures are not subject to the Cultural Heritage Code; therefore, limits to their modification are only fixed by municipal regulations.

The construction activities on the architectural heritage of Palermo are ruled by specific city plans. Notably, the one which refers to the greatest part of the historic centre⁴ uses a typological method then extended to those constructions which, outside the ancient town, still existed in 1939⁵. According to this approach, the building units of the centre⁶ are described through typologies depending on their historical evolution: these categories are based on the construction age and historical function of buildings, but partly also on their geometric and distribution features. For each typology the permitted works categories are stated (referring to national law definitions) and directions are given about materials and features to be preserved: for monumental architecture only restoration is allowed, while minor constructions can be subject to heavier refurbishment, although aimed at a conservative purpose.

3. Material and construction features of the historic building envelope

To calculate the building energy need for heating and cooling, it is necessary a detailed knowledge of the thermophysical characteristics of materials and of the constitution of its technical elements. Product declarations and quite detailed data collections can be considered for new and recent buildings, where industrial materials and technologies are used. For historic constructions, on the contrary, the heterogeneity of technical elements joins the availability of few thermophysical data. The reference to typical stratigraphies for floors and roofs can be verified when, as usual, the construction solution is visible, while estimating the performances of masonries is difficult: general construction information can be obtained through archival researches, and thermographic analysis allow to identify several inhomogeneities; nevertheless, destructive surveys are often necessary to an in-depth building characterisation, although not always possible.

The historic masonries of Palermo are made up from calcarenite, a light sedimentary rock widespread in the neighbourhood of the town; the use of brick, instead, was essentially limited to structural repair. The first physical and mechanical characterisation of Palermo's calcarenites dates in the second half of the XIX century and highlights a significant variety of densities (from about 1400 to 1850 kg/m³) and compressive strengths (between 3 and 10 N/mm²)⁷. In the same period the first researches concerning calcarenite hygienic characteristics were carried out, notably on air permeability and heat transmission. For the latter, specimens from three quarries were analysed and, according to the testing method used, their heat transmission coefficient was obtained in comparison to that of local brick: the differences ranged from 14% more and 16% less than those of bricks depending on the quarry⁸. It is difficult to find more recent data concerning the thermal conductivity of Palermo's calcarenites: this is because of the quarry exhaustion started in the XIX century; probably it is also due to the traditional and still common practice of identifying these stones as

² The requirements concerning the technical elements of the envelope, notably thermal transmittance and surface mass, are reported by D.Lgs. 192/2005 and D.P.R. 59/2009. Palermo is located in the climatic area B.

³ Legislative decree n. 42, 2004 and subsequent modifications and integrations. For these buildings only the certificate of energy performance and the operation, maintenance and inspections of technical installations are requested.

⁴ Decreto dell'Assessorato del Territorio e dell'Ambiente della Regione Siciliana del 13 luglio 1993. *Norme di attuazione del Piano Particolareggiato esecutivo del Centro Storico di Palermo*.

⁵ Decreto dell'Assessorato del Territorio e dell'ambiente della Regione Siciliana del 13 marzo 2002. *P3b Scheda-norma. Interventi sugli immobili classificati come "Netto Storico". Norme tecniche di attuazione*.

⁶ Defined as the parts of the ancient urban structure whose historical and functional autonomy allow unitary project and modification.

⁷ (Fatta, 1993). Relevant exception is the stone from Denisinni, whose density and compressive strength were notably higher.

⁸ (De Blasi et al., 1891-1893). Here just the highest percentages from test results have been reported.

“tuffi”, denomination peculiar to volcanic rocks with similar physical and mechanical properties. Technical standards⁹ report thermal conductivity values for “tuffi” and “natural, light, sedimentary rock”, but the choice of one or the other can affect even significantly the calculation of the wall thermal transmittance according to UNI EN ISO 6946:2008. A research is being carried out in a monumental building in Palermo and consists of *in situ* measurements of thermal conductance taken in its historic masonries¹⁰. The preliminary findings show for the analysed walls a good correspondence to the calculations based on the thermal conductivity $\lambda=0,63$ W/(mK) attributed to “tuffi” (density 1500 kg/m^3) by the Italian standard UNI 10351:1994. Although the slight difference between these thermal conductivities and the tabular ones for mortars, more detailed research is needed to estimate how the masonry constitution influences its thermal transmittance: the properties of calcarenites and mortars, the quality of construction, the numerous cases of lack of homogeneity (hidden below plasters and in the wall thickness) must be considered.

The thermal transmittance of calcarenite walls, both calculated and based on measurements, is considerably higher than the legislative maximum, namely $0,48 \text{ W/(m}^2\text{K)}$ for the vertical opaque envelope. On the other side, even thin masonries easily satisfy the minimum surface mass (230 kg/m^2) required to give comfort in summer period. Actually a great part of the massive behaviour of the historic building envelope is attributed to masonries: also in the case of Palermo, stone walls are generally thicker than 80 cm at the bottom, thus they also respect the alternative limit $0,12 \text{ W/(m}^2\text{K)}$ fixed for periodic thermal transmittance. However, above all in minor architecture, the addition of several storeys resulted in a substantial reduction of wall thicknesses on the upper levels, more exposed to climatic conditions. Furthermore, the mass of opaque envelope being equal, indoor air temperature is mainly related to the dimensions and shading devices of windows and to the rate of night ventilation¹¹. As for recent constructions, windows and doors are among the most important thermal bridges in the historic building envelope, generally characterized by a quite uniform construction). In the technical tradition of Palermo chestnut wood was especially used, above all for frames. Fir¹² and maple¹³ wood are also attested. Always single glazed, windows had to assure the ventilation and visual comfort but also to protect the indoor environment from overheating. The proportion with the opaque envelope, strictly related to structural and aesthetic issues, contributes to this purpose. Above all, internal or external shutters (the latter often connected to the window frame) are used as shading devices and often coexist. Although the permeability of historic windows contributed to the building hygrothermal balance, repairs can be usually carried out and devices used to improve their performance. However, the heat loss through historic windows is hugely increased by their deterioration, and the subsequent need to substitute them with new ones can involve an excessive improvement of air tightness, increasing the risks of condensation.

4. Building typologies and thermal behaviour

Historic buildings tried to give adequate indoor comfort through an appropriate room distribution, the use of ventilation and thermal buffer spaces (such as attics and basements)¹⁴. The effectiveness of these devices is related to the outdoor environmental context and notably to the peculiarities of each construction. Nevertheless, is generally possible to identify typological features related to the size of buildings, to the way they are aggregated, to the functional organisation of their spaces; these factors influence aspects pertaining to the energy performance of construction such as its compactness, ventilation, the system of thermal areas. The typologies through which the city plans of Palermo describe its architectural heritage, especially those relating to the residential buildings in the historic centre, take also into account geometric features and constant elements of their distribution. Furthermore, each category is connected to ways of refurbishment and maintenance whose purpose is to preserve the building cultural value, hence it expresses the limits to energy improvement set by the conservation needs. Therefore, these typologies, although several limits and the necessity of

⁹ The Italian standard UNI 10351:1994 reports values for “tuffi” ($\rho=1500 \text{ kg/m}^3$ with $\lambda=0,63 \text{ W/mK}$ and $\rho=2300 \text{ kg/m}^3$ with $\lambda=1,7 \text{ W/mK}$), the UNI EN ISO 10456:2008 for “natural, light sedimentary rock” ($\rho=1500 \text{ kg/m}^3$, $\lambda=0,85 \text{ W/mK}$) and “extra soft limestone” ($\rho=1600 \text{ kg/m}^3$, $\lambda=0,85 \text{ W/mK}$), the UNI EN 1745:2012 for “extra soft limestone” ($\rho\leq 1590 \text{ kg/m}^3$, $\lambda=0,85 \text{ W/mK}$).

¹⁰ (Genova et al., 2014). The preliminary findings refer to plastered stone walls made from calcarenite whose density is unknown; their construction dates at the XVII and the XVIII century.

¹¹ (Mammi, 2007).

¹² (Culotta et al., 1998).

¹³ (Giovanetti, ed., 1997).

¹⁴ (Cantin et al., 2010).

modifications, can be useful to study potentialities and lacks in enhancing the energy and environmental performances of Palermo's historic architecture.

Recent and current researches highlight the usefulness of developing a categorisation method in order to assess energy performance and environmental impact of a building stock. The EU project TABULA has classified the European one according to building size and age of construction. For each category the most common systems and envelope stratigraphies have been analysed and the room for energy performance improvement assessed. Referring to cultural heritage, a method is being developed in the EFFESUS project to reduce the building stock of specific historic districts to a manageable number of categories which represent it satisfactorily. To identify energy improvement strategies respectful to the conservation needs, the cultural significance joins geometric and construction features, information about use and energy supply systems.

The poorest buildings in the historic centre of Palermo, named *catoi*, are constituted by original one-room houses; these were progressively raised up to the current number of storeys, usually between three and five, and were often joined in order to enlarge dwellings. In *catoi multipli* this aggregation involved units facing opposite streets and so contributes to crossing ventilation. In *catoi semplici*, which eventually joined units along the same street, only one-sided ventilation usually occurs and the less regular geometry of the stairwell limits its contribution to indoor comfort. The interventions for the refurbishment and adaptation of these buildings to the current residential necessities are significant and allow to substitute technical elements and modify indoor distribution. This is due to the deficiency of outdoor spaces, to the inadequacy of construction solutions which are often considerably deteriorated, to the shortage of decorations, generally limited to the façades. Otherwise, in the buildings described as *palazzetti* and *palazzetti multifamiliari*, which collect a great part of the minor architecture in Palermo's historic centre, the greater attention to formal appearance also results in technical elements such as vault-shaped false ceilings: on one side, they improve the thermal performance of roofs and floors, on the other side they set significant, geometric limits to energy improvement solutions. *Palazzetti* have on a minor scale the same distribution features of aristocratic buildings, from the division of which they sometimes result. Their constant characteristic is the system of entrance hall and stairwell, around which dwellings on different storeys are organised. It can play a significant role in controlling indoor climate and is always completed in "palazzetti" by a courtyard. This one, generally of small dimensions, contributes to the summer cooling of buildings, because of their height, both through shading and ventilation. The courtyard, typical of the compact structure of Mediterranean, historic towns, characterises also the greatest part of Palermo's monumental architecture, where its character is usually magnificent despite the variety of dimensions. It has the greatest proportions in the convents while it is generally smaller in aristocratic buildings.

Palermo's monumental architectures vary significantly in aggregation, size, compactness according to their location in the historic urban structure and their construction evolution. As a consequence, the correspondence to the geometric and distribution features of the buildings, strictly related to their energy demand, is lower if compared with the more homogeneous typologies of minor constructions. The typologies which describe them are based essentially on their original function as single-family aristocratic residences, architectures for public services, religious buildings¹⁵. These functions rarely correspond to the current ones: many constructions have been divided into several housing units, while a great proportion is seat of public offices and institutions, thus resulting in different energy demands. The presence of spaces widely different in dimensions, function and decorations, and often organised on different levels, defines several thermal areas. Moreover, spaces of relevant dimensions (both in surface and height) involve particular needs for systems and indoor climate quality in the virtue of the way of their use. At the same time, their official protection and the strict regulations fixed by the city plan set substantial limits to the energy performance improvement of the building envelope. The typological approach, as above mentioned, has been extended from the historic centre of Palermo to all its architectural heritage. In particular, the great proportion of the XIX century constructions of the town is described through a typology named *edilizia in linea*. This one refers to buildings generally characterized by a system of entrance-stairwell and dwellings on different levels; however, it primarily relates to the features of their urban aggregation. A significant part of the architectures it includes is close to *palazzetti*

¹⁵ This paper refers to convents but not to churches and oratories, which are included in the same typology.

for size and distribution. Furthermore, many buildings realised for richer clients in the second half of the XIX century are distinguished for the presence of a basement (which did not exist in the architecture of the historic centre and was the consequence of the hygienic regulations arisen in that period), for more considerable dimensions, greater spaces, more remarkable ornaments.

The city plan typologies also consider differences in construction techniques, mainly related to the greater complexity and refinement of monumental architecture: as an instance the use of structural vaults, rarely present in minor buildings. In addition, the covering of great spans through trusses and the common use of false ceilings defines attic spaces, even of great extent; they can contribute substantially to reduce the heat transmission through the roof (which is responsible for a great part of the energy consumption of buildings), if they have not been converted into habitable spaces. What is more, many monumental buildings of Palermo results from the aggregation of modest buildings; together with the widespread practice of plaster finishings, this fact reduces the construction differences among the building typologies, especially in regard to masonries. Similarly the historical use of new materials and technologies, notably iron for carpentry during the XIX century, is common in the buildings of this period, but also in the previous architecture, due to the modifications it continued to be subject to.

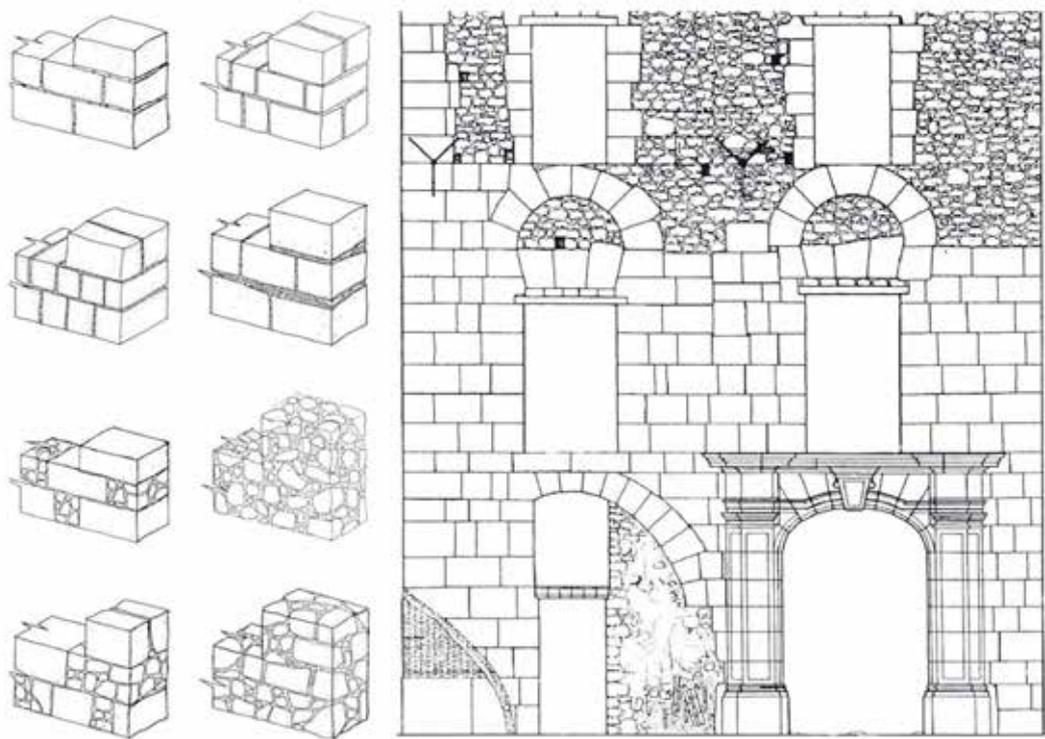
5. Conclusions

In the state of persisting decay of a relevant part of Palermo's historic architecture, the possibilities of energy improvement are significant even for many monumental buildings. However, a detailed analysis is needed about the thermophysical characteristics of its materials and technical elements, in order to identify, on a general level, operational directions useful to the project: calcarenite masonries get over the thermal transmittance limits fixed by legislation even when very thick; nevertheless, they play a key role in the passive behaviour of building and notably in the achievement of summer indoor comfort. Furthermore, is appropriate to match the energy improvement of cultural heritage with the current interventions, primarily focused on structural reinforcement and the adaptation of building services. For this purpose, the usefulness of the typologies which describe the cultural heritage of Palermo has been highlighted. They are directly connected to the allowed works and to the limits aimed at preserving the cultural and documentary value of these constructions. Above all for minor dwellings, they also take into account geometric and distribution features which relate to the building thermal behaviour. Therefore, through an in-depth analysis of these aspects, they can be the basis to investigate the current performance of Palermo's architectural heritage and to identify strategies for its performance improvement to be applied on the basis of the features peculiar to each building.

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Figures 1 and 2: On the left: common types of historic stone walls in Palermo (Campisi and Mutolo, 2003). On the right: inhomogeneity of stone walls in the historic buildings of Palermo (Giovanetti, ed., 1997).



Figure 3: Excerpt from the maps of the city plan P.P.E Centro Storico, which rules the interventions on most of the historic centre of Palermo. Colours identify different typologies and patterns refer to the ways of intervention.



Figures 4 and 5: Historic buildings described as *catoi* (on the left) and *palazzetti* (on the right) in the typological approach of Palermo's city plan.



Figures 6 and 7: Aristocratic buildings described as *palazzi*, subject to the strictest limits of restoration. However, even for significant constructions a quite relevant improvement of the energy performance can be matched with the interventions required by their current state of degradation.

Entre savoir faire et faire savoir : la restauration de l'Albergo dei Poveri di Napoli

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Abstract

Le patrimoine, à travers des choix partagés, est capable de créer des liens entre contexte spatial et réalité sociale, en permettant la mise au point de stratégies opérationnelles ainsi que la récupération des savoirs. L'étude de cas présenté est relatif au projet de restauration du *Real Albergo dei Poveri* à Naples, Italie - un bâtiment de niveau internationale et d'échelle urbaine. L'ensemble des technologies donne des outils de conservation, à travers la récupération de techniques, pour établir un processus de participation sociale pour son usage et son entretien et conservation intégrée.

Mots-clefs : *Savoir traditionnel ; Développement ; Échelle urbaine ; Flexibilité ; Choix partagés*

1. Le patrimoine comme outil de développement

Les nouvelles politiques de développement du paysage-territoire reconnaissent au "patrimoine", à travers des choix partagés de transformation, le rôle de centralité pour le développement socio-économique. Le lien entre contexte spatial et réalité sociale donne au patrimoine matériel une place essentielle dans la définition des stratégies opérationnelles et sur la récupération des savoirs traditionnels.

Les savoirs et les savoir-faire traditionnels ont été considérés, dans l'étude de cas, comme bases de programmes de développement technologique équilibrés, qui posent sur la même ligne et dans le même processus la récupération de techniques et l'usage de matériaux traditionnels, ensemble avec innovation et développement durable. La complexité et l'échelle du projet démontrent, parallèlement, comme le respect des sites doit être construit à travers des processus de décision qui sauvegardent les communautés et les populations. La conservation du patrimoine culturel dépend d'un large éventail de capacités et de professionnalités. Les diverses capacités, ensemble avec la possibilité de employer ou de former un personnel compétent, permet d'organiser autour d'un projet de restauration une équipe qui travaille à la conception et à l'exécution des choix.

La construction d'un nouveau modèle de travail, qui se pose comme adapté et participatif, est demandé par la communauté locale, et se pose aujourd'hui comme indispensable dans le but de améliorer la qualité de vie quotidienne.

L'étude de cas présenté est une expérience sur les savoirs traditionnels dans le projet pilote de restauration du *Real Albergo dei Poveri* à Naples - un bâtiment de niveau internationale et d'échelle urbaine. Le cadre géographique, culturel, institutionnel et administratif d'un bâtiment situé dans le périmètre des territoires privilégiés de la buffer zone du patrimoine mondial UNESCO, participe à la définition du sujet en provoquant des relations différentes significatives et d'échelle entre le bâtiment et son contexte.

2. Perte et récupération des savoirs traditionnels

Les circonstances de la naissance, les vicissitudes de l'histoire, la grandeur des intentions font du *Real Albergo dei Poveri* un unicum. En 1749 Carlo I di Borbone confia à l'architecte florentin Ferdinando Fuga la mission de concevoir un bâtiment immense pour les pauvres du royaume, avec le but politique de donner un exemple, mais aussi un message social à l'Europe illuministe du XVIIIème siècle.

La compréhension du "social royal" voulu par le premier maître d'œuvre guide aujourd'hui la philosophie et l'approche du projet de consolidation et restauration. La compréhension de l'ensemble participe aujourd'hui à l'intention de protéger le corps de la décadence sociale, de réparer aux actions subies, de sauvegarder d'éventuelles dégradations ultérieures et de donner de l'importance à la valeur du bâtiment.

Afin de garantir une réussite et perpétuation du patrimoine culturel, matériel et immatériel, le projet a proposé et reproposé l'adoption de savoirs et techniques traditionnels. Le bâtiment, de propriété de la ville de Naples, a commencé à vivre une saison de renouvellement seulement à partir de l'année 2000, après plus de 20 ans de laissez-faire d'interventions spontanées et de progressive abandon de l'espace, culminé dans les tragiques écroulements suite au tremblement de terre de 1980.

Le savoir traditionnel a eu son rôle dans le développement des civilisations anciennes jusqu'aux années 1950 en Italie : dans les villes du sud du pays l'emploi de matériaux traditionnels locaux et de techniques anciennes a résisté jusqu'aux années 1960-1970. C'est à cette époque que, dans la ville de Naples, la conservation était menacée par la disparition de main-d'œuvre spécialisée et le manque de compréhension de l'usage de matériaux traditionnels. Ce processus a été même renforcé suite aux interventions qui ont été réalisés pour mitiger ou réparer les effets du tremblement de terre de 1980.

En mai 2002, suite à un concours international lancé par la ville de Naples, commence le projet : le cadre opérationnel sur des bâtiments publics, dans certaines Régions en Italie, ne permettait pas de conduire une vaste opération avec l'attention due aux savoirs traditionnels. La proposition de certains savoirs faire et de matériaux traditionnels était considéré comme trop chère, de réalisation complexe contenu des know how des entreprises qui avaient les capacités de conduire les travaux, même moins durables, et sûrement porteurs de résultats incertains dans le processus d'évaluation de la correcte réalisation et peu contrôlables d'un point de vue administratif et de gestion des travaux publics. Les savoirs traditionnels – déjà en danger et en voie de disparition – étaient progressivement remplacés par des pratiques qui adoptaient des nouveaux matériaux et techniques « sans état d'âme », plus rapides, plus performants, plus économiques, plus modernes, plus efficaces. Surtout moins aptes aux besoins réels. Le principe de la substitution des éléments comme enduits, pierres, briques mais aussi menuiseries, ferronneries, et même peintures était préférable à la restauration de ces éléments. Des nouvelles techniques – quelque fois avec des buts de mimésis du résultat - étaient considérées par les conservateurs mêmes et les architectes et ingénieurs auteur du projet préliminaire, comme équivalents aux techniques traditionnels, ou même comme des améliorations plus stables. Le bois lamellé colle à la place du vrai bois, la vaste démolition et substitution des pierres de tuffo volcanique avec des pierres nouvelles coupés à la machine et de formes standardisés donnait l'impression de simplifier les reconfigurations, des nouveaux mortiers pour les joints et les enduits à base de ciments prêt à l'emploi et les peintures aux silicates quartz remplaçaient la chaux et les pigments. Cette attitude était évidente dans l'approche théorique de certains techniciens chargés de la production des projets, dans l'opinion courante de certains parmi les chargés de mission de l'administration publique, non adéquatement formés aux principes de la restauration, et même dans l'approche pratique des entreprises, qui trouvent encore aujourd'hui la possibilité de ne pas faire appel à des ouvriers spécialisés ou à des restaurateurs formés.

Le résultat était d'avoir des projets et des exécutions déjà en œuvre qui manifestaient une perte généralisée de la capacité des professionnels et des ouvriers et artisans locaux à maintenir et transmettre le patrimoine culturel et naturel. Il était possible de constater comme la perte de l'extraordinaire source de savoir et de diversité culturelle empêchait, en même temps, la réalisation des solutions innovantes appropriées que l'équipe d'architectes et ingénieurs s'engageaient à mettre en œuvre dans le projet.

3. Savoirs, environnement et diversité culturelle

En 1965 Peter Collins rappelait l'attention sur la nécessité, pour les générations à venir, de considérer la relation entre bâtiment et "environnement" – l'ambiente, le contexte, les abords, l'espace "autour" -, notion oubliée, selon l'auteur, à partir de la fin de la Première Guerre Mondiale, quand l'attention des architectes "modernes" se concentrait sur l'étude du bâtiment isolé. Après le XIX^{ème} siècle, le siècle des "espaces extérieures"¹, l'histoire de l'architecte contemporain, en se séparant de celle de l'urbaniste, serait devenue articulée autour du compte d'un abandon progressif de l'espace et d'une attention exclusive à l'architecture isolée.

Par contre la parabole du restaurateur semblerait être tout à fait opposée, qui, ultérieurement séparé de l'architecte et de l'urbaniste à cause de la scission entre ancien et contemporain, est passé, dans les

¹Zevi B., *Lo spazio urbanistico dell'Ottocento*, in *Saper vedere l'architettura*, Einaudi, Torino 1948, p. 90-92.

mêmes années, de l'intérêt pour le monument exceptionnel, isolé par rapport au contexte, à la nécessité d'accueillir, parmi les questions disciplinaires et théoriques, son "environnement". En 1964, la Charte de Venise² affirmait les idées de "restauration urbanistique" et de "site urbain" qui, en se reliant aux principes de la Charte d'Athènes du 1931, articulaient le débat culturel entre bâtiment et contexte: en s'ouvrant à la distinction entre "bâtisse" et "architecture", selon le binôme de Croce entre "littérature" et "poésie", on parvenait à la définition d'environnement comme lieu de coexistence et d'articulation entre monuments et bâtiments « mineurs »³.

La dialectique entre l'ancien et le nouveau ouvre au principe de la coexistence, comme garantie de la conservation de l'ancien, dans la nécessité de récupération de la stratification et de la continuité logique de ce processus vers le futur⁴. Le passage de la notion de "monument" à la notion de "bien culturel", ensemble avec les définitions de "restauration des monuments" et "d'urbanisme des centres anciens"⁵, devient portevoix d'une méthodologie d'investigation et de travail qui lie l'observation des caractères environnementaux déterminés par les monuments et le bâtiment mineurs, attribuant la valeur de monuments même aux ouvrages modestes qui ont, avec le temps, acquis une valeur culturelle.

Conjuguer, à travers les prémisses théoriques de la restauration critique, l'ancien au nouveau, en commençant avec le dessin, le relevé, l'analyse architecturale, la recherche historique, la lecture du monument-document, l'observation et l'étude du contexte, en les associant aux exigences des récupération de techniques traditionnelles, de l'usage de matériaux traditionnels, du remploi compatible, du projet architectural durable, à travers des technologies potentiellement réversibles.

Il est possible de remarquer aussi le passage d'une politique de tutelle et de conservation des biens culturels à un dessein plus large, pour lequel la conservation intégrée est aussi facteur de développement économique, quand les relations entre "monument" et "site"⁶, articulées et intégrées avec le concept d'"ensemble" (1978), qui élargit les contenus, en intégrant la spatialité historique et volumétrique avec la spatialité ethnologique et sociale. Ces relations, ultérieurement précisées en 1987, avec la Charte internationale sur la Sauvegarde des Villes historiques (Washington), qui conclut vingt ans de débat culturel⁷. La question de la restauration n'est pas seulement celle de la sauvegarde physique, mais devient aussi celle du remploi et de la revitalisation, avec l'exigence d'étudier le problème de l'adaptation des bâtiments anciens à des fonctions vivantes : le thème, présent déjà dans les premières formulations de la charte d'Athènes, pose au centre la question du remploi et de la compatibilité avec les nouvelles fonctions du bâtiment, de ses structures et de la relation "bâtiment/contexte".

Les tendances actuelles qui déplacent et intègrent la problématique de la restauration et de la conservation urbaine sur le concept plus ample de "infrastructure culturelle" individualisant la conservation comme une activité engagée à la promotion du patrimoine, en contribuant à améliorer l'image et la réalité d'un contexte sociale⁸. La Convention Européenne sur le Paysage, signée à Florence en octobre 2000, a introduit de nouveaux éléments d'attention au contexte, au paysage, en

²Les actes du *II Congresso internazionale del Restauro*, Venise mai 1964, sont publiés dans AA. VV. *Il monumento per l'uomo*, Padova 1971. Le caractéristique de l'urbanisme constitue "la nouvelle note de notre période historique", comme mise en évidence dans les lectures successives critiques de la charte.

³Le thème de *L'ambiente dei monumenti*, était à la base des premières réflexions en Allemagne à partir du XXème siècle, et en Italie à travers les œuvres du milanais Ambrogio Annoni, d'abord, et de l'activité romaine de Gustavo Giovannoni, ensuite, et, à Naples, dans l'œuvre théorique de Roberto Pane.; parmi les autres A. E. Brinkmann, *Platz und Monument : Untersuchungen zur Geschichte und Ästhetik der Stadtbaukunst in neuerer Zeit*, Berlin 1908, rist. Mann, Berlin 2000 e Giovannoni G., *L'ambiente dei monumenti*, in *Questioni di architettura nella storia e nella vita*, Roma 1925.

⁴Pane R., *Città Antiche, Edilizia Nuova*, ESI, Napoli 1959, p.71.

⁵Di Stefano R., *Roberto Pane. La difesa dei valori ambientali*, in "Restauro", 143, 1998, pp. 7-8.

⁶A partir des années '60, le débat sur le rapport entre "monument" et "site" est abordé au niveau européen et internationale à travers les études et confrontation organisés par organismes gouvernementaux et non, en particulier en ce qui concerne la définition de "monument" et "site" formulés par l'ICOMOS, fondé en 1965 à Varsovie.

⁷Il suffit de se rappeler la promotion, parallèlement à la convention sur la protection du patrimoine culturel et naturel mondial de l'UNESCO 1972, le Conseil d'Europe de l'année européenne du patrimoine architectural (1975), terminé avec la *Déclaration d'Amsterdam* et avec la Charte Européenne du Patrimoine Architectural. In nuce on retrouve ici le concept de "Conservation Intégrée", qui serait ensuite reformulée dans la *Convention pour la sauvegarde du patrimoine architectural de l'Europe de Granada*, en 1985.

⁸Les années '90 s'ouvrent avec la Charte d'Aalborg (1994), et les confirmations de la Charte de Lisbonne (1996) et d'Habitat Meeting (1996).

exprimant les valeurs de lieu d'excellence et patrimoine culturel, ensemble avec la conviction de son rôle de ressource pour le développement durable et d'élément essentiel pour le bien-être individuel et social.

Aujourd'hui le concept de valeur du patrimoine des biens culturels est acquis (bâtiments, abords, espaces, place, paysages) comme élément important pour une vie sociale stable et humaine et pour la définition et la construction d'identités communautaires. Les nouvelles politiques de développement du paysage-territoire sont obligées de reconnaître au "patrimoine", à travers l'individualisation de choix partagés pour la transformation, le rôle de centralité pour un développement socio-économique. La pleine conscience du lien entre contexte spatial et réalité sociale donne au patrimoine matériel un rôle essentiel dans la définition des stratégies opérationnelles.

D'un point de vue pratique cela conduit, en cas d'intervention sur l'existant, à renforcer la capacité de recueillir les éléments d'une connaissance collective et de s'engager, à partir des premières phases du projet, à déterminer les acteurs participants à titre différent, et comprendre le sentiment d'appartenance, en relation à la nécessaire, à une acquisition progressive et de confrontation des réalités, à travers la connaissance des lieux, la participation aux choix, ainsi qu'à la configuration des interventions.

Plusieurs pays européens ont commencé à considérer l'ensemble du territoire comme une "toile sans couture" (Ian McHarg), en faveur d'une vision globale du patrimoine, en précisant même d'un point de vue normatif la valeur d'un espace sans limites artificielles en contribuant à faire sortir un sentiment d'appartenance à travers la reconnaissance partagée des valeurs dans leur acception structurelle (physique, fonctionnelle, formelle), cognitive (esthétique, perceptive, interprétative), sociale (interculturelle et multiethnique). Parallèlement, pendant ces années, les thèmes de la qualité du territoire, de la "compatibilité" des transformations, de tout genre et aux différentes échelles, ont intéressé la mise au point d'instruments normatifs, d'adresse de sensibilisation, qui doivent être définis et confrontés, en rapport, aussi, aux événements récents de protestation et mécontentement exprimés dans certains pays avec des actions fortes par des groupes sociaux ou ethniques, jusqu'à maintenant confinés dans des espaces résiduels et logés dans des banlieues sans lieu ni histoire.

L'intervention de projet sur l'existant doit tenir dans la juste considération l'histoire, la signification, l'image et les caractères du territoire, en s'inspirant en syntonie avec la spécificité du contexte. Les œuvres réalisés deviennent ainsi partie intégrante du paysage et qui ont contribué au changement, et les actions, compatibles avec les caractères et les qualités reconnues, peuvent entraîner processus de développement sociale, économique et environnementale, avec formes capables de produire de nouveaux valeurs, de nouvelles qualités et de nouvelles opportunités dans des contextes hétérogènes.

L'action de tutelle et de conservation devient donc activité de projet, l'architecte retrouve aujourd'hui le restaurateur et l'urbaniste, mais aussi le sociologue et l'anthropologue, autour des documents et actions qui introduisent et surlignent le concept de développement durable, en vue de l'élaboration de stratégies pour les villes et pour les territoires, avec des objectifs à long terme. Le document final de la conférence ONU Habitat II, à Istanbul, en surlignant le rôle d'un processus de développement durable dans une ville dans le contexte du planning urbain et territoriale, évoque les "dimensions" institutionnelles, culturelles, éthiques, environnementales, économiques, spirituelles, du projet. Dans ce document sont ainsi indiquées les actions de promotion, de la participation à tout type d'activité culturelle, établant les objectifs de conservation et intégration, en encourageant et soutenant le patrimoine local et les institutions culturelles, associations, communautés dans l'effort de la conservation.

On peut définir aujourd'hui le patrimoine urbain entre l'articulation du cadre matériel (respect de la matière, intégration urbaine et transmission du bien au futur), et des aspects immatériels, (les usages sociaux). La conservation du patrimoine est aujourd'hui une option, où la complexité du bien culturel s'exprime en termes de valeur sociale complexe, construite entre valeurs économiques sociaux et culturels, entre la présence et l'habilité à devenir pole dans une espace d'influence, à l'intérieur d'une stratégie de conservation intégrée. "Humaniser" le développement urbain est parmi les objectifs actuels de la conservation et de l'intervention sur les villes, qu'il faut poursuivre à travers l'actuation de "good choices" et l'individualisation de "best practices", qui restituent le dialogue entre bâtiment et contexte, histoire et contemporanéité, et le sentiment d'appartenance et d'identification avec le contexte urbain.

La conservation des monuments ou des objets à vocation patrimoniale, l'intégration et la ordonnance des contextes urbains, la sauvegarde des formes urbaines, s'accompagnent à la construction contemporaine qui ne s'opposant pas au tissu ancien, intègre le projet urbain à la construction plurielle et multiethnique des sociétés modernes. L'intensification de la communication et de l'information, l'accélération et l'augmentation des flux de capitaux, de biens, de personnes, l'hybridation des cultures et des styles de vie, en bref la globalisation, qui caractérise l'extensionnalité des relations sociales et l'intensification des formes sociales⁹ a déterminé et continue à déterminer la mixité, dans les contextes urbains, de populations qui n'ont pas d'ancêtres, ni de terres, d'histoire, de langue, de traditions en commun. La coprésence, dans un espace physique ou relationnel, de groupes ethniques différentes porteurs de différents patrimoines culturels constitue la base d'une société multiethnique, conçue comme une "agrégation sociale constituée par composants ethniques qui interagissent entre eux et organisent leur comportement sur la base d'une diversité ethnico-culturelle supposée et revendiquée à l'intérieur du groupe ou imposée par l'extérieur"¹⁰.

Se sentir étranger dans un contexte urbain, si l'on « vient de l'étranger », si l'on « parle une langue étrangère », produit l'inquiétude et suspicion de la part des locaux. La solution des problèmes d'intégration sociale, culturelle, religieuse, juridique est dans les lois de l'hospitalité qui "en faisant participer l'ethos en générale ", si est vrai que l'ethos renvoie à l'habit, l'habituelle, l'habitude et donc à l'habiter même, afin de résoudre le rapport avec l'altérité, dans le partage des valeurs patrimoniaux et avec l'offre d'hospitalité à la mémoire et aux souvenirs.¹¹ L'inventaire de la mémoire urbaine passe aussi à travers celui des habitants : restaurer le patrimoine aujourd'hui signifie assurer la vie du bien et la continuité des cultures dans une mosaïque composée.

La multiethnicité implique nécessairement la multi culturalité parce que différents groupes ethniques, présents sur un même territoire, ont par définition une propre culture avec des éléments différents par rapport aux autres cultures. S'il est-il possible de référer les propositions qui soutiennent, dans différentes manières, la reconnaissance officielle des différences à une perspective multiculturelle, le patrimoine culturelle locale assume alors le rôle critique très importante de se constituer en tant que élément fédérateur des différences, car part d'une culture partagée qui agit comme lien social. Intervenir sur le bâti oblige donc à prendre en considération les instances sociales, psychologiques, dans leur acception contemporaine de relations sociales, mais aussi d'imaginaires collectifs, avec des équilibres fragiles qui risquent d'être neutralisés par des opérations radicales et homogénéisant de « nettoyage ».

4. La restauration de l'Auberge des Pauvres

L'adoption de technologies douces, intégrées dans le projet, ensemble avec solutions innovantes appropriées, à travers la valorisation et protection des savoirs faire traditionnels, deviennent moyen de maintenir et transmettre le patrimoine culturel et naturel, ainsi que source de savoir et de diversité culturelle. L'ensemble des technologies utilisés et localisés constituent des outils efficaces pour la conservation moderne, à travers la récupération de techniques traditionnelles d'artisans locaux, en vue d'établir un processus de participation sociale pour son usage.

L'intervention sur l'existant a renforcé la capacité de recueillir les éléments d'une connaissance collective et a déterminé les acteurs participants à titre différent, avec un sentiment d'appartenance, due à une acquisition progressive et de confrontation des réalités, à travers la connaissance des lieux, la participation aux choix, ainsi qu'à la configuration des interventions. L'action de tutelle et de conservation a été conçue comme activité de projet, où l'architecte a retrouvé le restaurateur, et a pu intégrer le travail du menuisier comme celui du ferronnier, autour d'actions qui introduisent un développement durable "humanisé" à travers l'actuation de "good choices" et l'individualisation de "best practices". Le projet restitue le dialogue entre bâtiment et contexte, histoire et contemporanéité, savoirs faire traditionnels et développement et le sentiment d'appartenance et d'identification avec le contexte urbain.

⁹Giddens A., *The Consequences of Modernity*, Polity Press, Cambridge 1990, trad. it. *Le conseguenze della modernità*, Il Mulino, Bologna 1992.

¹⁰Cfr. Cesareo V., a cura di, *Globalizzazione e contesti locali*, FrancoAngeli, Milano 2000, p. 13.

¹¹Jacques Derrida, Anne Dufourmantelle, *De l'hospitalité*, Calmann-Lévy, Paris 1997, trad. it. *Sull'ospitalità. Le riflessioni di uno dei massimi filosofi contemporanei sulle società multiethnique*, Baldini&Castoldi, Milano 2000.

A partir de ses prémisses, avec l'intention d'articuler passé et futur, de mettre de l'ordre dans les lignes de l'état des lieux et dans les perspectives de développement, en le confrontant avec la question de leur pérennité ou de la partielle transmission au futur.

Préserver un patrimoine culturel qui dans sa valeur globale est liée sans solution de continuité avec les biens historiques, monumentaux, et les caractéristiques du contexte, en renforçant les valeurs d'identité en tant que élément fondamentale de la qualité des lieux, et qui est directement mise en relation avec la formation et l'accroissement de la qualité de vie des peuples. Toutes les phases de la méthodologie de la restauration, à partir de l'analyse des lieux, au projet, jusqu'au chantier, deviennent ainsi occasion de développement et participation, afin de augmenter le bien être individuel et social et d'amélioration de la qualité de la vie des peuples en continuant à la sauvegarde de leurs identités. Le projet conjugue un respect philologique de l'histoire du bâtiment et de ses stratifications, de la typologie architecturale, des matériaux et de leur mise en œuvre, ensemble avec des opérations critiques de démolition ou remplacements, en intégrant, dans le dialogue entre histoire et contemporaine, des solutions éco-compatibles de récupération des eaux pluviales, d'énergie solaire, l'adoption de couvertures végétalisées. Des opérations ponctuelles non rapportables pour la conservation du bâtiment sont menées par l'Administration, mais aussi des opérations de "marketing urbain" comme la réfection de la façade et l'aménagement des espaces le long du prospect principal, voulus et projetés par la Ville de Naples.

Le projet de consolidation et de reconfiguration architecturale du Real Albergo dei Poveri, en attendant une ou plusieurs destinations d'utilisation, veut faire sortir les vocations authentiques du monument royal, à travers un processus sensible d'actualisation contemporaine du corps monumental et de l'esprit architectural. Conserver, transmettre, rendre plus facile la lecture historique et esthétique, proposer des solutions là où les questions sont ouvertes, afin de susciter les nouvelles vocations du bâtiment au XXI^{ème} siècle, sont les prémisses et à ce but ont mené les résultats de ce projet.

L'importance de ce bâtiment dans l'histoire, les possibilités que la restauration ouvre au futur, sont un enjeu pour la ville de Naples, mais aussi pour le territoire national, parce qu'emblématique d'une opération de restauration à grande échelle, d'un monument pauvre et royal, deux dimensions qui font partie de l'histoire de la ville de Naples, patrimoine qui représente un royaume déjà européen, aujourd'hui de valeur mondiale. Une étude préalable attentive du monument, dans sa configuration originelle comme dans ses transformations a été menée avant d'établir le projet. A travers la recherche historique, les relevés sur place, l'analyse des tracés régulateurs et des modules, l'analyse architecturale et de l'état de conservation, les sondages et les prélèvements, les investigations sur les surfaces, les matériaux, et le comportement des structures, illustre dans les documentations et rapport joints au projet définitif, il a pu être précisé une nouvelle phase de connaissance du bâtiment.

L'intervention ne se base pas sur des règles dogmatiques, ni veut récupérer une supposée vraie image de l'œuvre, mais veut obtenir des réponses aux problèmes de consolidation structurelle, de réintégration des lacunes, d'élimination des parties rajoutées, de réversibilité et de lisibilité des interventions, de contrôle historique et critique des techniques de restauration, de l'exécution des détails de substitution et d'intégration nécessaires. Le projet veut respecter ce que l'histoire nous a transmis et le transmettre, dans les conditions les meilleures, aux générations futures. La nécessité d'intervenir avec des opérations de consolidation et de reconfiguration architecturale du Real Albergo dei Poveri est donc entendue en tant que volonté de mettre en œuvre tous les moyens de sauvegarde et de restauration du bâtiment afin de garder, quand il est possible, et de redonner l'efficacité au bien, et quand il est nécessaire, d'éclaircir la lecture et en transmettre les valeurs. La restauration, en tant que "instrument de conservation", consolidation et configuration du bâtiment, de protection des murs, des planchers, des surfaces d'origine, du projet soigné de nouvelles structures, de finitions et réseaux quand nécessaire, veut trouver des solutions appropriées, intervenir à protéger et consolider, en éliminant des parties rajoutées et en proposant des alternatives compatibles. Il a été évalué, cas par cas, l'élimination des parties ajoutées non compatibles en relation aux valeurs historiques du bâtiment, ou dangereuses pour l'intégrité formelle et structurelle du bâtiment. Les solutions contemporaines, identifiables, restituent à l'œuvre efficacité et prégnance que le temps a rongée et transformée. Le projet architectural et structurel entend garder, transmettre, augmenter la valeur du monument, avec la consolidation des parties endommagées, avec des reconstructions partielles et des nouvelles structures, en accord avec les concepts d'intervention minimales et de compatibilité structurelle, chimique et

physique et de durabilité. Le but est d'assurer que l'intervention puisse augmenter la lisibilité de l'unité figurative du monument et de ses stratifications historiques. La prise en compte de phénomènes géophysiques et naturels comme les tremblement de terre et les intempéries, mais aussi les ressources comme l'eau et le soleil, permet de viser à une haute qualité environnementale à travers l'usage de énergies écologiques. Des solutions techniques ont été élaborés pour une restauration durable, créer des espaces multifonctionnels et flexibles, comme réponse à la réappropriation sociale et au emploi. Le projet a su moduler les réponses de restauration, le traitement des lacunes, en proportion au degré de connaissance des stratifications historiques. Le emploi rend nécessaire l'ouverture du monument à la ville, qu'il faut concevoir comme tissu ou l'échange et l'interaction entre flux : non seulement il est fondamental de permettre l'accès direct au bâtiment au niveau de la rue, mais il est important de renforcer un projet urbain plus significatif. Le but est de faire rentrer la ville dans le bâtiment avec usage des espaces ouverts comme espaces publics, de cours, des jardins, des lieux de sport, de réunion, de spectacles, de promenades dans l'agora ou dans les cours carrés au premier niveau du bâtiment, dans les cours triangulaires au niveau de la rue. La fermeture, même provisoire, du bâtiment, l'enceinte qui le confine de la rue serait un échec en terme d'image – les gens attendent l'ouverture du bâtiment et non pas sa fermeture, mais ce serait surtout une évidente erreur de stratégie, contenu de l'échelle urbaine du bien monumentale et sa position dans le contexte, qui empêchent l'efficacité de n'importe quelle protection. Cette occasion est propice pour confirmer, dans la ville de Naples, le sentiment d'un projet pilote en vue de la réalisation, d'une conservation. Elle se développe à travers le projet sensible et cohérent avec les valeurs exprimées sur le territoire et une évaluation qui assume les objectifs de qualité comme occasion de réflexion et de référence pour une gestion organique du paysage capable de regarder au-delà du lot de terrain et au-delà des intérêts de la simple administration ou du simple citoyen. Il serait possible d'envisager la prévision d'une réelle conservation intégrée de ce bâtiment, seulement s'il continue à vivre de l'échange osmotique avec la ville et ses habitants, comme déjà la Municipalité a commencé à le faire à travers l'ouverture de parcours de visite accompagnés dans les chantiers ouverts, en enseignant à la ville le sentiment d'appartenance et renforçant la conscience d'un bien, lieu paradoxale de mixité et de séparation sociale, historiquement fermé et confiné par sa destination d'usage, enfin ouvert et librement utilisable. Le défi pour demain se joue précisément sur la capacité que ce bâtiment d'intérêt patrimoniale mondiale aura de s'intégrer avec la ville, et sur les opportunités qu'il sera capable d'offrir à l'intérieur de vivre ensemble avec les différences, avec l'intention d'être une *civitas*, c'est à dire le lieu dans le quel il est possible de vérifier les conditions de ceux qui, dans le bâtiment, se retrouvent avec le sentiment d'être citoyens à plein titre. Le projet conjugue un respect philologique de l'histoire et des stratifications, de la typologie, des matériaux et de leur mise en œuvre, ensemble avec des opérations de démolition, en intégrant, dans le dialogue entre histoire et contemporaine, des solutions éco-compatibles de récupération des eaux pluviales, d'énergie solaire, l'adoption de couvertures végétalisées. En attendant une ou plusieurs destinations d'utilisation, le but est de conserver, transmettre, rendre plus facile la lecture historique et esthétique, proposer des solutions, afin de susciter les nouvelles vocations du bâtiment au XXIème siècle. Le projet marque ainsi le processus d'identité, cohésion sociale, engagement de la communauté et qualité de vie quotidienne, aussi à travers l'intégration d'ouvrier et artisans du quartier, ou même habitant le bâtiment et y travaillant dans leurs usines. Les critères établis sont en accord avec les concepts d'intervention minimale et de compatibilité structurelle, chimique et physique et de durabilité. La création des espaces multifonctionnels et flexibles est la réponse à la réappropriation sociale et au emploi. La réelle conservation intégrée du bâtiment est liée à l'échange osmotique avec la ville: le défi pour demain se joue sur la capacité que ce bâtiment d'intérêt patrimoniale mondiale aura de s'intégrer, et sur les opportunités qu'il sera capable d'offrir à l'intérieur de vivre ensemble avec les différences.

5. Conclusions

L'étude de cas présenté participe des expériences de la « boîte à outils » internationale de gestion du patrimoine. Le sujet et ses implications donnent une contribution au développement sur le discours réhabilitant la tradition, les savoirs traditionnels et les concepts historiques. Ils engagent l'usage de technologies en tant qu'outils efficaces pour la conservation moderne. Il est un exemple de développement des synergies entre savoir traditionnel et sciences, notamment la chimique et physique,

en ce qui concerne les concepts de compatibilité et réversibilité des actions et de bilan énergétique d'un bâtiment. Les architectes, les maîtres d'œuvre et les entreprises doivent être au courant des techniques, du savoir-faire et des matériaux traditionnels et en tenir compte dans les projets de restauration. Les premières opérations ont permis d'identifier les moyens concrets pour établir les savoir-faire en jeux et d'intervenir dans la conservation du patrimoine culturel matériel. L'étude de la manière dont un bâtiment a été conçu et construit est fondamentale pour la restauration et la future conservation du bâtiment. Les usages nouveaux appellent des solutions nouvelles. La réglementation en matière de sécurité et de risque incendie et autre suscite davantage de controverses, par exemple en ce qui concerne l'obligation de ménager des issues de secours et des accès pour handicapés aux bâtiments historiques ou au pont des voiliers anciens. La durabilité et l'efficacité énergétique intègre ce facteurs qui entrent en ligne de compte dans la conservation. Les règlements en matière de sécurité et de risque incendie prêtent davantage à controverse, par exemple l'obligation de ménager des issues de secours et un accès pour handicapés aux bâtiments historiques ou aux ponts des voiliers traditionnels. Des ateliers pourraient s'avérer utiles dans ces domaines. Aujourd'hui la reconnaissance de la valeur des métiers manuels est croissante. Le projet de restauration pourra se considérer terminé quand la conservation du bâtiment sera garantie, en tant que adoption du bâtiment par la collectivité, mais aussi garantie d'un soutien en termes de crédits et de manifestations d'intérêt et de participation, et suivi et de la mise en œuvre d'un programme d'entretien approprié, géré par un équipe de techniciens et ouvriers spécialisés, qui considèrent nécessaire l'intégration des aspects manuels et des aspects intellectuels de la conservation. L'idée que la promotion des métiers anciens et traditionnels est reliable à l'utilité pratique de ceux-ci, à leur durabilité économique et au soutien technique concret à leur apporter nous permet de croire qui est indispensable de coordonner l'éducation, la formation et l'emploi avec sa prééminence traditionnelle dans le domaine du patrimoine culturel et la création d'un réseau des métiers de conservation du patrimoine en partenariat avec le secteur privé. L'importance accordée à l'entretien régulier plutôt qu'à la restauration intégrale pourra permettre que si des techniques et des matériaux nouveaux s'élaborent, et les anciens sont mieux compris et transmis en permettant le maintien des savoir-faire traditionnels. Les nouveaux défis en matière de conservation, notamment dans le contexte de la durabilité comme dans celui des avantages sociaux et économiques de l'investissement dans les métiers du patrimoine, y compris le soutien des collectivités locales défavorisées et l'assistance apportée aux PME pour assurer des emplois durables aux populations locales. Il demeure un réel besoin de formation et, plus généralement, d'échange effectif d'informations. Il serait utile de disposer d'une information en ligne sur les techniques de conservation et les produits recommandés, mais surtout de créer une véritable mise en réseau pratique de métiers du patrimoine, comme projet pilote sur les métiers de conservation architecturale.

Références

Charte européenne du patrimoine architectural et Déclaration d'Amsterdam, 1975

Convention européenne du paysage, 2000, Article 6.

Convention de Faro, 2005, Article 13.





Analysis of Traditional Workmanship as Restricted Cultural Production

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Abstract

The paper presents a comparative analysis of use, demand and supply of traditional workmanship in historical urban environments of the Northern/Baltic region: Kokkola in Finland, Trakai in Lithuania and Røros in Norway. The findings are analyzed by a conceptual framework of Pierre Bourdieu, stating that the field of restricted production (i.e., traditional workmanship) and the field of large-scale modern production serve two different markets. These markets are investigated and the conclusion made that the field of restricted production offers cultural products and services of high symbolic value therefore its market is limited to well-educated customers. The limitations of restricted production, however, should not be regretted, but acknowledged as determinant factor for its reception.

Keywords: *Traditional Workmanship; Urban Conservation; Pierre Bourdieu; Restricted and Large-scale Production*

1. Introduction

A number of international, national and local legislations and recommendations on heritage protection underline the employment of traditional workmanship and caution against uncritical use of modern techniques in reparation of heritage objects¹. The practice of implementation of such guidelines, however, is poorly analyzed and rarely presented.

This survey is provoked by assumptions that an appropriate preservation depends on a special economic and social environment, which promotes the demand and supply of traditional workmanship². This mutually depended relationship is analyzed by invoking Bourdieuan conceptual framework stating that the fields of restricted and large scale production serve two different markets, each focusing on different type of values. Bourdieu suggests that within the field of restricted production the economic value of cultural products and services was secondary to its symbolic value and vice versa in the case of large-scale production³. According to Bourdieu, the *logic of practice* can be grasped by plunging into a plurality of empirical reality, historically located and dated. Therefore, in my study, three cases of protected wooden urban districts are investigated after the fieldwork carried out in 2011. The vast empirical data is organized by mapping vocations of respondents in social space respectively to the accumulated economic and cultural (mainly defined by the level of education) capital and their preferences (blue color indicating favor for products of large-scale production and red color for products of restricted cultural production (figg. 1-3).

2. Traditional workmanship as a sign of gentrification in Kokkola

Kokkola is one of the Finnish coastal towns established in the 17th century during the reign of Swedish Empire. After a fire in 1664, the town was given a regular grid street plan with facades of small residential houses facing the streets while outbuildings were hidden in the inner yards. The town was divided to *Neristan* (“lower town”) inhabited by craftsmen and sailors as opposed to *Oppistan* (“upper town”) inhabited by rich merchants and ship-owners.

In 1950’s and 1960’s Kokkola, as well as the majority of other Nordic towns, experienced rapid urban development and change. There were plans to modernize *Neristan* and to build high apartment

¹ e.g. Australia ICOMOS, 1999; Council of Europe, 1975, etc.

² Rodwell, 2007.

³ Bourdieu, 1993. Bourdieu, 2005.

buildings as the district still possessed the image of minor social status. A number of old wooden buildings were demolished in the name of sanitation in the postwar period. However, a true reason may lie beyond the prevailing “shame that there are wooden buildings standing in a town center”⁴. At the same time there were first efforts made to preserve the wooden buildings and *Neristan* gained the status of protected area in 1985⁵. The maintenance of buildings in *Neristan* mostly depended and still does today on the owners’ choices as the wooden houses were protected only by the municipal plan.

Today the town faces contradictory challenges as *Neristan* is extensively gentrified. It became an area of high status and from a homogeneous residential area for workers it changed into a heterogeneous residential area for various professionals with high income. Local residents appreciate the living in old wooden buildings as “somehow special”⁶.

The fact that *Neristan* is inhabited by professionals possessing largest educational and economical capital was verified during the social survey (fig. 1). However, what surprises most is not a case of *Neristan* being a trendy place to live, but the quality of restoration work performed on ordinary old wooden buildings as well as the knowledge and practice of traditional workmanship by local inhabitants. 64% of all informants either have expressed their own concern in traditional workmanship or the demand for such services in a near future. Even 80% of informants who accomplished any rehabilitation project of their old wooden house in the last five years have used some kind of traditional workmanship. Most of those informants have repainted their houses with linseed oil paint instead of previously used latex paint; many of them changed windows from 1960’s to hand made windows copying the original ones produced by local craftsman. Some of the previously named informants have even copied the original panels or reused the old panels for rehabilitation of facades.

The survey reveals a great shortage of traditional craftsmen in the market. Only 13% of respondents think that the demand of traditional workmanship is satisfactory and mention just a few companies providing traditional workmanship in the area: carpenters *Kortells Snickeri Öja*, window makers *Backas Fönster Öja* and glaziers *Lasi Manu Oy*.

During the inquiry, the twofold relationship between the owners of old wooden houses and the authorities of heritage protection is discovered. Only 40% of informants who accomplished any rehabilitation project of their old wooden house in the last five years have contacted the authorities of heritage protection and 75% of those informants have responded about the work of those authorities as advisory and cooperative. Other informants complained that heritage preservationists should possess more knowledge on traditional workmanship in order to provide professional advices on reparations for owners of wooden buildings.

The study shows that rehabilitation of wooden houses was often accomplished by the owners themselves. 17% of informants claim that they would rather use their own knowledge in traditional workmanship than hire craftsmen. Moreover, the survey reveals that use and knowledge of traditional workmanship is prevailing not only among such workers as builders, but also among other professionals (e.g. medical doctors, lawyers, etc.).

Those inhabitants who possess higher educational capital also favor the use of traditional instead of modern workmanship. 87% of respondents who acknowledge the use of traditional workmanship have college or university degree. One might think that such a choice also depends on economical incomes, but the survey reveals that it is not the determining factor, as higher than medium personal incomes are earned only by 43% of informants who were positive about traditional workmanship. Consequently, in the case of *Neristan*, it seems like the main ground for acknowledging traditional workmanship lies not in total accumulation of capitals but merely on the level of cultural capital obtained (fig. 1). The symbolic value produced by the field of restricted production finds its customers among the multitude of highly educated inhabitants in Kokkola and this choice increases their cultural and social distinctiveness and even embraces its customers into the process of restricted cultural production.

3. Traditional workmanship as a mean towards ethnic distinctiveness in Trakai

Trakai was established in the 14th century by the Grand Duke of Lithuania around the medieval castles. It was inhabited by merchants, craftsmen as well as guardians of the castles – Karaims. This

⁴ Lillbroända, 2002, p. 91.

⁵ Lillbroända-Annala, 2010, p. 40.

⁶ Lillbroända, 2002, pp. 89-92.

distinct religious and ethnic group of Karaims was invited to reside from Crimea by the Grand Duke of Lithuania Vytautas in the end of 14th century and Trakai remained the center of their cultural life until today.

The wooden buildings of Trakai were first surveyed in years 1994-1995 leading to the Regulation Plan of the Old Town of Trakai approved in 1996. The Regulation Plan encompasses two areas called *Mažasis miestas* “minor town” (the Karaimic part) and *Didysis miestas* “major town” which is inhabited by various nationalities.

The old town of Trakai is part of the Trakai Historical National Park and the administration of the national park safeguards the wooden buildings in Trakai. They have published guidelines of traditional workmanship and they are, according to the respondents, quite consistent in following the provided principles. However, the work of the administration of Trakai Historical Park seems to be assessed rather negatively by the respondents, 82% of them complained about the institution being too punishing and restrictive and only 16% evaluated the preservation authorities as advisory and cooperative. Thus, the authorities of heritage preservation do not positively influence the owners' choices for the traditional workmanship.

When it comes to the evaluation of the separate field of restricted cultural production, the owners of wooden buildings are more positive. 40% of respondents would like to repair their houses using traditional techniques, while 60% of them would not use traditional techniques and materials as it is considered being short-termed, outdated and fire hazardous. The findings show that preservation of heritage and use of traditional workmanship are considered as two different fields by residents of the old town of Trakai. Another interesting finding is that the percentage of positive recognition of traditional workmanship is higher among the residents of *Mažasis miestas* and reaches 44%. 53% of these respondents who are positively minded towards traditional workmanship are Karaims and this finding presupposes the possibility of using traditional workmanship as a sign of ethnic distinction.

Even though both parts of the old town have the same legal instruments of regulation, there is a tendency observed that both state and municipal authorities, as well as residents of Trakai, assume that it is more important to preserve wooden buildings of *Mažasis miestas*. Only 33% of those informants who accomplished any rehabilitation project of their old wooden house in the last five years have used some kind of traditional workmanship and 53% of those informants own houses in Karaims' street. While PVC windows were used in 64% of rehabilitated facades in *Didysis miestas*, 50% of such modern windows were installed in *Mažasis miestas*. 100% of changed roofing cases in *Mažasis miestas* were following the guidelines of traditional workmanship and tin-plate roofing were chosen, while 70% of reparations of roofs in *Didysis miestas* were performed with modern materials, such as asbestos free fiber cement, etc. Most of the respondents who chose traditional workmanship said that they have used the services of old craftsmen, usually with no special education, who learned a craft from their ancestors, living in the countryside and possessing rather embodied knowledge about wood. Only a few of respondents used the services of craftsmen from *Rudiškių mokykla* which is an authorized local school of traditional workmanship.

As the appreciation of traditional workmanship varies according to the area informants reside, so does the social structure of the inhabitants. 71% of residents in *Mažasis miestas* had gained the college or university diplomas, while only 45% of residents in *Didysis miestas* possessed such a high educational capital. However, the distribution of percentage of inhabitants with medium or higher than medium personal incomes was opposite: 30% in *Mažasis miestas* and 47% in *Didysis miestas*. Consequently, educational capital was found to be much more important than economical one for acknowledging traditional workmanship.

The amount of educational capital possessed by citizens of Trakai has the greatest influence on their appreciation of traditional workmanship. 73% of respondents who are positively minded have college or university degree. However, the accumulation of both educational and economical capital does not change the preferences considerably (fig. 2). The percentage of respondents who are positive about traditional workmanship is distributed in proportion: 50% of respondents with medium or higher than medium incomes and 50% of those who earn less than medium or minimal wages. This finding confirms that economical capital plays insignificant role in choice of workmanship. Consequently, the survey of Trakai revealed that a very tiny local field of restricted cultural production found its market

among highly educated residents of Trakai and especially among Karaims living in Karaim street as it added symbolic value to their property and increased their ethnic distinctiveness.

4. Did traditional workmanship in Røros become “art for art’s sake”?

The historical mining town of Røros was founded by the king of Denmark and Norway in the 17th century together with Røros Copper Works. Røros was built according to a regular grid street plan with residential houses facing the streets and outbuildings in the inner yards. Most of the houses were inhabited by miners and craftsmen associated with the mining industry, these workers also kept small urban farms. Røros Copper Works were closed in 1977 and Røros underwent a decline. From the year 1976 the historical center of Røros became protected by the municipal Regulation Plan and in 1982 it was inscribed to UNESCO World Heritage List⁷. However, according to some respondents, not the raising level of heritage preservation, but the prevailing economic poverty in Røros after the closure of the Copper Works resulted in the fact that the wooden buildings in the town center remained unaltered.

The buildings of the Copper Works are now under the care of Røros Museum and are presently used as objects for practicing traditional workmanship by the museum’s Building Restoration Center. Together with Røros municipality (municipal conservator and municipal traditional carpenters), the craftsmen of Building Restoration Center participate in the state financed *Uthusprosjektet* (The Outbuilding project) which aims at maintenance of privately owned outbuildings (historically used for urban farming) by using traditional workmanship. Consequently, a strong field of traditional workmanship was created in Røros with a help of national and local conservation authorities.

100 % of all respondents confirm that there is a high supply of traditional workmanship in Røros and 100% of those inhabitants who were directly involved with *Uthusprosjektet* and whose outbuildings were repaired by traditional craftsmen, express the praise for their work performed. *Uthusprosjektet* is considered to provide qualitative workmanship and financial support but is criticized for proceeding too slowly and the involved craftsmen being too busy with other projects. 42% all respondents admit that they would not use services of those traditional craftsmen working at *Uthusprosjektet* for the reparation of other buildings as their specialized services are too expensive or the products of traditional workmanship in general being fake and short-lived. Consequently, despite the wide-ranging *Uthusprosjektet* only 51% of all respondents express the general benevolence for traditional workmanship and it is a very surprising finding in such an exceptional environment for traditional crafts.

The percentage of those informants who accomplished any rehabilitation project of their residential house in the last five years on their own expenses and have used some kind of traditional workmanship reaches 65%. However, most of those reparations involved changing of windows and, according to the respondents, the new ones were made to look the same as the previous ones. 100% of all new windows installed were produced at the local factory *Røros Bruk AS* which brags itself for producing traditional looking windows, however, in the most modern production line of windows in Europe. This example reveals how companies of mass-production use the symbolic images of restricted production in order to raise their economic capital. Other examples of using traditional workmanship by residents were more convincing, like copying the old paneling and producing copies by the sawmill *Alvdal Skurlag AS* or restoring windows by a local craftsman Iver Østvang, etc.

The social structure of inhabitants in Røros and the distribution of choices for or against traditional workmanship show that 65% of the residents of Røros possess low educational capital from primary or secondary school (fig. 3). However, the accumulation of educational capital does not play such a crucial role for acknowledgement of traditional workmanship: 50% of residents with primary or secondary education recognize the importance of traditional workmanship and the same percentage of residents with primary or secondary education reject its importance. The distribution of choices among the residents with college and university diplomas is also almost nearly equal.

In Røros, the accumulation of economical capital is a more important factor for choosing the type of workmanship. 70% of those residents who earn medium or higher wages acknowledge the importance of traditional workmanship and 72% of those who reject the importance of traditional workmanship

⁷ Andresen, 2006.

were earning lower than medium wages. Consequently, one might conclude that the monetary factor is the determining one for the preferences of the inhabitants of Røros and symbolic value generated by the field of traditional workmanship is not appreciated by the majority of residents. Therefore the field of restricted production is still functioning autonomously from the general market and produce rather “art for art’s sake” or even “production for producers”.

5. Conclusions

The field of restricted production (i.e. traditional workmanship) creates cultural products and offers cultural services of high symbolic value therefore its market is limited to well-educated customers. The study reveals that namely the educational capital plays a crucial role in appreciation of traditional workmanship. The field of mass-production tries to use the symbolic images of traditional workmanship in order to raise their economic capital and sell their products to wider public, even to those customers of more refined preferences.

Even though it might look like the survey indicates that traditional workmanship is winning positions in Kokkola and lose against modern production in Trakai and Røros, one should bear in mind that the “game” is much more complicated. The success of restricted cultural production does not lean on its popularity and vogue as in the case of Kokkola, because in the long-run it might lose its symbolic value and customers might look for other types of restricted production in order to raise their distinctness. The very nature of restricted type of cultural production is aimed at restricted market.

6. Contribution and limitations

The study contributes to the field of heritage preservation by applying the Bourdieuan analytical framework for the first time to study the preferences of residents which directly influence the repair and maintenance of heritage objects. The social mapping do not suggest positions or preferences to be static, on the contrary the proposed model is relational and changing over time. The longitudinal studies using the proposed conceptual model would illustrate potential dynamics in the social “map” and the gathered information on changing preferences of residents could serve for the local authorities of heritage preservation.

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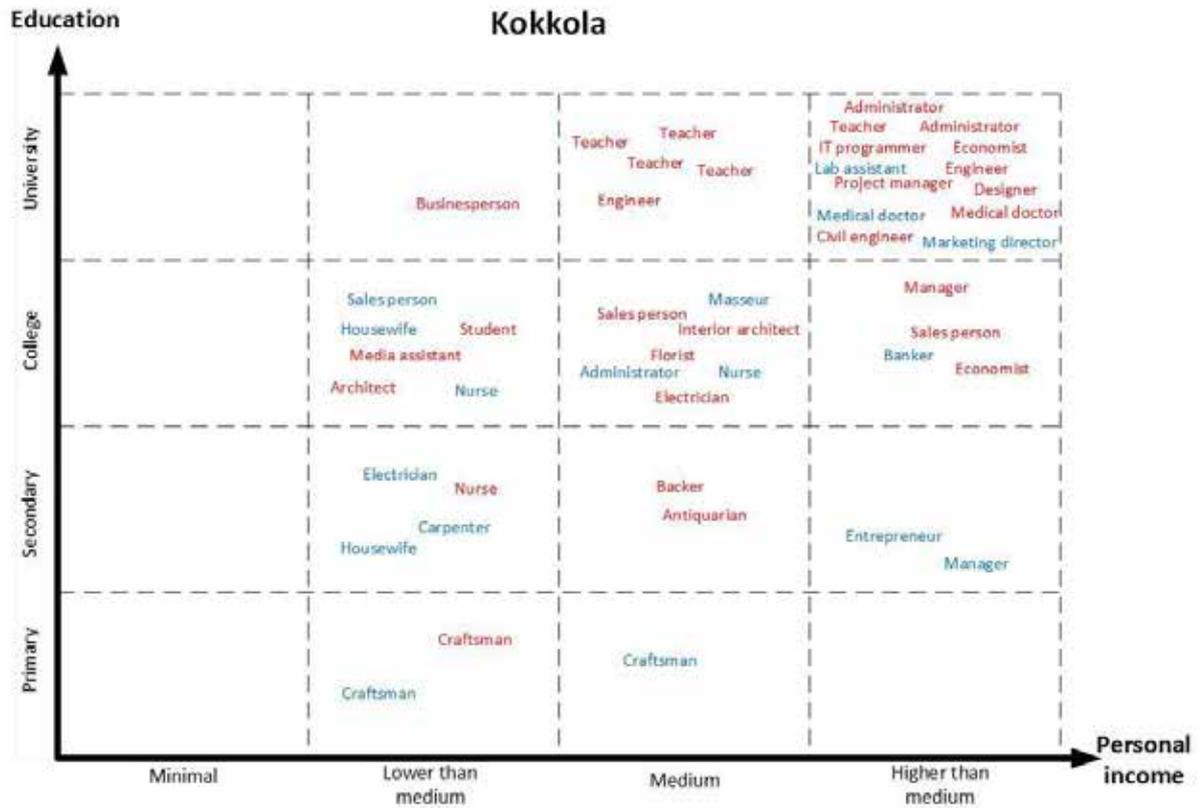


Figure 1: The distribution of educational and economical capitals and preferences of residents in Kokkola.

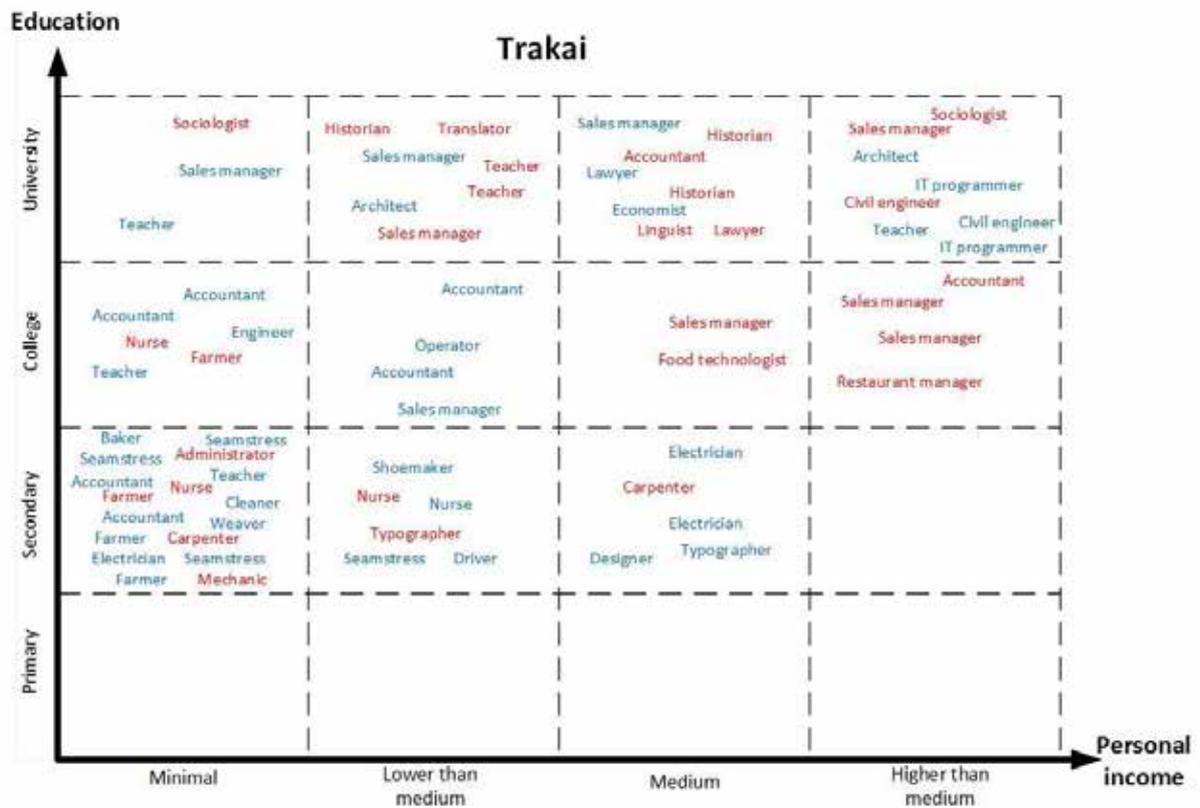


Figure 2: The distribution of educational and economical capitals and preferences of residents in Trakai.

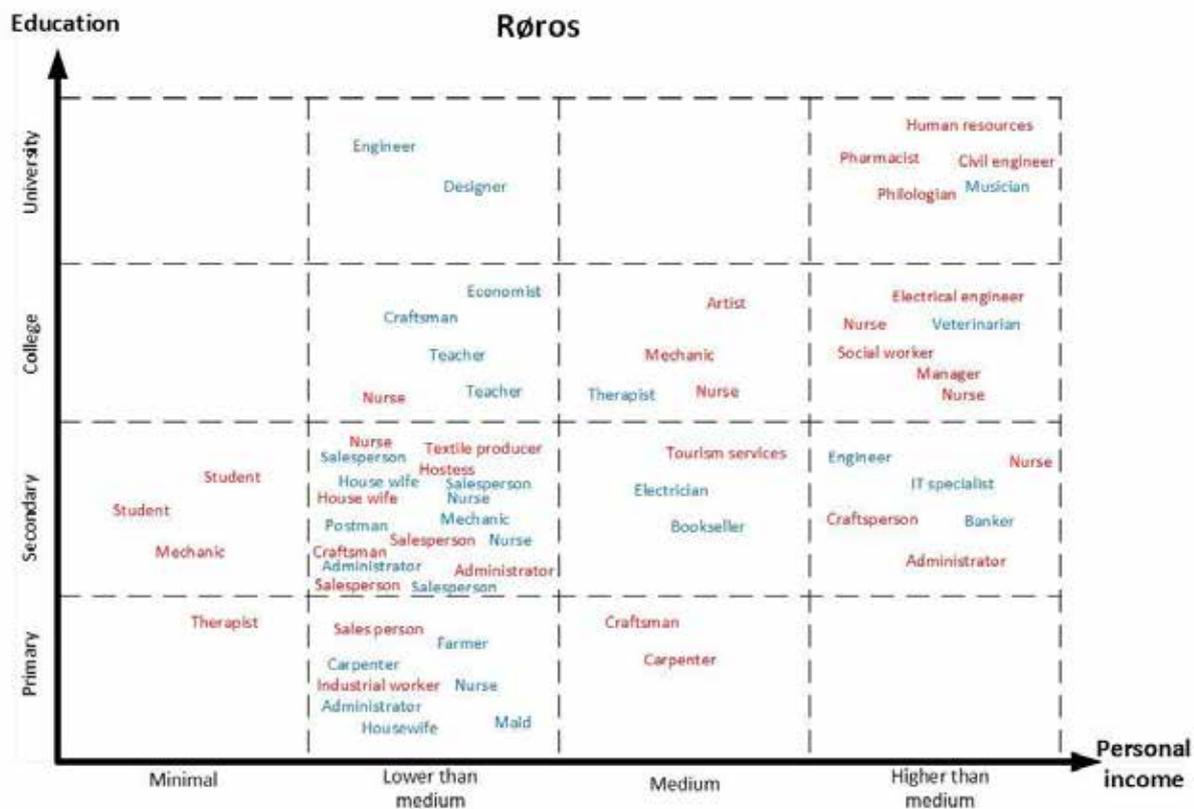


Figure 3: The distribution of educational and economical capitals and preferences of residents in Røros.

Saving the Tinawon (Ifugao Rice): Centrality of Rice in Ifugao Society

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Abstract

The Ifugao region is known for the rice terraces that were enshrined in UNESCO's List of World Heritage Sites in 1995. This listing however, has not mitigated the political and economic changes that the Ifugao have encountered since being assimilated into the wider Philippine society. The listing actually has hastened culture change because of the massive influx of domestic and foreign tourists. The Ifugao, as a people, were not colonized by the Spanish and were placed under state control during the American occupation in the early 1900s. Rapid economic and political transformations started during this era. There have been concerted efforts to preserve the terrace landscapes, but other aspects of the culture and agricultural practices have been overlooked. Currently, there is an urgent need to document the vanishing 11 rice (*tinawon*) varieties that are still being cultivated in the Ifugao Rice Terraces (IRT). According to Ifugao elders, there were about 20 *tinawon* varieties as late as the 1970s, about 9 varieties disappeared in the 1990s. Ethnographic studies have emphasized the centrality of rice in Ifugao social and political life. Indeed, rituals and social relationships have customarily revolved around rice and rice production. These, however, have changed since the introduction of high-yielding commercial rice varieties developed by the International Rice Research Institute and introduced by the national government through the Department of Agriculture. As a result of increasing economic pressures for wage labor and market price structures, the customary social institutions of the Ifugao that effectively regulated ecologically and socially efficient traditional rice production have eroded adding to the weakening of Ifugao culture in general. Ironically, recognition of the IRT's Outstanding Universal Value (OUV) that qualified it to UNESCO's World Heritage List is premised on these customary Ifugao practices and institutions. The disappearance of heirloom Ifugao rice varieties from the rice terraces along with accompanying customary practices will spell the end of customary Ifugao culture and the loss of an internationally-declared heritage of humanity.

Keywords: *Ifugao, rice terraces, heritage.*

Introduction

The Ifugao region of the cordillera of north central Luzon, Philippines, is known for its rice terraces that were enshrined in UNESCO's List of World Heritage in 1995. This listing recognizes the "...absolute blending of the physical socio-cultural, economic, religious, and political environments...indeed, it is a living cultural landscape of unparalleled beauty." Not only are the rice terraces a testimony to the ingenuity and intelligence of the Ifugao in their transformation of this mountainous landscape, but they also represent an enduring balance of the environment and the cooperative ability of the entire Ifugao community to develop and sustain the terraces and the production of native heritage rice varieties and farming. The terraces are not just productive habitat for village sustenance, they are also the site for ritual practice that integrates and sustains the social fabric of the Ifugao, and they are also the anchor for a diverse and productive environment that also includes communal forest lands, taro and other wetland crops, and a complex agro-ecosystem that includes multiple cropping of herbs, a finely tuned annual cycle, zoning and planning, and livestock production as part of a harmonious system regulated by religious ritual and cooperative social organization. The sustainability of the terraces in the modern world depends on this ritual community life just as much as it has for several hundred years, but the future of the terraces is endangered by challenges in the form of declining labor force, competition for wage labor, modernization, and the modern industrial agriculture that has transformed the Philippines in the last few decades into a major

producer of commercial rice and other agricultural products. The Ifugao province is one of the poorest in the Philippines with a poverty rate of 47.5% of the population, second highest in the cordillera, and sixth highest in the Philippines generally. This rate of poverty, the outflow of Ifugao youth in search of opportunities in the general economy, and the degradation of the environment by the introduction of modern agricultural practices including rice high yielding rice varieties, chemical fertilizer, and pesticides threaten the existence of the Ifugao culture and in turn the sustainability of the terraces, as they are integrally connected with traditional community knowledge and practice. World Heritage recognition has introduced a tourist economy into the region that has some benefit for employment and small business development, but this too undermines the fabric of the cooperative community organization required for the maintenance of traditional rice farming in the region. Radical means are necessary to revive communities and cultural practice within which the rice terrace landscapes are embedded.

Historical Roots of Ifugao Culture

The Ifugao rice terraces were thought to have been built over 2,000 years ago in very ancient Philippines culture (Beyer 1955) but are now known to have been a response to both the incursion of Spanish colonization in the Cagayan Valley lowlands to the northeast in the 17th century (Keesing 1962; Acabado 2009) as well as an adaptive response to climate change and growing aridity in the Cagayan lowlands during the Little Ice Age in the 13th to the 19th centuries (Peterson and Acabado, in press). The rice terraces may have been developed in already pre-adapted pondfields originally developed for taro and other wetland farming (Acabado 2009, Tesoro-Baretto 2007, and Peterson 2012). Other components of this complex community farming system include the maintenance of communal forests in the highlands, common lands for other highly biodiverse plantings of forbs and plantings, and integration of swine and water buffalo into the subsistence and ritual patterns of the community.

The Ifugao are one of several minority ethnolinguistic groups in the northern Philippines. At the turn of the twentieth century two prominent figures in Philippine anthropology began an intensive investigation of the Ifugao (Barton 1919, 1922, 1930, 1938, 1949, 1955; Beyer 1955). Both scholars proposed a 2000-3000 year old origin for the Ifugao rice terraces, using observations and qualitative speculations on how long it would have taken the Ifugao to modify the rugged topography of the area. This 'long history' has become a kind of received wisdom that finds its way into textbooks and national histories. On the other hand, several scholars have proposed a more recent origin of the Ifugao rice terraces (i.e. Felix Keesing 1962, Francis Lambrecht 1967, Stephen Acabado 2009). Using evidence from lexical information, ethnohistoric documents, and archaeological data, these studies suggest that the terraced landscapes of the Ifugao are the end-result of population expansion into the Cordillera highlands in response to Spanish colonization. Lowland-mountain contacts even before the Spanish arrival might have facilitated the movement of lowland peoples to the highlands when the Spanish established bases in their locales.

The Spanish colonial government was not able to establish a long-term presence in Ifugao (and the whole Cordillera region). The end of the Spanish regime however, saw the arrival of the Americans in the Philippines. William Henry Scott's portrayal of the relationship between these new colonialists and the "natives" was an amicable one. These friendly relations could have been a product of a different administrative strategy that was employed by the Americans.

The arrival of the Americans also signaled the rapid assimilation of the Ifugao in a wider Philippine society. The 300+ years of Spanish presence in the Philippine lowlands seemed to have provided a false impression that the upland peoples (including the Ifugao) were different from lowlanders. This impression persists in present-day Philippines, where Cordillera peoples (including their agricultural strategies) are deemed inferior to lowlanders, when in fact, centuries of rice terracing show that they have been practicing sustainable forms of intensive and extensive agriculture.

The imposition of state policies, which are based on lowland realities, has unintended but dire consequences for Ifugao farming. For instance, non-formal cooperative farmer groups (based on reciprocal relationships) previously handled irrigation management, but since the Philippine state has policies on irrigation, this cooperative system has broken down and disrupted Ifugao customary

practices. The introduction of commercial rice, in the guise of higher yielding varieties, has also negatively impacted Ifugao terrace ecology since commercial rice tends to require synthetic and harmful fertilizers and pesticides. Also, since rice seedlings for commercial rice are readily available from seedling banks, the role of the elder female farmer, who has knowledge of traditional heritage *tinawon* varieties, has been drastically diminished.

Terrace farming emerged from a long history of community practice and belief that has been highly adaptive in the development and maintenance of farming landscapes in the cordillera. The lifeblood of the terraces derives from the traditional knowledge of the local people honed through generations of trial and error. From this traditional knowledge, customary law, spirituality and community values evolved specifically to address local needs and sensibilities. It is this “localized development” that makes the terraces resistant to development changes that are coming from the outside but that also is fundamentally important to their sustainability. These external influences are the same that are now threatening the integrity of the Ifugao Rice Terraces as a world heritage site and a living testimony to the genius of Ifugao generations gone by. Without maintenance of these cultural and community practices the preservation of the landscapes is threatened.

Development and modernization of the terraces need to be copacetic with conservation principles and systemic approaches that have emerged from a long and resilient tradition. The maintenance of rice terraces is dependent upon cooperative groups called *baddang*. The *baddang* is a reciprocal work group where farmers tend to others’ fields with the expectation that the other farmer will help in the labor requirement of the former. However, due to the market economy, and the premium that has been placed on monetary values, this

cooperative work has degraded. Rituals associated with the agricultural cycle have also suffered immensely, to the point that only two, out of the hundreds of agricultural districts (*himpuntunaan*) in Ifugao apply the practice that is called *puntunaan* (ritual plot or parcel).

The concept of *puntunaan* and the existence of *tomona* (village ritual heads) in customary Ifugao society offer a perspective toward understanding Ifugao ecological knowledge. This practice synchronizes agricultural activities within an agricultural district (fields within a valley, usually sharing an irrigation source). *Puntunaan* is a plot or parcel in the “center” of an agricultural district (*himpuntunaan*) owned by the *tomona*. The *puntunaan* is traditionally the first to be cleaned, planted, transplanted, harvested, among other activities related to terrace agriculture. These activities are signified by specific rituals sponsored by the *tomona*. Once a *tomona* has performed the ritual and initiated a particular agricultural activity, other members of the *himpuntunaan* can start to work on their fields. Otherwise, larger, fields owned by the elite, *kadangyan*, might be worked on first because of labor requirements.

This practice has largely disappeared in Ifugao agricultural rituals. Owing to the expense associated with a *tomona*-sponsored ritual (which includes pigs and water buffalos to feed the village and visitors, rice, and wine), only two agricultural districts have retained this practice. Maintenance of fields, rituals, and basic social relationships previously revolved around the rice agricultural cycle. The cultivation of *tinawon* varieties is central to this Ifugao social life. Heritage varieties are central to ritual practice as they are locally adapted to cordilleran conditions and annual farming cycles have co-evolved around their seasonality. Since commercial rice does not follow the same cycle as the *tinawon* varieties, the increasing use of commercial rice varieties has disrupted both the social and environmental aspects of Ifugao society.

The practice of *puntunaan* and *tomona* applies to the ecology of Ifugao agricultural terraces. Mutual support among farmers within a terrace system is integral to the effectiveness of drying or flooding fields as a method of pest control. A single farmer’s attempt to reduce pests on a field without the coordination of other farmers would be futile because pests will simply migrate from field to another field. However, if all fields in the system are burned or flooded in coordination with the rest of the fields, pest populations can be reduced. Synchronization of activities related to pest control would make both kinds of fallow (burnt or flooded) effective for reducing population of rice pests. Just as individual farmers manage their paddies by controlling the flow of water, so do larger social groups control pest cycles by synchronizing irrigation schedules.

In a time when gender issues have become a universal concern, the traditionally egalitarian Ifugao society took a step backward as far as the sexes are concerned. Take for instance the role of women in

the terraces. In earlier times, the planting of the tinawon was an accepted domain of women, a practice logically based on the compatibility of the sensitive tinawon seedlings and the gentler hands of women. The change to hardier, less pressure-sensitive lowland rice allowed the men to do the transplanting themselves. As men can do transplanting faster than the women, they are hired to do transplanting by rice field owners. The woman, if ever hired for transplanting work, earn a daily wage lower than the men (P200.00 for women, P250.00 for men in the central Kiangnan area.) This discrepancy can be clearly observed in the Nagacadan World Heritage Site in the upper Kiangnan district where both lowland rice and the traditional varieties are planted side-by-side.

The customary fallow period that comes after the harvest season, a time for the soil to replenish itself, is no longer observed due to the shorter growing season of the higher-yielding varieties. The intensive use of terraced ponds after several years of planting the new rice has depleted soil nutrients resulting in low harvest yields. This has necessitated the use of synthetic fertilizers to augment naturally occurring soil nutrients. Furthermore, the new rice, being an introduced species, is highly susceptible to pests and has no natural resistance to viral or bacterial diseases. So the government has introduced chemical pesticides to combat these. The results are devastating. Edible mollusks, shellfish and fish that used to supplement the Ifugao diet have died off en masse in the terraces due to toxicity caused by industrial chemicals. The golden apple snail (*Pomacea canaliculata*) on the other hand, introduced by the government's Department of Agriculture supposedly to augment the protein source of farmers, has turned out to be a voracious omnivore devouring everything in its path including rice plants, smaller snails, fish and other amphibian eggs. Once again, pesticides have been introduced to control this pest.

Ifugao intangible culture has also suffered from introduction of modern farming practice. The role of ritual and the centrality of belief systems that involve tinawon varieties is disregarded. Since the introduced commercial varieties have no ritual value whatsoever, rice rituals have ceased to be practiced. One no longer hears the chanting of the hudhud epic during planting or harvesting of the tinawon rice. This UNESCO-declared Masterpiece of the Oral and Intangible Heritage of Humanity is currently being taught to children in primary schools as a last-ditch effort in intangible heritage conservation. Without the customary practices that necessitate their accompaniment, the rich and complex oral tradition of the Ifugao will cease to exist sooner than later. Non-contextual performance of cultural rituals for tourism only reflects the desperate state of conservation in the province. Communal practices that revolved around the traditional agricultural cycle have lost their meaning resulting in sudden changes in the socio-cultural makeup of terraces communities. Customary labor practices and gender roles changed as a result of the changing of rice varieties in the terraces, an effect never perceived by any of the development agencies involved in the shift to lowland rice.

Modernization of Cordilleran Farming

The Ifugao, as a people, were not colonized by the Spanish and were only placed under state control during the American occupation in the early 1900s. Rapid economic and political transformations started during this era. Implementing development initiatives in IRT communities involves understanding of the terraces not simply as structures of antiquity but as a living system of people, environment and customary practices. Modern development conflicts with the sustainability of the rice terrace landscapes and community farming practice and contradicts the preservation of these living relics of the fading past.

In the 1970's, the Philippine government launched its own Green Revolution Program to boost the agricultural sector and wean the country from its dependence on agricultural imports. Rice, as the staple food of Filipinos, was prioritized for maximum production. New varieties of commercial rice, products of intensive research by the International Rice Research Institute (IRRI) based in the Philippines, were distributed for cultivation all over the Philippines. The Ifugao Rice Terraces were not spared from this "revolutionary" development initiative. Heirloom Ifugao rice varieties, the "tinawon", harvested only once a year, were substituted with the new high-yielding varieties promising double or even triple the usual harvest volume. The campaign by the government was so effective, most traditional farmers readily shifted to the high-yielding varieties. The initial years of HYV cultivation delivered as promised, but the negative results of HYV cultivation will be felt only after several years after the demise of the local culture within which tinawon varieties are embedded.

The accruing effects of chemical fertilization, pesticides and disruptions of biodiversity are already apparent, and will contribute to a degrading environment in the rice terraces.

Currently, there is an urgent need to document the vanishing 11 rice (tinawon) varieties that are known to be cultivated in the Ifugao Rice Terraces. Several authors (e.g. Harold Conklin 1967, 1980; Roy Barton 1919, 1922, 1930) have emphasized the centrality of rice in Ifugao social and political life. Indeed, rituals and social relationships have customarily been revolving around rice and rice production. As a case in point, there is a specific ritual associated with each step in rice production. This, however, have changed since the introduction of commercial rice (developed by the International Rice Research Institute) spearheaded by the national government through the National Food Authority. As noted, more and more younger Ifugao would rather work in the lowlands rather than learn the farming techniques that their ancestors have practiced, and the commercialization of Ifugao rice has changed customary gender roles whereby elder Ifugao women were once the sole bearers of seed selection information, but men and wage laborers are increasingly handling these traditional cultural roles. The changes to farming practice to support the new commercial rice varieties have already had a significant impact on traditional culture, and arguably will hasten the decline of community systems that are integral to preservation and sustainability of the terrace landscapes.

The UNESCO World Heritage listing, even though critical to the recognition and concerted preservation of the Ifugao rice terraces, has also ironically introduced changes that do not preserve the intangible community fabric necessary for the long term preservation of the terraces. The Ifugao have encountered adverse social and environmental changes from the emergence of a tourist economy and the penetration of the commercial and industrial applications of the Green Revolution in the Philippines. The maintenance of rice terraces is dependent upon cooperative groups, the *baddang*, where farmers tend to others' fields with the expectation that the other farmer will help in the labor requirement of the former. However, due to the market economy associated with commercial rice production, and the premium that has been placed on monetary values, this cooperative work has degraded. Rituals associated with the agricultural cycle have also suffered immensely, to the point that only two, out of the hundreds of agricultural districts (*himpuntunaan*) in Ifugao apply the practice of *puntunaan* (ritual plot or parcel). Tourism contributes significantly to the emergence of wage labor alternatives to rice farming and erodes the local labor force, especially among those committed to village and lineage field ownership and traditional management. Tourism has also opened the villages to an outside world that both lures away youth for wage labor in the cities of the Philippines, but also introduces the outside world to the villages and transforms expectations and engagement with global lifeways. In 2005 the International Committee on Architecture and Vernacular Structures (CIAVS) toured the World Heritage terrace sites and there was dismay over the adoption of corrugated galvanized roofing and the sprouting of television antennas. Foreign remittances from offshore working Ifugao also contributed to the spread of modern housing styles incompatible with traditional structures. On the one hand these are simply a sign of the broader changes introduced by modernization and integration with global economies, but accompany the general decline of community belief and practice brought about by changing rice varieties and changes in the work structure of the communities.

The Ifugao are fast losing both their tangible and intangible heritage to changes brought about by these economic and political transformations. The rice terraces as examples of traditional *landesque* capital are changing into capitalist commodities at the same time that Ifugao social organization is being assimilated by the state. Farmers are accorded lower status at the same time that as the rapid disappearance of traditional knowledge, and these changes further contribute to the degradation of the terraces and other Ifugao cultural heritage.

Community Approaches for Sustainability of Culture and Landscapes in Ifugao

In 2002, a ten-year Ifugao Rice Terraces Master Plan was conceptualized by Ifugao stakeholders from the Ifugao Provincial Government, the Save the Ifugao Terraces Movement (SITMo), representatives from the heritage municipalities and farmers' organizations. After identifying the issues, problems and challenges, the master plan delineated the functions of all stakeholders assigning each one a particular function from the multifarious tasks that were identified and prioritized as areas of engagement for all stakeholders.

The master plan sought to centralize all initiatives in the Ifugao Rice Terraces and envisioned an organized approach in conservation work at least at the provincial level. The plan was not successfully implemented, however, as bureaucracy and lack of inter-agency coordination hampered the delivery of identified services to terraces communities. While SITMo engaged heritage villages through its community-led ecotourism task, the lack of support from the provincial tourism office and even the national office of the Department of Tourism did not result in the envisioned sustainable ecotourism industry in all the heritage municipalities. SITMo's community-led ecotourism program may have sufficiently increased the level of awareness of farmers in its areas of operation on the need to conserve the terraces yet the wider areas of the province remain relatively apathetic to the urgency of arresting problems confronting the IRT. While SITMo's ecotourism activities remain currently active, the lack of basic infrastructure facilities that are supposed to be the counterpart of government agencies, like community learning centers for traditional knowledge transfer at the community level, prevents the weaning of community organizations from the assistance of SITMo.

The implementation of hard infrastructure by the government without the collaboration of trained community organizers and conservationists is also adding to the destruction of the terraces. In Batad, Banaue, one of the UNESCO-declared sites for instance, millions of pesos in funding for the restoration of eroded stonewalls have been allocated by the government. Year after year, farmers are paid by the government for them to repair their own damaged walls. While the government subsidy is justifiable for massive structural damages, terraces owners have become accustomed to not having to spend anything at all even if the repair requires only minimum costs. This creates a culture of dependence among the villagers such that no repairs are done until government funding is made available. Moreover, in order to cover more areas and thus avail of more payment, quantity instead of quality becomes the priority of stonewall builders. Ancient underground canals that were damaged during the landslide were backfilled instead of properly reconstructed since this detail was not paid attention to by the government agency in-charge anyway. This brings out also the issue on the lack of professionals being hired by the government to oversee proper conservation and restoration work in this World Heritage Site.

SITMO'S Community-Led Ecotourism

SITMo started with the ecotourism project with the main purpose of assisting farmers to develop tourism enterprises at the community level. The tours centered on the traditional rice cycle of the Ifugaos from land preparation, planting to harvesting. The different stages of the cycle are "packaged" as tourism attractions and visitors are invited to participate in them "hands-on". The Rice Cycle Tours, as they have become known, necessarily involved the farmers whose participation made them direct beneficiaries of tourism revenue, a reversal of their roles in the usual tourism setup where they stand to benefit the least from tourist arrivals in the province. The tours showcased rice rituals whenever present and visitors participate with the community in the work being done in the terraces. Through these interactions, locals and tourists learn from each other and a bond of shared responsibility towards this heritage of humanity is created between them.

The rice cycle tours however was not only an enterprise initiative but expanded to become a catalyst for cultural "revival." Rice rituals that were nearly forgotten were again performed in their proper context even though they also served as tourist entertainment. The ritual performances has encouraged farmers to go back to planting traditional timawon varieties as the tours can only include fields planted to the native varieties. Tourism and cultural conservation have become mutually reinforcing through the promotion of indigenous practice as well as locally adapted timawon varieties and traditional farming practice.

A community-based effort to preserve traditional practice as well as landscapes is emergent in the Ifugao Rice Terraces communities. Promoted by SITMo as a base for community organization and conservation efforts, the World Heritage Character of the terraces can be preserved as well as the intangible values and practices that are integral to their maintenance, stabilization, and sustainability. Documentation through archaeological as well as floristic and oral history investigations are reinforcing the knowledge of Ifugao culture and practice, and the project of preservation in Ifugao is succeeding through the seeds of its tinawon heritage.

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Figure 1. Location of Ifugao in the northern Philippines.



Figure 2. Typical profile of an Ifugao agricultural terrace (from Acabado 2012).



Figure 3. Rice terraces of Abatan, Hungduan, Ifugao.

The Traditional Sacred Wooden Construction in Lithuania between XVIII and XIX Century

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Abstract

Lithuania is situated in a highly forested Northeastern Europe area and has a variety of wooden buildings. Among the wooden structures we enumerate the religious buildings, churches and bell towers, rich of historic values, presenting different forms and sizes, a complex design and stratified construction phases. The present work aims to study this interesting topic and intends not only to analyze the architectural typology but even more the technological and structural aspects, that had suggested the most influences on building techniques during the centuries.

Keywords: *Lithuania; Wooden Churches; Traditional Wooden Construction; Heritage*

1. Wooden architecture: types, wood species and building traditions

The development of wooden architecture in Northern Europe hails from wide forests that provide an excellent and natural material for building construction: lightweight, flexible, durable, insulating, cheap and easy to work. The Baltic Sea Countries, in particular, have the biggest timber resources in Europe therefore until the second half of the twentieth century wood was the primary material used for construction. Lithuania, in particular, is characterized by a forested landscape of vast level grounds and has a variety of wooden buildings. These buildings are still most prevalent in villages and towns, integrated into the landscape and the nature. Among the wooden buildings we enumerate the religious ones – churches and bell towers – that constitute an historical heritage of different shapes and sizes, having sometimes a complex design and stratified constructive phases.

Lithuania was the last country in Europe to embrace Christianity: Catholicism was, in fact, introduced in Lithuania at the end of the 14th century by the Polish King Jogaila and the Grand Duke of Lithuania Mindaugas. Following this event, many wooden churches had been built, but nonetheless, the citizens of Lithuania, forcibly converted to Catholicism, secretly continued to venerate the Pagan Divinities. According to ancient legends, the first churches built in Lithuania arose in the pagan worship places and some sources indicate that the construction of Christian religious buildings into the pagan sacred spaces was not prohibited, but even encouraged. The occupation of pagan worship places and the construction of the sacred buildings of a *new religion* simplified the Christian religion identification and, at the same time, this event demonstrated the weakness of the ancient polytheistic cults¹. The trees, which were previously worshiped as the other sacred natural sites, gradually had been cut, laid out and decorated to create new places of worship, now artificially built. The places chosen for the construction of new churches usually were well visible, so that the bell towers and the church volumes could be seen immediately and the sound of church bells could be also heard from afar. This choice often coincided with the pagan places of worship, mostly hills or mounds, and this condition contributes to facilitate the replacement of pagan cults with Christianity. In Lithuania we can enumerate 265 wooden churches, 100 chapels, 220 bell towers, 13 synagogues, 3 mosques and an unknown number of orthodox churches and sacred buildings of other confessions². These religious buildings compose a rich and complex compendium of architectural traditional elements, of which the Catholic churches are the oldest. Over the centuries various religious denominations have developed differences in their wooden architecture spatialities, shaped by the specific rituals that took place in them. Nonetheless, they shared similar structural and technical solutions, based on the possibilities offered by wood and its derivatives, however based on different functional-planimetric needs, or diversified symbolic-spatial and figurative-aesthetic instances.

¹ (Galaunė, 1988).

² (Bertašiūtė, 2002).

Churches were predominantly built using coniferous species, which still represent the 60% of the Lithuanian forests: pines, spruce pines and larches. These types of trees are the most suitable for the construction of buildings as they have fewer defects of constitutive growth and also the intercellular gaps are filled with resin; accordingly, this type of timber is more resistant to decay, has a uniform coloring and texture, is easier to cut and plane³. In order to produce the best quality of timber it was preferred to cut the trees during the winter season, taking an advantage for the stasis of the vegetative cycle. In winter trees contain a minor amount of liquids, which remain in the roots, so the wood quality could be better preserved during this season. Furthermore, all the wooden species used for building construction could be left to the open air, in order to facilitate the desiccation; the cut tree trunks were bound together and individually drawn by a horse or loaded in groups on special sleds. The following phase was debarking, as leaving the bark on could proliferate insects which would affect the wood quality. Debarking was usually performed only after the wood drying phase, in order to facilitate the separation of bark. Once the bark was removed, trunks were placed on wooden trestles and cut with a special saw. Cut planks were left to dry outdoors, stacked in a particular way: following a triangular pile or one above the other (fig. 1). Unlike the planks, logs could be used for wooden construction just after debarking, because it was considered that they could dry later. Each log was marked with the ax immediately after cutting to recognize the log position in the wooden load-bearing structure.

2. Churches constructive systems: supporting wooden walls

The majority of the old single-family houses was built directly on the ground, without any ground works. In some cases, the logs of oak or coniferous, planted in the ground with a part of them emerging from the same ground, were used in the corner and center portions of the buildings, in order to isolate or elevate the wooden walls. During the evolution of the construction techniques, the ground works supporting wooden structures, were built using large and compact blocks of stone or a ballast of smaller stones (fig. 2a, b). The stone used for the ground works construction was usually obtained from the nearby quarries. Stone was kneaded and arranged with lime mortar, produced by the limestone calcination. The decking of the building was prearrange on the ballast or on wooden supports inserted in a conglomerate of gravel, lime and clay. On this layer logs or big stone conveniently positioned have been aligned for the placement of longitudinal wooden beams. The spaces between these logs or stones was filled up by very subtle gravel and finally the wooden floor was constructed on these beams in an opposite direction (fig. 3).

Most of the wooden Lithuanian churches were built using the so called *Blockbau* system, while the bell towers used the framework constructive system. The *Blockbau* system consists on an horizontal arrangement of hardwood logs with the same logs wedged at the corners or in other parts of wooden wall, where this type of connection was useful and/or clamping was necessary⁴. The *Blockbau* system is one of the oldest type and it's understandable, if we consider the relatively simple implementation of this system, which requires neither complex joints and no nail connections. In ancient times, the diffusion area of this constructive method included the majority of Europe, but during the time its use was restricted to that countries abundant of coniferous forests. The *Blockbau* construction technique requires, in fact, a large number of logs, straight and weather-resistant logs, all qualities mainly possessed by firs and especially larch. This fact explains why construction system using stacked logs had been developed particularly in the Northern Europe, where a lot of coniferous forests have always ensured a limitless supply⁵. The Countries of the North-eastern part of Europe are still realizing wooden buildings, even if in a considerably smaller way. From region to region, the buildings are different for dimension and the logs used for the vertical load-bearing structures have been selected according to climate and local resources. In the regions characterized by a colder climate, the wooden wall sections are thicker compared to those used in the southern area. The overall sizes of building were also related to the wood type (for example: conifers) with its own intrinsic characteristics (length and cross section of the logs).

Wooden Lithuanian churches were characterized by an extreme constructive simplicity and for the use of not perfectly squared logs. The studies carried out by prof. Rasa Bertašiūtė are able to describe the characteristics of the houses exterior walls in the XVIII-XX centuries. An objective analysis shows that the constructive system of a single-family houses is very similar to that adopted churches. Prof. Rasa Bertašiūtė

³ (Morkevičius, 2002).

⁴ (Pryce, 2005).

⁵ (Donati, 1990).

says also that, generally, the first wooden buildings were realized using logs with a circular cross-section and also a recess in the upper part and a flute along the whole trunk length (fig. 5a). However, this system had some disadvantages as the rain water that could have been accumulated in the top grooves, causing the early wood decay. As a result of these encountered problems, the grooves were cut in the lower part of the log, in order to avoid the rain damages (fig. 5b). This system is well recognized in the corners of the building exterior walls, where the supporting structure is clearly visible. The majority of the wooden perimeter walls of the oldest Lithuanian churches are made up by logs of around 20 cm in their diameter, while the best technical and aesthetic result was achieved through the use of uniform logs. The diameter at the base and the top of the trunk had to be similar. In a horizontal position the thin ends of the logs were placed on the opposite side, compared to the thin end of the next log. The usage of clay guaranteed that the water and air were confined and could not reach the contact place between the logs. From the XI century, the moss was also frequently used as a sealant. In the northern Lithuanian areas, the use of moss was preferred, while in the southern areas clay was diffusely used, determining differences of wall insulation⁶.

The logs had been carved with grooves on the upper and lower sides and connected together by a partial or total overlappings at the corners of the building (fig. 5c, d). Each log was connected to the lower one by wooden nails. Using the drill, some holes were made in the logs where, subsequently, long wooden nails had been inserted to block the wall and the whole wooden structure (fig. 5e).

Due to an increasing of church goes number, the necessity of more and more spacious churches was growing. For this reason, the carpenters found a way to join the ends of the logs as - until then - the maximum longitudinal dimension of churches was dependant on the linear dimension of the single timber. The connection between the logs were made with great precision to prevent moisture and rainwater penetration: as a result of a secondary processing the ends of the logs were adjusted to shapes to facilitate the joints. The connection points were staggered from row to row of logs to avoid the wall weakening. Furthermore, it was realized a secondary structure composed of pillars placed on the internal or external walls of the church in order to reinforce and stiffen the perimeter walls. Together with the already mentioned *Blockbau* system, these pillars were connected by means of metal bars fixed at the ends through bolted connections, about the more recent and advanced techniques and applications (fig. 5f, g, h).

3. The church building techniques: roofing and external walls covering

The slopes and proportions of the Lithuanian roofs were inspired and modeled by climatic conditions such as the high levels of precipitations and the awareness to built in a geographical area having a high risk of snow and rain. We observe a great attention to protect buildings from damage provoked by weather conditions. The large quantity of snow accumulated on the roofs during winter produced substantial overloads on wooden structures. This is the reason why carpenters realized trusses very close one to each other, placed them at intervals of about 1,30 – 1,50mt. (fig. 6). Over the time wooden roofs have suffered a lot of changes: the evolution of structural systems has improved the geometries, the floor or connection non-deformability. In particular, trusses have evolved in their wooden connections as the “strut-strut” connection (fig. 6a₁), “king post-strut” connection (fig. 6b₁), “strut-chain” connection (fig. 6c₁). In the early wooden buildings they were made by a combination of elements, connected by means of wooden pins and nails, then gradually changed by metal rivets (metal screws). When the parts of trusses were conformed, they were assembled on the ground, first of all to verify the correct functioning of the entire roof structure and second to eliminate possible inaccuracies. Trusses, beams and wooden planks, that made up and completed the roof structure were lifted and placed by an additional mechanism, locally called *kaparas* (fig. 4). On the ridge of each truss the carpenters tied up a rope to facilitate the lifting of the same truss from the ground at an angle of 90 degrees. During the transfer and placement of trusses, carpenters temporarily used to strengthen them with wooden planks from both sides, so they would be protected against wind action. The trusses were inserted into special holes of the wooden *Blockbau* perimeter load-bearing walls; subsequently when trusses were put in place, the secondary wooden structure and the planks were nailed on the trusses, following the roof slope. Starting by the end of the nineteenth century we can find the employ of a bitumen layer, placed under the roof covering. During the eighteenth and nineteenth centuries churches’ roofs did not have gutters, and rain was dripping off freely; so the builders protected the ground

⁶ (Bertašiūtė, 2002).

surface of perimetral wooden walls by a metal sheet. Metal drainpipes were adopted only during the late nineteenth century.

The roof coverings differed from nailed wooden little planks, to terracotta tiles, wooden shingles roof and also sheafs of wheat (fig. 7a). Lithuania has been - and partly is today - a country mainly based on agriculture: this is the reason because the ancient roofs were covered with a mantle of sheafs of wheat, in order to use as better as possible the local resources⁷. The straw was cut, beaten by hand with special utensils, then the top of the sheafs of wheat was carefully removed without damaging the straw itself. The straw was at a later stage combed, straightened and dried. Following these processes, it was ready to be placed on the roof. The way of placing straw was from the bottom to the top of pitched roof. The first row of straw was pressed with a wooden plank, which was then tied with the secondary beams of roof structure. The second straw row was placed so that it would cover the wooden plank of the first row. This was done repeatedly until the top was reached, then the straws that protrude beyond the ridge were bent and fixed with a wooden plank to prevent slippage and problems of unsuccessful continuity of this stratum. Finally, when the roof was mounted, the rows of the straws were stroked with a ribbed plank, for guarantee an homogeneous aspect. Once the roof construction was completed, the carpenters started to do the structure of the wooden ceiling. Church's ceiling was set at a height not too high, in order to heat the interior environment more easily during the winter. The same constructive wisdom was used in the realization of the church towers that complete the volumetry of the religious building: these towers were incorporated into the roof structure, they rose up in the architecture of the main façade, and had a framework wooden structure in which, over the centuries, were added more structural elements, useful to strengthen the original structure.

Originally, the exterior walls of buildings were not covered with wooden boards; only in a second time, in order to protect them from humidity and for guarantee a better lifetime to timber structure, an external coating was adopted, using indeed wooden boards placed in various directions. The decorations and the additional processes have evolved when in the second half of the eighteenth century new utensils developed, particularly drills, chisels and different types of saws⁸. The wooden planks - mounted in various directions - divide the vertical surfaces in frames and compartments, creating ridges on the same surfaces and conformations useful for disposal of rainwater or for the cover-up of the connection points between the large beams of walls. There is often a façade cladding dividing into two zones: one near the basement area, where the planks would be harmed easier due to the water and damp, and the top part which was less affected by damp. Every religious building had a different type of construction and planks assembly (fig. 7b). If the *Blockbau* system and the construction wall is smooth and without any bumps and deformaties, wooden planks are directly nailed on the wall. But if the wall had bumps and deformaties, planks used to be nailed in a horizontal way, to make the surface smoother and to give space for the elements of coating. Today it is possible to recognize and identify the original elements of the ancient structures from a multitude parts added and /or replaced later. The church's exterior decorations have the function of concealing the structure's reinforcing elements. These reinforcing elements are clearly visible in the attic. The structure of the roof shows the various strengthening interventions made during the life of the building.

4. Conclusions. What future?

Wooden Lithuanian churches and belfries are an architectural heritage which is fairly preserved by the local community, but unfortunately the biggest destroyer is the aging of the buildings intensified by an inadequate maintenance. The main causes of damage and structural degradation are the atmospheric agents, typical in Northern climates associated to some natural factors, like water and humidity. External effects, such as ultraviolet light, frost, wind, infestation of dry rots and insects also have a significant impact in the long term.

Sometimes badly made reconstructions contribute to the structure decay, and also the wrong choice of protective materials and furnish, the absence of ground works, the wrong restorations, the economy of the interventions, the inappropriate uses, the absence of a specific legislation that could preserve the quality of wooden architectures. Moreover, many of those wooden buildings have been completely destroyed by fires that have significantly decimated the number⁹. Sometimes the industrial production could - in the past, just

⁷ (Detlefzenas, 1995).

⁸ (Calame, 2004).

⁹ (Diskaya).

as today - gradually weaken, if not destroy, the richness of craftsmanship (associated with the transmission of this knowledge to the next generation); therefore, it's important to recognize the value of the architectural heritage and to plan its safeguard for the posterity. Since the 19th century all the Europe witnessed a general decline of the arts and techniques related to wooden buildings and for a long time no new wooden buildings were made¹⁰. Architects are no longer able to correctly identify the shapes of the sacred architecture, and this leads to numerous mistakes during the restoration and reconstruction phases¹¹. In order to preserve this architectural heritage, that witnesses the development of our culture and history, we hope for restorations particularly careful to use traditional materials while limiting the use of incongruous materials, as well as the uncultivated tampering, demolitions and replacements (fig. 8, 9).

Note

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Figure 1: Natural drying of the boards.

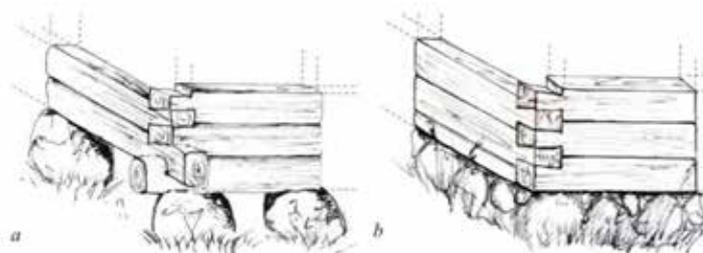


Figure 2: Ground works supporting wooden structures, were built using large and compact blocks of stone (a) or a ballast of smaller stones (b).

¹⁰ (Jankevičienė, 2007).

¹¹ (Tampone, 2006).

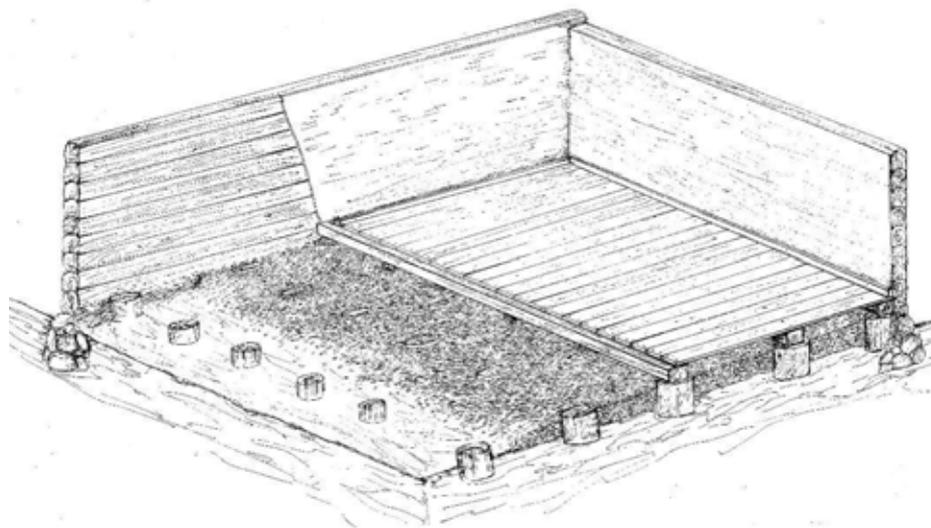


Figure 3: The decking of the building.

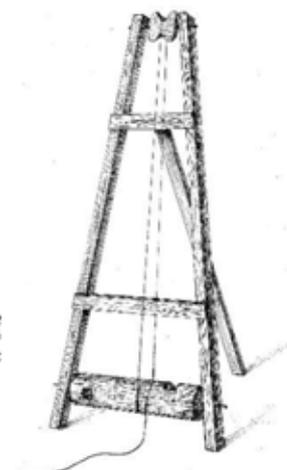


Figure 4: Kaparar.

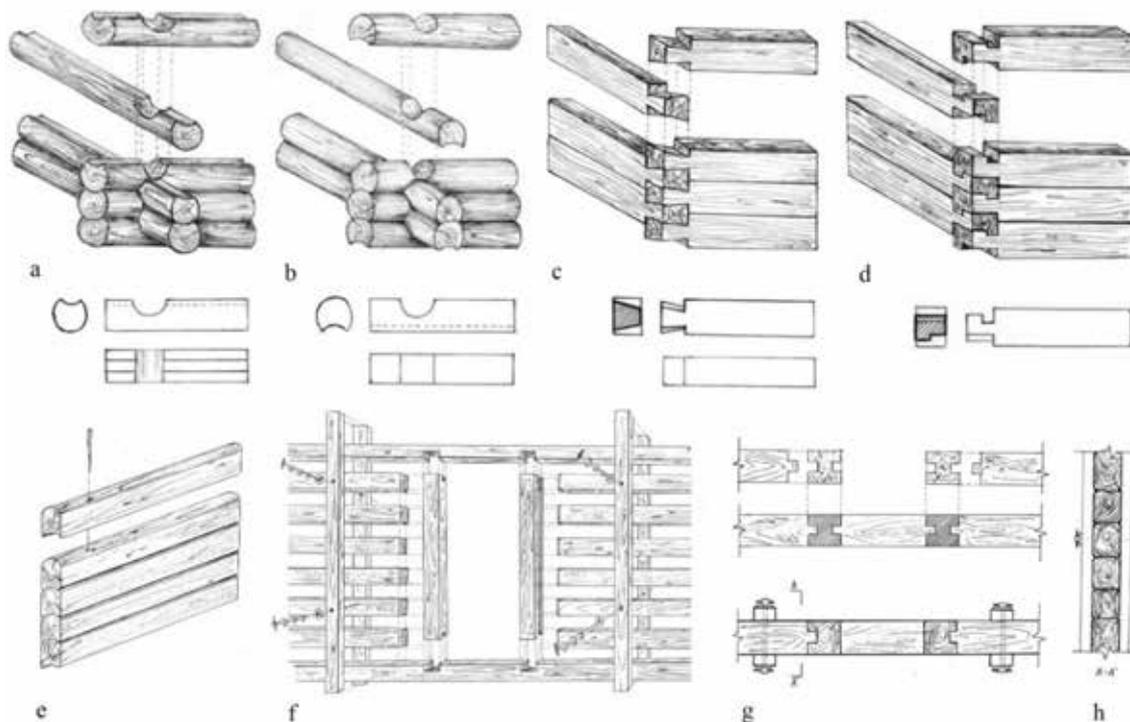


Figure 5: a-d) Blockbau constructive system; e) Log connected to the lower one by wooden nails; f, g, h) Secondary structure composed of pillars placed on the internal and external walls of the church in order to reinforce and stiffen the perimeter walls.

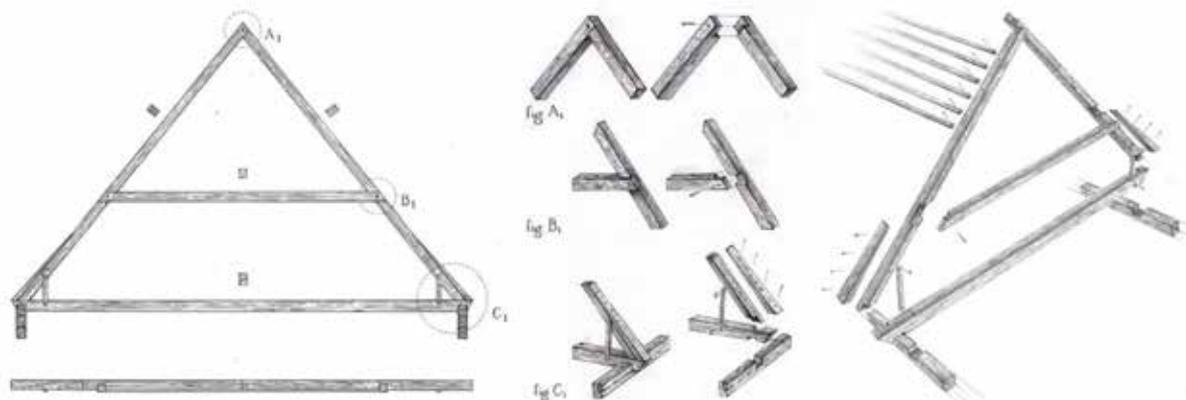


Figure 6: Technological analysis of the truss; Special structural nodes a₁-“strut-strut” connection, b₁-“king post-strut” connection, c₁-“strut-chain” connection; Perspective explosion of the truss.

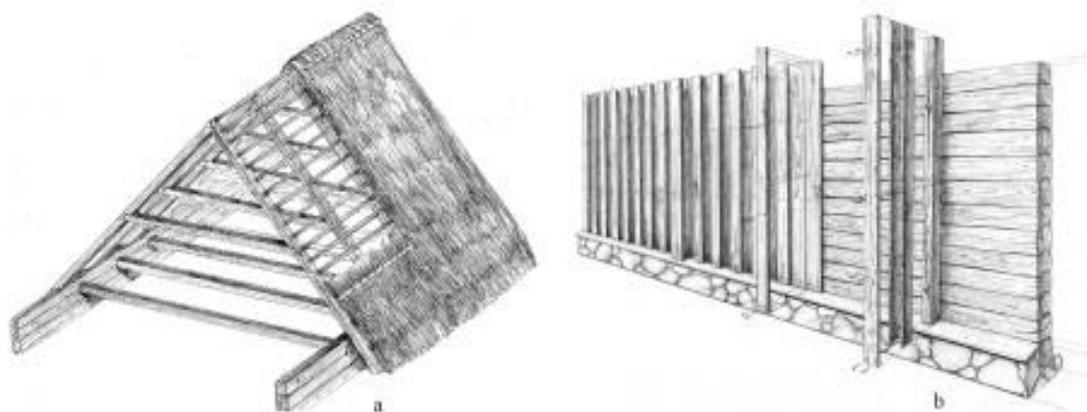


Figure 7: a) Roof structure covered with a mantle of sheafs of wheat; b) External walls covering.



Figure 8: The church of St. Joseph of Kėdainiai (1766).



Figure 9: The church of St. Bartholomew the Apostle of Raudėnai (1881).

Les valeurs pluriverselles exceptionnelles (VPE) or outstanding pluriversal values

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Abstract

A travers l'exploration des modalités de gestion et de transmission des patrimoines des peuples autochtones mayas de l'état du Chiapas au Mexique, nous présenterons les 10 Valeurs Pluriverselles Exceptionnelles de ces peuples qui leur permettent à la fois de transmettre et de protéger leurs patrimoines et leur identité en tant que peuples autochtones et d'autre part, d'assurer dans le futur l'application du « Buen Vivir » (Lekil Kuxlejal en tseltal maya), littéralement « la bonne vie », qui correspond à un projet de société (ou un agenda de développement durable mais qui est par contre construit à partir de l'alchimie autochtone) sans lequel ces peuples ne peuvent vivre et ne peuvent continuer à transmettre leur patrimoine.

Mots-clefs : *Buen Vivir ; Maya Mexique ; Pluriversel ; Peuples Autochtones*

Avant de présenter les 10 Valeurs Pluriverselles Exceptionnelles, il nous faut présenter les modalités de gestion du patrimoine culturel des peuples mayas du Mexique et plus précisément de l'état mexicain du Chiapas. Ces modalités de gestion ont été le résultat d'une étude approfondie sur la gestion du patrimoine culturel dans la zone maya dans le cadre d'une thèse doctorale.¹ Le tableau ci-dessous présente ces modalités de gestion et de transmission selon la pensée maya.

Modalités de gestion du patrimoine culturel	Pensée maya
Définition du patrimoine	Ensemble d'éléments (arbres, rivière, valeurs, danses, sites archéologiques, etc.)
Catégories privilégiées du discours	Le pluriversel
Relation de l'individu à son environnement global	Relation de sujet-sujet
Perception de la part vis-à-vis	Les parties sont un tout en soi et appartiennent au tout. La somme des parties transcende le tout.
Réflexion épistémologique privilégiée du concept de patrimoine	Dualité, complémentarité, équilibre.
Développement et Patrimoine	Le « patrimoine » hérité du passé est le projet de société.
Discours privilégié du projet de société	Le bien commun
Projet de société	Le « patrimoine » est le projet de société déjà vécu (<i>Lekil Kuxlejal / Buen Vivir/Bonne Vie</i>).
Relation avec le pouvoir dans les prises de décisions par rapport à la gestion du patrimoine	Démocratie communautaire et participative (pouvoir communautaire)

¹ Pour plus de détails voir Woynar Marion. Gestion du patrimoine culturel et nouvelle vision du développement. Enjeux et défis dans la dynamique historique du Mexique. Thèse doctorat en Droit. Université de Bourgogne. 2011.

Usage du patrimoine culturel	Maintenir la capacité de réponse devant le futur.
Modalités de gestion du patrimoine culturel	L'éducation transversale et transgénérationnelle. La « communautarité » L'oralité
Espace du patrimoine culturel	Le territoire à fonction illimitée et multi scalaire (usage quotidien de l'objet)
Outils législatifs	La parole (aussi outil de communication) L'organisation sociale communautaire Le travail L'éducation La mémoire
Support du passé	L'oralité
Responsable de la transmission	La communauté, les anciens, la famille, les guides spirituels.
Principaux outils permettant d'accéder aux connaissances du passé	Les mythes, les contes, la mémoire collective et familiale
Conception du temps	Cyclique (spirale)
Causalité	Synchronisation du sens et de l'intention.

A partir de ces modalités, on retient que la catégorie privilégiée du discours est le pluriversel. La pluriversalité est posée comme alternative singulière retirée du débat entre Universalisme et Particularisme. La notion de « pluriversalité » est encore une notion nouvelle et n'est même pas présente dans le dictionnaire français. Malgré tout, pour donner une première définition nous empruntons celle émise par l'auteur Belaïdi en référence à des valeurs pluriverselles: « Néologisme qui apparaît depuis un ou deux ans dans certains articles et/ ou colloques. Bien qu'absent des dictionnaires français, il présente pour nous l'avantage de suggérer l'idée d'une globalité à plusieurs versants : cette expression permet d'appréhender les valeurs communes aux différents systèmes culturels ainsi que la diversité des moyens de protection de ces valeurs. »²

On remarquera aussi que pour les peuples mayas du Chiapas, le patrimoine est à la fois patrimoine et un projet de société hérité par les ancêtres, mais qui doit être transmis de génération en génération. En soi, la « Bonne Vie », el *Buen Vivir* en espagnol est leur projet de société. Il leur permet à la fois d'assurer la transmission des patrimoine et d'un système sociétal hérité des ancêtres, et à la fois d'assurer à tous une vie digne et pleine. En soi, maintenir ce projet de société, basé fondamentalement sur l'éthique et les valeurs, ne peut être transmis que sous la condition de transmettre ce qui fut essentiel aux ancêtres et ce qui sera essentiel aux prochaines générations : la Vie.

Nous nous atelerons maintenant aux 10 valeurs pluriverselles qui sont à la fois un patrimoine et les différents piliers sur lesquels se posent le fondement du *Buen Vivir*. Il s'agit des valeurs suivantes: La justice pour tous, la paix en nous, la paix avec les autres, le respect de la nature, le respect dans la famille, l'éducation transgénérationnelle, le respect aux anciens et aux ancêtres, la dignité, la solidarité, la différence comme source de vie.

Ces valeurs sont pluriverselles dans le sens où elles ont en commun un même matrice (l'humanité) et s'expriment de manière différente selon le contexte géographique et culturelle dans lesquels elles s'inscrivent. Elles permettent ainsi d'inclure plus que d'exclure des patrimoines et ne tombent pas dans les limites de l'Universalisme ou du particularisme. Dans le schéma de l'Universalisme, la

² BELAÏDI, Nadia. 2005, Le modèle des conceptions *cosmiques* : apport de la vision du monde des peuples autochtones à la question environnementale sous l'angle juridique. In *La nouvelle question indigène. Peuples autochtones et ordre mondial*. Jean-Claude Fritz, Frédéric Deroche, Gérard Fritz et Raphaël Porteilla (Dir.). L'Harmattan, Paris, p. 423.

pratique a montré ses limites n'incluant pas toutes les expressions du patrimoine ou des patrimoines. La Stratégie Globale dans les sphère de l'UNESCO et plus spécialement du Centre du patrimoine mondial a été mis en place pour remédier à la perspective eurocentrique du Patrimoine mondial et l'Universalisme dans ce contexte a montré ses limites.

A partir de ces 10 Valeurs Pluriverselles Exceptionnelles (VPE), un autre patrimoine de l'humanité se profile. Par exemple elles s'appliqueraient dans le contexte de l'inscription de l'eau comme patrimoine de l'Humanité. Ses modalités de gestion et de protection seraient régies sous les valeurs pluriverselles exceptionnelles. Il est cependant à noter aussi que ces VPE sont autant applicables dans n'importe quelle cultures et permettraient de protéger des patrimoines culturel et naturels, tangibles et intangibles essentiels à la Vie et permettrait la protection de la Vie en soi.

La liste du patrimoine mondial actuel compte presque mille sites. Son chiffre se cesse d'accroître tous les ans. Arriverons-nous un jour à nommer la planète entière comme patrimoine mondial? Dans un contexte mondial où l'enjeu de la vie de l'espèce humaine est en jeu, les Valeurs Pluriverselles Exceptionnelles propose d'aborder ou d'approcher un patrimoine, des patrimoines qui sont essentiels à la Vie sur terre. L'on peut penser comme il a été dit auparavant, l'eau comme étant un patrimoine mondial de l'humanité mais l'on peut penser autres ces patrimoines, comme par exemple, la médecine traditionnelle, l'éducation populaire, l'air, la communication non-violente, etc. Tous seraient des patrimoines qui puissent donner et respecter la Vie en soi, le *Buen Vivir* pour tous.

Il est à noter que ce nouveau patrimoine mondial nécessiterait dans le cas de l'eau ou l'air de repenser l'humanité comme entité juridique au niveau international et nécessiterait un système de gestion et protection au niveau international. L'on peut aussi imaginer une liste du Patrimoine mondial alternative dont la nomination des patrimoines serait basée sur les 10 valeurs pluriverselles exceptionnelles. Dans un contexte de grande fragilité de la Vie sur terre, ces patrimoines seraient protéger et transmis pour permettre à l'espèce humaine de survivre encore un certain temps. Il s'agirait donc d'un patrimoine mondial alternatif dont le credo pourrait se baser sur une approche fondée sur les droits humains dans la nomination et la gestion de ce patrimoine mondial. En effet, les 10 VPE montrent toutes les caractéristiques et le paradigme des droits humains car elles se basent sur ce qui donne, protège et transmet la Vie et la dignité humaine.

Proposition:

Celle de créer une liste du patrimoine mondial alternative. Ce patrimoine serait focalisé sur l'idée d'une patrimoine mondial qui puisse transmettre et maintenir la Vie sur terre. Les 10 Valeurs Pluriverselles Exceptionnelles, listées dans ce texte servirait de base pour la nomination de ce nouveau patrimoine mondial. Il est urgent de protéger ce patrimoine mondial étant donné le contexte mondial fragile dans lequel l'humanité se trouve.

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Knowledge as a Tool for the Rehabilitation of Theatres

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Abstract

Between the 17th and the 19th century the theatre was an authentic center of aggregation for the social class: in the Italian area every city, large or small, was competing to build its own theatre.

As a result of the recent legislation bills, a number of public and private Italian authorities have begun an intensive recovery, valorisation and protection of the theatres architectural heritage present in the national territories, but with conflicting proposals regarding the maintenance interventions.

What seems more evident is the limited knowledge of the typical construction systems used to build a theatre, that requires an accurate and careful investigation campaign for a respectful, conscious and effective recovery.

Keywords: *Historical Theatres; Sicily; Rehabilitation*

1. State of the art

Since the survey of 1868, supported by the Italian Ministry of Interior, about 700 public and private theatres, of different order and degree, have been surveyed in the entire national territory, 70 of which in Sicily. The census had been motivated by reasons of public security, both of physical and political nature, considering respectively that structures, mostly made of wood, were exposed to risk of fires and that the theatrical performance were considered an express of dangerous ideologies.¹ Also in Sicily from the second half of the 19th century to the first decades of the following more than 150 theaters were built.

Beyond the important social and collective role, the historical theatres heritage takes on great importance in terms of historical, architectural and artistic profile: from painting decorations and stucco ceilings, curtains and boxes, to the complex and original structures and construction techniques in wood and iron, hidden from view but noticeable on closer inspection, used for making rows of boxes, daring roof trusses and ingenious warpages that support large ceiling surfaces or various stage machineries.

Today, few of them remain to testify the original features of this architectural typology: a large part has been totally reconfigured in cinemas, losing most of the time the formal aspect and the original relationship between the parties, entirely rebuilt both in design and in materials. Also the cases of renovations and consolidations have most of the time produced dangerous distortions to the most delicate structures such as the great wood velar, reeds and plaster, made more rigid and more fragile at the same time (figg. 1, 2).

There is a widespread tendency to use preconceived technical solutions, sometimes borrowed from case studies unrelated to the specific issue of historical theatres in the name of more rapid recovery interventions and of a presumed greater guarantee of safety, although this goes to the detriment of essential cognitive phase of the monument on which it is necessary to intervene. The “culture of reinforced concrete” on many occasions has upset boxes, stages and roofing with the replacement of the entire wooden equipment with materials unrelated to the theatrical tradition.

The investigation in progress in the whole Sicily area has found that historical theatres still *in situ* are about 38, a little number if compared to the amount existing in the last century, but perhaps still enough to recognize the functional, decorative and constructive typology. It is the constancy of the functional, technical and formal features in the generality of the Sicilian theatres, even with evident

¹ Rosmini, E. *La legislazione e la giurisprudenza dei teatri: trattato dei diritti e delle obbligazioni degli impresari, artisti, autori, delle direzioni, del pubblico, degli agenti teatrali, ecc.* Manini, Milano, 1872.

differences in dimensions and quality, to recognize their affinity to a clear typological model, patrimony of the community, whose values may be lost in the absence of prompt and correct interventions.

The main purpose of the present study is to focus general attention to this theme, specifying at the same time lines of intervention that allow the maintenance of the organism and of the theatrical function so that the theatre can be valued in the respect of the original features and according to the modern standards of comfort and safety.

2. The monument-theatre and the functional constants

From the last decades of the XVIII century, in Sicily, in peninsular Italy and approximately everywhere, the historical theatres were mostly realized in the “Italian style”, that means according to a system essentially characterized by its orders of boxes, but also by the scenic and state parts.

In the major European cities, from the end of the eighteenth century, the theater-monument contributes to urban renewal and is assumed as center of a new civic culture: on the one hand it led to the development of a typological research on the typical elements of theatrical function: stalls, boxes and stage; on the other hand it included experiments on the impact of the shapes of the external architecture with the urban transformation of the modern city. We have to consider, for example, the realization of the Odéon district in Paris, based on the theater of the Comédie Française or the inclusion of the Massimo in the urban structure of Palermo or the S. Elisabetta in Messina.

The great success of the Italian style theatre, besides functional and technical features, was due to the ability to support taste and habits of the society at that time. The form and the disposition of the boxes were related to the spectator’s desire, known but never theorized, to be the actor of the show playing in the stalls, the real scene during the long intervals; people went to the theatre as it was a party where it was possible to show off, to meet other people, to make new relationships, but also to observe without being noticed.

Both in the magniloquent examples and in the more modest ones, the organizational-functional constants with regard to the entrances, the stalls and the stage can be traced.

Generally the entrances are diversified for actors and staff and audience. The latter accesses from the anterior part through a foyer and one or more hallways that were preceded by a portico in relation to the prestige of the theatre. Along the perimeter of the hallway there are the connection compartments to the “café”, with a place for refreshments and wardrobe, but also the staircases that in parallel conduct to the different orders through distribution corridors that retrace the geometry of the stalls. In most cases, the stalls has a light inclination toward the stage; in some theatres, as Santa Cecilia in Palermo, it was possible to lower the stage to the same level of the stalls in order to turn the theatre into a big dance hall.²

The space of representation of the surveyed theatres is the nineteenth-century traditional one, with stage plane, generally strongly sloping toward the stalls, both for perspective reasons and for improving the visibility to spectators. It is in wood and supported by pillars, that create a wide under stage: the two spaces are linked through one or more trapdoors. The attic is constituted by one or at most two floors of grid (for the smaller theatres) made by wood boards that create a “transparent” plan, on which the pulleys for the movement of the scenes are placed. Along the inner perimeter of the stage some forestages and service landings, also with grid floor, are positioned.

3. Wooden construction in the historical theatres

The wooden construction is an important part of the historical theatre: from boxes to trusses roofings, to ceilings of reeds and plaster supported by ribs, the large harmonic arch in beams and planks, at the inner stage with his flooring, the grids floors, staircases and landings.

Only at the end of the 19th century, especially for safety reasons, in major theatres and only for the structural parts of the boxes and roofing, the use of iron began to be widespread. Wood remained as indispensable material because of the workers’ in-depth knowledge of the relevant application techniques, the ease of supply and the possibility of application of any kind of finishing.

² Di Marzo Ferro, G. *Guida istruttiva per Palermo e suoi dintorni riprodotta su quella del Cav. D. Gaspare Palermo*. Stamperia di Pietro Pensante, Palermo, 1859.

Depending on the different application the most suitable types of wood were used: larch and fir for structures subjected to bending of greater length (beams, pillars, truss rafters, floorboards ...), chestnut and oak when hard and durable wood was needed, woodland pine for the fixtures, cypress for the sculptural decoration such as laurel wreaths, foliage, portraits of chief musicians, cherubs, emblems, to be realized by implementing prior colored sketch.

The widespread use of poor quality and durability materials was not an exclusive feature of small theatres: the economy in the construction and the possibility of a rapid renovation to follow the changing tastes and habits, also brought in theatres of great quality the adoption of materials and techniques surprisingly precarious in relation with the importance of the monument.

Also in the rich Politeama theatre in Palermo, built in the '70s of the 19th century and innovative in the iron roofing, a lot of the partitions were in wood frames made of simply connected raw beams.

Among the elements of greatest interest related to the construction of historical theatres there are the system of framed boxes, usually realized using wood for the horizontal structures, finishes and handrail and sometimes for the partitions between the boxes, and the ceiling of the stalls arranged, in most cases, by a trusses system or resting on the masonry or on wooden pillars placed in correspondence of the partitions of the boxes and concealed by a coating in wooden boards (figg. 3, 4). The ceiling of the stalls, according to the width to be covered, has a variable geometry and is equipped with connections of handcraft invoice for adjustment to specific conformations.

Besides the facility of production and supply it must be added that wood was considered essential for the acoustics of the stalls, despite the fact that its use would be detrimental to solidity and security to fire; already Boullée had called the theatre “*a huge woodshed where you just need a spark to ignite and consumed in an instant*”.³

We have a rich history of examples of theaters destroyed by fire, as the case of the Petruzzelli in Bari, the Regio Theatre in Turin or La Fenice in Venice.

The reference standards, with regard to fire safety, were already present in the 19th century within the rules for the safeguard of public safety in theatres, but it was with the fire -responsible to the death of 64 people- of the Statuto cinema in Turin in 1983, that a complete overhaul of the Italian legislation arose, starting from the obligation to adopt materials with defined characteristics for reaction to fire.

Contrary to common belief, wood, although being a combustible material, has a great attitude towards fire risk. The wooden combustion takes place by thermal decomposition of the substances that compose it through a very complex chemical mechanism that develops in three stages: exsiccation, degradation and combustion.

The combustion process proceeds from the part exposed to fire toward the interior of the element with a determined speed and ended, so that the depth of the material destroyed by the fire essentially depends on the time of exposure to fire. Of crucial importance is thus the knowledge of the speed of carbonation, which allows to evaluate, in function of the exposure time, both the loss of material and the mechanical features of the same in the remaining intact part.

The wood can be completely destroyed in case of fire if submitted to heat sources of duration and intensity sufficiently high; its fire resistance doesn't depend, as for steel, from the relationship between the temperature and the mechanical characteristics of the material, since the temperature and the properties under the layer of charred remains practically unchanged.

For the wood it is necessary to hold under control the evolution of the performances of an element with a given initial section in terms of reduction of the section due to the carbonation of the surfaces exposed to the fire.

4. Knowing for intervening

To date, the historical theatres do not have any specific prescription that safeguards their peculiar feature.

What results is that today it is therefore necessary to refer to those norms common to all places of public show, independently from their quality and their year of construction.

3 Boullée, Étienne Louis. *Architecture: essai sur l'art*. Manoscritto, Parigi, 1799. Published by Helen Rosenau: Boullée, Étienne Louis. *Treatise on Architecture: a Complete Presentation of the Architecture, essai sur l'art, which Forms Part of the Boullée Papers* (Ms. 9153) in the Bibliothèque Nationale, Paris, Ed. A. Tiranti, London, 1953.

The relevant legislation is the decree of 19/08/1996 that is evidently calibrated on organisms of new construction, certainly not on historical theaters where the project must comply, besides the dispositions on the safety, also with those related to the respect of the historical-artistic integrity of the structure.

A deep knowledge of the historical theatre can still allow to make some more sustainable intervention of adjustment, limiting those deep changes that have twisted the founding features of a big number of Italian historical theatres as a result of a superficial and careless approach in the application of such standards.

A first observation concerns the fact that, compared to the previous indications, the orientation of the current legislation is rather more permissive, especially for two aspects related to the exits and the possibility of using the institution of derogation.

Indeed, if for particular necessities of technical or functional order it is not possible the respect of someone of the technical rule prescriptions, it can be advanced to the Ministry of the Interior, through the Provincial Command of the Fire Department jurisdiction, a dispensation fairly of a rule, proposing alternative measures that may confer an equivalent safety degree to that which the derogated norm would have given.

The fundamental principles which inspired the safety normative are related to the concepts of “isolation, emergency exits and movement of spectators, fire resistance of materials and structures, suitable lighting and suitable detention of systems for fire extinction”.⁴

For historical theatres one of the most critical aspects is represented by the so-called “principle of isolation”.

The planivolumetric characteristic of theatrical buildings, in relation to the dense urban surrounding, makes it very complex to satisfy the requirements for a suitable access to the area by Fire Dept emergency vehicles.

We have to consider, for example, those Sicilian theatres built after 1866 in the premises of former convents, suppressed by the so-called “eversive laws” of those years, and partially included in the town patrimony.

This is what happened in Agrigento, Racalmuto and Caltanissetta, in which the convents complexes were completely reconfigured to municipal theatres annexed to other municipal offices.

According to a currently approved practice, the principle of the isolation can be respected exploiting the large central courts or some of the private and public streets adjacent to the complexes.

Better possibilities are offered by those historical theatres that respect the principle of freedom of exit, namely the ease of a quick evacuation. This problem was already known in the past and a solution often adopted -in the analyzed cases- was to use the dimensions of the boxes of the first order close to the stage to realize new safety exits and to allow a reduced time for the public’s evacuation toward the exits themselves.

For what concerns the fireproof safety a careful assessment of the existing property safeguard is needed, considering that often the intrinsic value of the building is just the structure itself.

The problem of structures fire resistance is crucial especially in existing and interesting historical buildings; in this regard fire retardant varnishes and intumescent paints are inapplicable, since they would compromise the complete conservation of the theatre decorative equipment.

We don’t have to forget that, in case of buildings with undeniable historical and artistic value, it is possible to compensate the impossibility of application of some rules with alternative security measures, essentially based on the so-called “security management”, that introduces integrated tools for the organization and control of the activities, with the aim to achieve and maintain the security conditions, by increasing the efficiency and the effectiveness of adopted prevention and protection measures while improving and guaranteeing the safety levels.

The rule can be derogated if it is demonstrated that, through Fire Safety Engineering⁵, the structures may allow the maintenance of their characteristics for the time needed for occupants’ evacuation, although they doesn’t satisfy the requisite of the directive.

⁴ Corbo, L.; Rossano, D. *Locali di pubblico spettacolo. Sicurezza e prevenzione*. Giuffrè editore, 1997, Milano.

⁵ The Fire Safety Engineering (FSE) is a modern tool for assessing the safety of a building. It is based on the prediction of the evolutionary dynamics of the fire through the application of suitable models of computation physically sound. The strength of this strategy is its flexibility, which allows the simulation of fires complexity also very elevate.

The use of modern systems solves some problems that in the past seemed of difficult solution; therefore it becomes essential to use automatic fire detection systems, excessive signage, periodical control procedures and, especially, to identify those subjects responsible for safety aspects.

Furthermore the narrow bond between monument and usability leads to consider the recovery as an intervention “that should not, as is often the case, subtract the enjoyment of the works, but that has the purpose to save them allowing to survive as long as possible, as parts aesthetically and historically alive of our society”.⁶

Though considering the accessibility for the handicapped a civil undeniable conquest, in the case of historical theatres the full accessibility can be an issue not fully resolved without the risk of heavy functional and aesthetic distortions.

Therefore the law allows to stir within the requisite of the visibility, meant as limited accessibility to essential parts of the theatre.

This requirement entails in general more measured interventions, that generally include a guaranteed access to: at least an area reserved to the public, a toilet and the common spaces of meeting.

In addition to these, naturally, the most meaningful environments of the building -meant as “precious spaces” essential to the entire community- must be included, both for the understanding of their architectural identity and that for their fruition.

5. Conclusions

The experience gained in the examination of the numerous Sicilian cases has strengthened the belief that it is possible to adapt and make the theatre more “comfortable and safe” without resorting to the habits of the recent past.

The improved knowledge of the evolution of the specialist architecture, of the materials and constructive techniques, allows for a project of restoration able to preserve and rehabilitate the shapes of the historical theatre taking into account, at the same time, the current technologies and the tastes of the modern public.

The cognitive phase of the restoration process is concretized through a direct study of all the parts of the building, carried out in parallel with historical insights which, read in an integrated manner, allow to understand the process of construction of the complex.

It seems necessary to identify the present materials and structures, with the aim of identifying the permanence of those “typological constants” that characterize the historical theatre as such. These are the areas that need the highest attention in order to operate with discrete and “sustainable” interventions, that is compatible with the needs of conservation and restoration but also of upgrading, where necessary.

A correctly organized fireproof system of management, moreover, especially for complex structures, is able to determine both a reduction of the risk of fire, and the reduction of the damage in case of incident, guaranteeing therefore a great reliability for the maintenance of the safety conditions.

An “engineering” approach allows, in the light of a careful analysis of the variables of use, to suppose some of the scenarios that might happen, simulating the behavior of the fire. This procedure results particularly useful when the boundary conditions do not allow an easy application of the rule or if it required by special necessities, as is often the case with historical architectures.

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Figure 1: Interior of the stalls of the Bellini Theatre, Palermo.

Figure 2: Grid of the Regina Margherita Theatre, Caltanissetta.



Figure 3: Interior of the stalls of the Teatro del Popolo, Vittoria.

Figure 4: Plafond of the Teatro del Popolo, Vittoria.

Jericho: Sustainable Development through the Rehabilitation of Traditional Mud Brick Architecture

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Abstract

The unique characteristics of the Jericho area provide excellent opportunities for the proper valorisation and promotion of existing resources. The conservation project for some historical mud brick buildings respects the principles of *eco-sustainability*, *biocompatibility*, the *lifecycle of the materials* and *renewable sources*, enabling the preservation of the cultural heritage and reflection on the interaction between the human being and his environment in this area, even though this heritage lost a lot of its significance due to the continuous instability of the geo-political aspect.

Keywords: *Jericho; Ottoman Architecture; Bio Architecture; Mud Brick; Sustainable Development*

Jericho is located in the oasis of the Jordan Valley, in the Desert of Judah, 7 km west of the River Jordan, 10 km from the Dead Sea and 30 km from Jerusalem; at 258 metres below sea level, it is the lowest city in the world. From the archaeological finds, Jericho can also be considered the oldest city in the world, with traces of urbanization dating from 8,000 years before Christ (image 1).

There are numerous testimonies to its prosperous past: from the original urban centre called Tell es-Sultan (the Sultan's Hill), to Elisha's spring, Herod's Palace, the Synagogue and Khirbat al-Mafjar (Hisham's Palace), the residence of the Umayyads.

The collaboration between the Palestinian Ministry of Public Works & Housing, the University of Birzeit, the Municipal Administration of Jericho and the University of Florence Department of Architecture, which has a long tradition of cooperating in Palestine, has generated a new way of working together (lecturers and students from the University of Birzeit and the University of Florence taking part in a workshop held in Jericho), development which we hope will spread to other Palestinian and international institutions⁷.

The main objective of the workshop was to develop an experimental project based on the study and valorization of traditional mud brick architecture, local materials and local building cultures that would satisfy the principles of eco-sustainability, biocompatibility, the lifecycle of the materials and renewable sources and be an example of reference for further development of the existing local natural and human resources, towards a sustainable balance between the human being and his environment, in the area of Jericho and throughout Palestine.

Indeed, a high demographic density, and an endemic and instrumental lack of water, electrical energy and waste disposal areas go hand in hand with a population with a low income, and few available resources for high-quality building that is sustainable for the environment and the landscape⁸.

⁷Taking part in the workshop in Jericho and in drawing up the final project: for the Italian part, the professors Flaviano Maria Lorusso, Saverio Mecca, Roberto Sabelli, Fabio Scurpi and Giacomo Tempesta, the architects Ombretta Dinelli, Marco Nestucci, Andrea Salvietti and the students Italo Celiento, Leonardo Gobbini, Irene Manfredi, Benedetta Mazzieri and Jacopo Giuseppe Vitale; for the Palestinian part professor Shadi Ghabdan, engineer Ghada Abed Rabbo and the students Omar Khalil Aboudi, Rawan Majid Alfityani, Leena Mohammad Abed-Aljawad, Muath Ibrahim Abo Jheish Eh and Mosh Mohammad Zohoor.

⁸ Jericho's economy is based on natural resources: the fertility of the land, climate conditions and water sources which enable an abundant production of fruit trees (bananas, date, citrus), winter vegetables and flowers, in some cases with up to five production cycles. These distinctive features attract international agronomy study teams but also ornithologists for the recurrent migrations of birds.

For Jericho's ecosystem, a true oasis in the lowest point of the land, it is vitally important to draw up an awareness-raising strategy in order to set value by the cultural heritage and traditional local building techniques as indispensable elements to pursue the three fundamental components of sustainable development: environmental, social and economic⁹.

The sustainable development of a territory, above all if subject to a great demographic increase, cannot be separated from a conscious respect of the historic and natural resources, nor, therefore, from a correct programming and management of the territory. An awareness of the need to preserve the environment is only acquired thanks to the citizens' cultural evolution through continual training actions and correct information¹⁰.

In order to raise awareness among the population on the importance of building with a low environmental impact — therefore reducing the great ecological footprint — and with higher living standards than the concrete block constructions (image 2), it has therefore proven necessary to make preparatory research on the mud brick buildings still existent in Jericho, and verify the possibility of restoring them.

This technology has been rediscovered as a part of ancient architectural knowledge and we can use it in this project as an up-to-date building system that satisfies modern ecological awareness and also to valorize a specific cultural identity. Furthermore, the workforce to be used during the construction phase will receive appropriate training to ensure the acquisition of the specific skills and know-how required for making and laying mud bricks.

An operating methodology has been drawn up which, starting from a precise knowledge of the existent buildings, aims to exalt the potentials of this building technique through a process of adaptation to more modern production, comfort and safety requirements.

Little knowledge of the characteristics of the traditional building techniques is indeed at the basis of the perception that a poor material like earth is unreliable, even though its use has guaranteed the survival of buildings in Jericho for thousands of years.

Through a specific survey sheet recording the traditional typological and technical-construction characteristics we have tried to understand the principles and requirements at the basis of the choice of materials and, from the analysis results, the decay present, with an assessment of the causes behind it (see table in colour).

There are many examples of mud brick constructions in Jericho: the walls and dwellings at Tell es-Sultan (image 3), some of which date back to the eighth millennium BC¹¹, many historical buildings such as the elegant dwellings (image 4) and accommodation facilities (hotel) built during the British Mandate in the first part of the twentieth century and the fabric of present-day urban dwellings.

Following the census, eight constructions of different types and dimensions were selected that were subject to different types of decay. All dating from the beginning of the 1900s, between the Ottoman and British Mandate periods, these buildings have well-defined characteristics of significance for the goals which, along with the other institutions taking part in the research, we aimed to achieve. The study on the existent buildings was accompanied by a project for the construction of a new mud brick

⁹ 'The process of enhancing cultural heritage (learning about it, safeguarding it, conserving it, managing it, and using it) contributes to local progress if it is integrated with the broader territorial system, the environment and social and productive system. This is in accordance with the following widely acknowledged principles: a) the centrality of the resources of the area involved, b) the participation of local stake-holders in the decision-making process through the mechanism of harmonization and bottom-up programming, c) the responsibility, compatibility and sustainability of the proposed measures in terms of the resources they require' (Mecca 2012, 131).

¹⁰ (Novelli 2012, 23-24).

¹¹ From the findings at the archaeological site of Tell es-Sultan it is evident that the raw clay brick was the first building material and the one used for longest. At Tell es-Sultan two different types of mud bricks were found. The older ones, dating from the period that Kenyon calls the *Pre-Pottery Neolithic A* (8300-7600 BC), present variable dimensions (c. 26x10x10cm) and they were made by kneading the clay with bare hands and water until a crudely rectangular shape was formed. Then it was dried in the sun and after the drying the bricks were laid in regular rows bound with mud to make walls of up to four metres thick. In this period Jericho began to take on the shape of a city, with walls two metres high, defensive towers and a moat. The second type of bricks from the *Pre-Pottery Neolithic B* period (7600-6600 BC) are instead longer and thicker (40x15x10cm) and present unmistakable herringbone motifs impressed with the thumb on the top face (see Campbell 2003, p. 26). In the second Neolithic period (5500 BC), the building technique made a lot of progress: remains of two-storey constructions are present with cane and mud roofs, and rectangular shaped rooms (6x5m). They were laid out around a courtyard also used for cooking. The masonry which was around 50 cm thick was made on a stone foundation and the floor consisted of two layers of lime, with the top one painted red or blue (see Nigro 2006, 1-40).

complex¹², for residences and services, and a university campus, with public multipurpose areas, highly efficient modern technology standards, high environmental sustainability, good safety and low energy consumption with a high share of self-produced energy.

The technological innovations included in designing the new buildings were assessed for their use on historic buildings too. This gave rise to interesting experimental solutions to improve the structures' resistance to earthquakes, achieve low energy consumption, recycle water and protect the mud brick elements.

In addition, a maintenance plan was prepared to lengthen the service life of the historical architecture¹³. Where possible, the experiments on the existent buildings include the integration of traditional materials (mud brick and stone) with lamellar wood to improve seismic resistance, and the adoption of advanced technology for integrated systems to produce clean energy, such as thermal and photovoltaic solar panels, and recycling for water reuse. From a further selection of the recorded constructions, two were identified on which to prepare a final restoration project with new functions owing to technological upgrading: a beautiful private residence and a large hotel complex built in the first decades of the twentieth century in an advanced state of decay owing to abandonment.

The choice was made with the intent to highlight the possibility of having high-quality architecture in mud brick too, both for living purposes and service activities.

Particular attention to construction and composition, together with a suitable maintenance plan, can guarantee that the mud brick building will have a long life and low environmental impact, with the possibility of notably reducing running costs, such as the costs for possible demolition and consequent disposal.

Lastly, the research performed highlighted that above all a lack of information, or even misinformation, is the reason for the generic perception of the unreliability of the traditional construction technologies and a material that is easy to find and work such as mud.

Case study

The residential building (image 5), of particular significance owing to its good visibility along the main access road to Jericho from Jerusalem and the Dead Sea, is one of the examples of private architecture from the end of the Ottoman period (around 1908), followed by the British Mandate period (1915-1948), in which a western influence can nevertheless be seen, with typically French and British forms and the use of imported materials. The middle of the nineteenth century marked the beginning of a westernization phenomenon in the area of Ottoman influence, which saw the western European architecture as a model for new buildings in the Near East. However, owing to its conservative structure, culturally the Ottoman Empire remained detached from the innovative European movement¹⁴. Nevertheless, it welcomed novelties introduced in Europe, especially in the production and building sphere¹⁵; in our case, the use of St. Henry Marseilles tiles (image 6). The horizontal parts, interiors and exteriors of the building feature wood, as does the pyramid roof, which clearly show the inspiration taken from aspects of western construction.

¹² To limit the quantity of harmful organic components it is necessary to take soil from excavations below the vegetable layer. A specific study on the soil profile and mineralogical research, already partly carried out in the Florence University laboratories, will indicate where earth of an appropriate quality is to be found, so the production facilities can be located in areas where the earth is most suitable.

¹³ *'The relationship between technological innovation and architectural and environmental research, for example, is still largely a process of the simple application of products and technologies or, in other words, applied science..., which does not constitute real innovation. This often leads to an unbalanced relationship and greater emphasis on just the technical components, which do not correspond to effective cultural advancement... Neither do they improve the capacity to assimilate and modify the technology to achieve higher long-term objectives... The culture of conservation, in the broader sense, clearly and urgently brings to the surface a set of values that help to bring back into the technical sphere the importance of understanding its role as a means and not as an ultimate end in itself'* (Musso, Franco 2014, 55-56).

¹⁴ *'The hybridization of residential architecture during the end of the nineteenth century and the beginning of the twentieth was a general trend that pervaded both the cities of the great European powers and their colonial territories. This multifaceted trend placed the modernization underway in a dialectic relationship with the local tradition. This mainly occurred in bourgeois residential buildings, from Alexandria in Egypt to Beirut'* (Garzoli, Mastaglio, Paganelli 2010, 28, own translation) <https://www.politesi.polimi.it/bitstream/10589/12581/1/2010_12_Garzoli_Mastaglio_Paganelli_01.pdf> (03.09.2014).

¹⁵ (Amiry, Tamari 2008; D' Ayala, Fodde 2008).

The *three-brick thick* load-bearing walls are made using 31x14x10cm mud bricks.

When subjected to XRD analyses, the bricks and the mortars used for the bedding and for the plasters highlighted that the clay bricks present traces of quartz and calcite, that the bedding mortar was made with a carbonate binder and a carbonate-silicate sand (aragonite, dolomite) with the presence of fossils, and that the plaster was made with a lime binder and a silicate aggregate — quartz and traces of feldspars — nevertheless it cannot be ruled out that the aggregate included a carbonate component¹⁶.

The hotel complex (image 7), contemporary to the first, has a two-storey rectangular floor plan, with rooms set out symmetrically along a corridor that follows the longitudinal axis of the building. Alongside the first storey only is another building, which is a bar and restaurant.

This closes the whole construction in a C-shape, thus creating an internal courtyard partially open on two sides.

The compositional characteristics of this building, albeit similar to the first in terms of materials and techniques, are of an extreme simplicity, so much so as to make this construction appear as a compact volume with windows looking onto the road. The considerable dimensions of this structure make it clear that the poorest materials can also be used in building architecture of great representative importance. Indeed, this construction was built along the main road that links the city of Jericho to the most famous and visited sites in the area: Tell es-Sultan, the monastery on the Mount of Temptation and Khirbat al-Mafjar (Hisham's Palace).

For reasons of space, here only the details of the study and plans for the residence are shown.

Analysis of the decay

The causes of the advanced state of decay of the building are of a physical and mechanical nature — rainwater, sun, wind, rising damp — and neglect. In particular, rain, in Jericho occasional but torrential, has caused erosion phenomena at the base of the walls especially owing to the lack of a protection strip (image 8). The increase in volume caused by the water infiltrations between the layers of clay and its subsequent reduction owing to evaporation have favoured the formation of cracks of various sizes. The presence of water has also led to a notable decrease in the walls' capacity to resist compression, so much so as to compromise the stability of a large part of the structures. The damage at the wall-beam joints is greater, where the rotting wood has caused the masonry above to cave in.

The subsidence of the foundations can be attributed to their imprecision and lack of drainage. The plaster has come off all the outside walls, except for the one under the loggia. In sum, it can be asserted that, around one century after it was built, the main cause for the general decay of the construction is a total absence of maintenance. (R.S.)

Proposal for rehabilitation

The main structure of the building consists of brickwork of around 60 cm, supported by foundations made of stones mixed with lime. The base of the brickwork has eroded in the most exposed areas and its connection with the foundations is not always guaranteed.

Hence, it is necessary to extend the foundations, also to improve its seismic resistance, with 40 cm high brick underpinning, slotted into the existing foundations on both sides. The excavation must be filled with gravel which gets increasingly fine towards the top to favour the natural evaporation of the damp from the soil and avoid it rising to the base of the masonry.

The cracks in the walls must be filled with mud, sand and natural lime mixtures, with a good capacity to bond to the support, which is dampened beforehand, and with very little shrinking.

The particularly decayed material can be removed and integrated with small blocks of compressed mud which enable the shrinkage phenomena to be contained. In order to improve the seismic resistance of the building, a vertical wooden grid of small 10x10cm beams, with an interaxis varying from 1m to 1.5m in relation to the presence of openings for doors and windows, has been envisaged. The grid of beams, slotted and glued together, will be braced on the horizontal and vertical strips; in the vertical direction there will be double braces.

In order to guarantee continuity between the two levels of the structure, a continual lamellar wood

¹⁶ The mineralogical-petrographic and physical analyses were performed at the University of Florence Materials Analysis Laboratory (LAM) and at ICVBC-CNR in Sesto Fiorentino.

beam will be inserted in the brickwork, with tothing at the corners. The floor will consist of a series of small parallel beams, with an interaxis of around 40 cm, linked to the other transversal elements that are staggered to protect the beams from twisting. The seismic resistance of the walls will therefore be guaranteed by the structural continuity of the building (image 9).

In order to restore the external aspect, the thickness (10 cm) of the wooden consolidation grid will be filled with reeds. Reeds, with good heat insulating properties, are breathable, favour the diffusion of vapour and perform a hygroscopic balancing action; furthermore, given the high quantities of silicon acid contained, it is fire resistant and in the event of a fire does not pollute.

The plaster can consist of clay and sand for the interiors with an addition of hydraulic lime for the exteriors. Some natural additional components will also be used, such as chopped hay, which reduces the phenomenon of cracking and helps to thin out mixtures. Unlike mineral fibres, despite having inferior mechanical performances, vegetable fibres can absorb the water in the mixture and, with drying, make a single body with the mud mortar. The quantity of water can vary according to the type of mixture and the mineralogical characteristics of the clayey binder. Clay-based plasters have the capacity to regulate the humidity of the rooms, and perform an absorbing action in the presence of a lot of damp and, in the opposite case, a releasing action, thus maintaining optimal humidity levels for man, i.e. between 50% and 70%; they have good thermal inertia and excellent soundproofing properties¹⁷. Clay, as a colloid, also retains the dust, gas and smells present in the air and protects from electromagnetic fields. The jutting loggia, balustrade and its roof are made entirely of painted wood from the local area.

The most sheltered horizontal elements are better preserved while some vertical elements of the balustrades are missing, having been replaced in time to avoid collapse with different, easily identifiable elements. Instead, no traces remain of the original exterior staircase connecting the two floors of the house, built against the north-eastern and north-western sides, which will need to be totally rebuilt. The roof structure, built in pyramid style with wooden beams, is not very safe. It is covered with Marseilles tiles and is not insulated. The structure can be rebuilt like the original with new material and the insulation can be made with wood fibre inside a ventilation chamber.

By studying the movements of the sun using special software, it was found that the inclination of the rays falling on the southern façade can vary from 32° in the winter months to 82° in the summer months. The most exposed sides are south-east and south-west facing. The low part is protected by the jutting terrace. To increase the protection from radiation new frames can nevertheless be placed inside the wall which, thanks to its great thickness, would increase the shade during the hours of most exposure. It has been verified that no condensation forms in the interstices.

The complex should produce enough energy to be self-sufficient and to have a low environmental impact thanks to the use of the primary resource in the area: the sun.

The overall concept of the engineering plant is based on the following fundamental goals: to guarantee and maintain active and passive safety for people and the environment; to guarantee and maintain hygiene and comfort within the building independently of the external climatic conditions, favouring and using passive strategies with a low energy consumption; to guarantee a low energy consumption target for the complex in terms of the energy required for air-conditioning, hot water production, mechanical ventilation and artificial lighting.

The different plant systems should all be integrated, flexible, and easy to access and to maintain; their optimal management should be ensured by adopting management and regulation control systems that make them capable of responding to climatic changes and to the variability of energy requirements in order to avoid a costly waste of energy.

To exploit the solar energy needed to guarantee the residence energy autonomy an area of 60 sqm of solar panels would be needed, with at least 10 sqm of which heat-photovoltaic, to obtain the production at full capacity of 6 kW of electrical energy and the hot water needed for sanitary use. However, given that conservation of the building's aesthetic and landscape value would advise against placing solar collectors on the roof, it has been proposed to exploit the slope of the surrounding ground to the south of the building. The hot sanitary water will be collected in a tank underneath the outside stairs, with a system of forced circulation so that the solar collectors can be placed at will. The air

¹⁷ (Mecca et alii 2008, 13-22).

conditioning system, seeing the great thermal inertia of the wall — outwall plus external infill — will consist of an external reverse cycle heat pump, with heat regeneration from the compressor, and it will contribute to the production of sanitary water. In the internal rooms, the heat will be regulated using fan coil units to be positioned in the false ceiling (image 10). (I.C.)

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Image 1 – view of Jericho oasis and Tell el Sultan



Image 2 – new houses in concrete blocks



Image 3 – Tell el Sultan: old houses mud bricks



Image 4 – house of the Ottoman period



Image 5 – house of the Ottoman period



Image 6 – St. Henry tile



Image 7 – hotel of the Ottoman period



Image 8 – detail of the Ottoman house

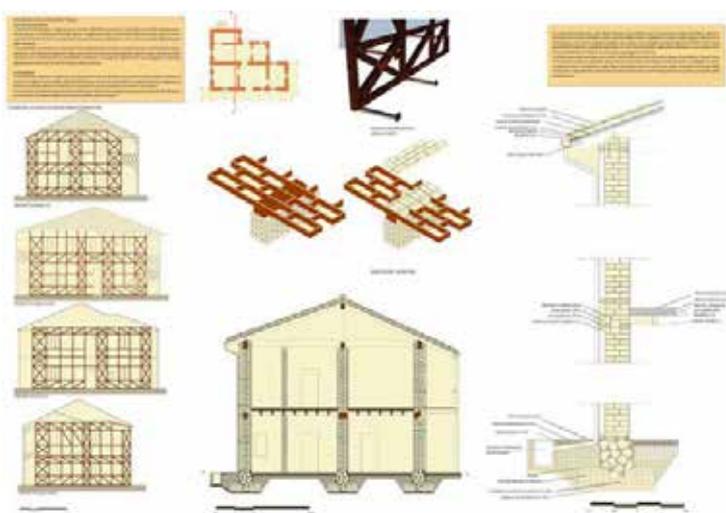


Image 9 – details of the consolidation of the house

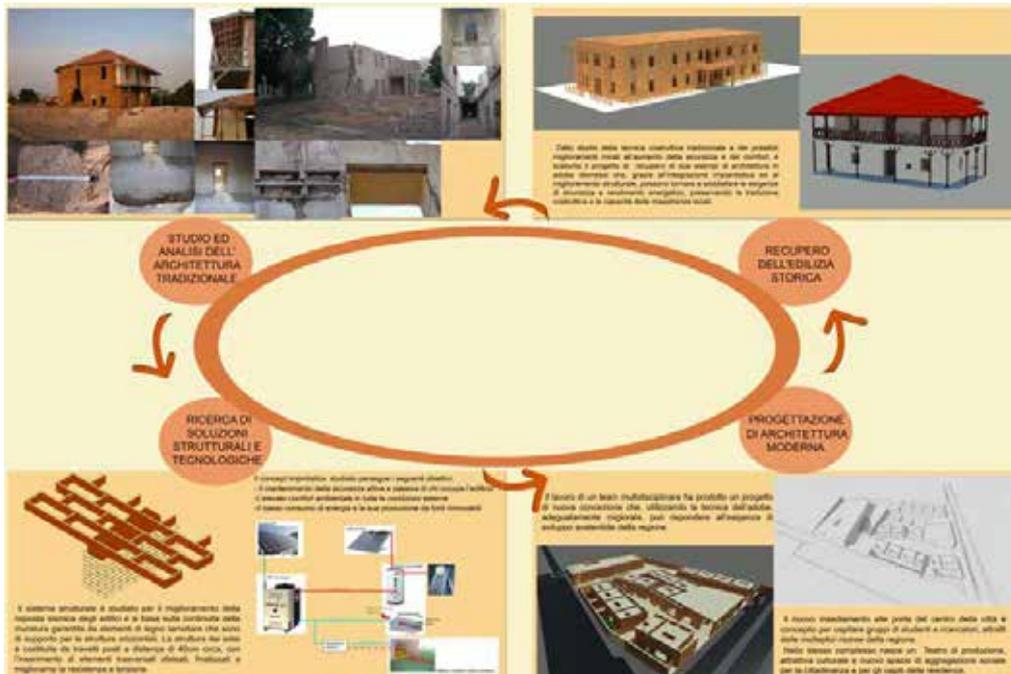


Image 10 – flow diagram of the search

Water Management in the Construction of Landscape: Tradition as a Learning Model

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Abstract

Socoroma, an Aymara farming community, can be found on the Andean foothills in Northern Chile. From centuries ago, this community has developed strategies to manage the available water stock and the erosion produced by complex geography by constructing hydraulic spaces and cultural systems which have persisted in time. This sustainable water and land management model emphasizes how people can coexist with the landscape and, therefore, the understanding of such a phenomenon would be invaluable for in future interventions in rural and urban areas.

Keywords: *Traditional Knowledge; Andean Landscape; Water Management; Sustainability*

The Atacama Desert, located on the western slope of The Andes mountain range, is a vast area with significant differences of latitude and elevation as well as an irregular topography. The latter presents diverse types of ecological zones and an environmental scenario characterised by high solar radiation and large thermal fluctuations between night and day. In addition to this, restricted access to water supply and a hostile landscape for life can also be counted as relevant characteristics. These features determined the land occupation strategies of the region's first inhabitants, who adapted themselves to biosphere restrictions and available energy to develop a long-standing technical system to manage the land and its resources. These ways of adaptation led to a collection of transmitted knowledge, which is inherited through cultural practices. Such practices allow the symbiotic collaboration between the biotic and abiotic components of the environment and can also be considered as a learning model. Consequently, the assessment of such traditional knowledge as a means for sustainability has been the object of study of multiple disciplines in this field. This paper supports the claim that the collected traditional knowledge has allowed the conservation of biodiversity, protection of species and zone, continuity of ecological processes and sustainable use of resources over time¹.

Socoroma, an Aymara locality located at 3,300 masl in the north of Chile, is an example of such ancestral knowledge. It has shaped the life of the Andean world inhabitants, where the focus of is not inside their households, but rather in their backyards and *chacras*². This requires that they coexist with the environment by using technical strategies to manage the available resources within the ecosystem and, thus, guaranteeing their availability for the future. (fig. 1)

1. Methodology

The assessment proposal of the intrinsic ancestral knowledge of the region is based on the notion of *the oasis as a technical model for the sustainable management of territory*³, in which a society transforms the pre-existent territorial dynamics to generate a collection of positive interactions within an environment, i.e. flora and fauna which were nearly non-existent or totally non-existent before the intervention. The inhabitants recognise the characteristics of the region, define its potential use and carry out physical interventions which alter the existent biophysical matrix. This allows the construction of spaces which serve to support life. However, such areas require social organisation to guarantee their continuity over time.

¹ (Berkes, Colding, and Folke 2000; Laureano 1995; Rappaport 1987).

² Chacra. Quechua word frequently used by Andean people to describe small plots of land where vegetables are grown.

³ (Chandia-Jaure and Cuchí 2011; Laureano 1995).

The oasis technical model represents a cultural landscape which readapts to the restrictions of the ecosystem. The hypothesis presented in this paper is that the spatial configuration of the constructed landscape is the inhabitants' answer to the requirement of obtaining maximum possible efficiency in the use of resources, that is, energy, soil, water, materials, by using the least possible effort, the latter being understood also as a resource. The continuity of the dynamics of land use requires complementary social regulations between the different ecological zones and reciprocity principles among other units which coexist in the Andean zone in South America⁴.

The aforementioned model has three components. The first one is a foundational, lineal and directional hydraulic system organised in hydraulic spaces⁵. This depends on the water flows which supply the land and the mechanisms required for its operation. The second is an architectonic system which determines the space conception and results from the configuration of the water mappings, materials and construction systems used for both housing and production. The last component is a productive system, which relates to the inhabitants' social and cultural actions to preserve the built-up areas, therefore, generating flora and fauna management-related practices. The aim of this article is to present the partial results of the analysis of the hydraulic system of the technical model identified at Socoroma.

The assessment of this landscape as a learning model is an interpretation, and, therefore, a description. Hence, interdisciplinary views which also assess the model are significant for this study. Indeed, this research considers Calógero Santoro's work, in which he makes important contributions to the study of archaeological places and local pre-Hispanic irrigational systems, as well as that of Milka Castro, who proposes an insight into the hydraulic culture of the high-Andean towns, such as Socoroma. Similarly, Carlos Choque's work is also relevant to this paper. He describes Socoroma by the historic reconstruction of its cultural components and their current meaning for the members of the community⁶. These views are the cornerstones for the field work which was done different stages: the identification and assessment of the Andean technology; the selection and theoretical framework of the case study; the interpretation of the cultural meaning regarding the reciprocity and ecological complementarity between the settlements. Finally a detailed description of the hydraulic system and the social mechanisms whereby knowledge on such particular systems.

2. The Hydraulic System

Gravity force is the most important element of the system, as it defines the design of hydraulic spaces as well as the water collection point, the mapping and slope of the channels. The system allows landscape transformation works to be efficient, low-environmental-impact solutions. It also presents limitations to its potential growth, which is determined by the rigidity line of the main channel from which all the irrigation water comes. The system have three components. The first one is *collection*, which defines the limits of the hydraulic system based on the transformation of the two main tributaries of the hydrologic basin: Aroma and Socoroma (fig. 2). The second element is *distribution*, which causes spatial transformations defined by the mapping of the channels of the region. The last element is *water sharing*, which determines the mechanisms for irrigation among all the members of the community and the internal organisation of the smallholdings, which is based on the water direction and force and defines different functions for each of its components: *Canal*, *Jalanta*, *Contra*, and *Chipalla*. In this system, it is crucial to apply the law of the minimum, where communities control the degradation of the ecosystem based on the presence of the scarcest resource⁷. Community work is also vital trough ritual practices, which allow the transmission of knowledge about land ownership and water use. These emphasise worshipping hills, particularly the *paths of memory*, which honour to the holy hills of the community⁸. Interestingly, these coincide with the limits of the hydrologic basin and the places where the watercourses which supply the town are originated.

⁴ (Murra, 1975).

⁵ (Barceló, 1989).

⁶ (Castro and Bahamondes, 1988; Castro, 1992; Choque, 2008; Santoro, Hidalgo, and Osorio Ulloa, 1987; Santoro et al., 1998).

⁷ (Rappaport, 1987).

⁸ (Choque and Pizarro, 2013).

3. Collection and Distribution

The two natural rivers are subdivided into two to generate the four main canals which in turn produce the water mapping of the region. *Pueblo Canal* is the most frequently used by the community. It collects water from the upper course of the Socoroma River and combines consumptive and productive water use. The channel has an approximate extension of 4.5 km and supplies water to approximately 350 smallholdings. The channel supplies the first smallholdings with tap water until it reaches a water reservoir, from which water is derived for the consumptive use of the townspeople. The water is also used for irrigation in rotational turns in some smallholdings of irregular shapes. The *Chachacagua Canal* obtains water from the lower course of the Socoroma River. It has an extension of 2.2 km and shows lineal, serrated smallholdings. These plots are largely supplied directly by the main canal. The latter presents a strong slope of approximately 80%. This feature is the factor which requires terraces and irrigation works to regulate water supply.

The *Aroma Canal* is located in upper part of the *Aroma Gully*. This configures a hydraulic space which adapts to the complex geography and the low quality of the soil. In addition to these issues, access is also difficult due to the long distances which separate it from the town, the 200-metre height difference and the continuous geological transformations in the pre-Andes. The channel produces a tripartite division of its flow, of which water use is changed alternately every two years depending on the requirements of the community. Lastly, the *Mancaruna Canal* is located in the lower course of the Aroma River and it is connected to the town by a narrow path of land. Smallholdings in this area have lineal, continuous-stepped terraces due to the steep slope. These show a broader cultivable surface compared to other zones. The channel has a total extension of 3.6 km and its most prominent feature is the diversion of its flow at the intersection between the Aroma River and Socoroma River before reaching the *Chachacagua Canal* and the Socoroma River in the *Chulpani Canal*.

4. Water Sharing

The collected and distributed water within the smallholdings is done following techniques which had already been performed at another scale. These techniques consider the limitations of the force of gravity, topography and soil quality. In Water Sharing interact four components:

(1) **Canal:** Each hydraulic area has its own network of primary and secondary channels. A main channel, from a smallholding, has a connection with a narrow, paved channel which goes down against the slope from which two other small furrows originate. These work as channels to distribute the water inside the smallholdings. In the traditional system, the flow regulation always has a stone to stop it and a piece of fabric to slow down the flow speed or impede its access when it is not the irrigation turn. Main channels are 40 cm wide and 20 cm deep with a slope between 3% and 6%.

(2) **Jalanta:** The word *jalanta* derives from an Aymara word associated with the idea of 'letting something fall'⁹, which is precisely what it does: it allows water to descend from the main channel into the terraces, as illustrated in Figures 3 and 4. It is a channel which usually has a slope which ranges between 40% and 50%, and might even reach 90%. They are perpendicular to the main channels and start at the highest vertex of the smallholding to its lowest vertex. Its approximate dimensions are 20 cm wide by 10 cm deep. The channel has a small inlet for each terrace level it descends. This is usually defined by rocks which modify the flow and detour it to the upper part of the terrace which needs irrigation. It performs a double function: to delimit the boundaries and direct the water to each of the terraces in a smallholding. In other cases, when the smallholdings exceed the width mean, i.e. up to 50 metres, an intermediate *jalanta* is built in the middle of the same smallholding. The *jalantas* are made of highly-eroded irregular stones at their base and have a border made of flat stones, which are used as walls. One of the vertical stones of this channel along with other more flexible materials, such as pieces of fabric, potato sacks or even available cacti leaves, act together as a lock gate, which interacts with other components of the system. Inside a *jalanta*, energy dissipaters can be found. These are medium-sized stones which work as dikes to slow the water flow speed. This process is complemented by other stones which are located under one of the small inlets to the terrace to detour the flow towards the next inner channel of the smallholdings which has materials to absorb part of the flow. This allows the reduction of the water speed. In addition, as smallholdings and related

⁹ Jalanta. Stems from Aymara. (1) West, sunset. (2) from *jalantayaña*. To let or make something fall down. Source: www.katari.org.

subdivisions are irregular due to the topography, the *jalanta* is the component which organises the layout of the smallholdings and other inner areas. The length of the *jalanta* depends on the total length of the terrace, but its inner dimensions, slope and appearance remain stable in time. Due to the fact that the irrigation system demands that the water move by gravity to all the points of the smallholdings without flooding them, terraces have a slope towards the same direction as the *jalantas* but much less pronounced than the latter. In addition, there is another slope towards the *contra*.

(3) Contra: It is a land channel which is located in each anden parallel to the main channel with a slope which follows the contour of the mountainside. There is a *contra* for each land channel that the smallholding has and it is located right on the lower edge of the stone wall which contains soil for farming. The channel has a round-looking base which takes water from the *jalanta* and carries it throughout the length of the smallholding from the same highest vertex where the *jalanta* starts to the opposite lowest vertex. The channel has approximate dimension of 15 cm wide by 7 cm deep. The *contra* is invariable in the system, that is, it is always consists of land and its design remains stable regardless whether the smallholding is farmed. In the latter case, the *contra* must be redrawn, weeded, tamped, and fine furrows must also be defined for the *chipallas*. Its slope is approximately between 3% and 10% depending on the geography of the anden and the type of soil where farming is performed. Importantly, besides organising the distribution of irrigation within smallholdings, it is also the place on which farmers can walk.

(4) Chipallas: If the aforementioned hydraulic areas are observed from a territorial scale, the initial component would be collection. However, if the same territory is analysed from an inverse scale, the basic and final unit is the *chipalla*: a small, temporal furrow of 5cm wide by 5cm deep which is drawn in the terraces. The *chipallas* show an oblique direction from the *contra*, creating an approximate 45° angle from the latter and towards the lowest point of the field. Hence, while water flows in the *contras*, the irrigator outlines the rest of the *chipallas* required to water each plant individually. The layout branches out the water flow, which produces a water network throughout the extension of the terrace. When water starts to overload the capacity of the soil, the irrigator detours the water to other plant. Once all plants have been watered, the *jalanta* inlet in the higher *contra* is shut, so that water may continue to the next lower *contra* of the same field and restart the process. (see fig. 5)

The systematic observation of a smallholding in the irrigation phase suggests that the entire field is not homogeneously irrigated and dry patches appear on the soil. It could be argued that irrigation using *chipallas* is comparable to be constantly drawing lines on a piece of paper. In other words, it cannot be a static process, as the water movement also depends of the soil characteristics, wind direction and force, and the level of solar radiation, which may provoke water evaporation. In addition to these, constant water excesses need to be controlled to prevent the soil layer erosion. One or two irrigators are required to stop the irrigation of a terrace at a precise moment by closing or opening the *jalanta* on the respective *contra*, as shown in Figure 6. The word *chipalla* stems from the Aymara *ch'ipha*¹⁰, which means rope net. This is consistent with the description of the current irrigation system layout, which resembles such a concept. The layout of the *chipalla* on the ground is made with a tool called *chipana*¹¹ each time that a specific field needs irrigation (see fig. 7).

The layout also changes depending on how the water is flowing in its route between the inner channel in the smallholding and the plant which needs to be watered.

In spite of the attempts to change the farming system, the ancestral system remains being the most widely used in Socoroma. The Andean irrigation systems have proved to be the only efficient way in a region with such a complexity as the one found in The Andes. Behind this apparently simple way of irrigating crops, i.e. by using a stick to direct the water flow, there is a concentration of knowledge about the behaviour of the existent biophysical matrix, which is represented in the way the hydraulic area is defined. This area, in terms of its limits and diverse scales, determines the construction system and the architectonic definition of the landscape, which additionally conditions a way of life. The stick is a tool which only has value in the process when it is correctly used by someone who has the

¹⁰In addition to Ch'ipha, there are other associated words which stem from Aymara, such as *chapallitha*: to place dirt over ridges when ploughing; or *chapatha*: detour water so that it goes somewhere else. (Bertonio, 1984).

¹¹ Aymara: handle. (Büttner and Condori-Cruz 1984) It is an reed stick with an approximate length of 1.6 metres. Originally, it had an oblique cut in the lower end. Currently has a 5-cm-width metal plough to make the necessary furrows on the soil.

knowledge about the ways to operate water and furrows. As suggested before, this will largely depend on the type of soil, the required and available water flow and the slope. The townspeople simply know when a terrace has been irrigated. They also know how to administer the water flow which enters the field and is distributed in the *chipallas*. Irrigation by *chipalla* and all the complexity underpinning this technique justifies why terraces are predominantly used during all day.

5. Conclusions

The hydraulic space at Socoroma is configured when all of its components interact with each other. This produces a system that readapts constantly. Each component determines the existence of another. It is possible to distinguish the necessary hierarchy to graduate and control the resources available: water, soil and energy. The water flow, base of the model, is fragmented, organised and carried as required. The erosive action of water, which can be an agent of risk for the stability of the model, is crucial when designing the hydraulic spaces. Hence, the result is the product of the perfect balance between the necessary flow to supply the smallholdings and the flow which exceeds the limits. This equilibrium determines the hydraulic area and leads to the construction of necessary works to obtain the suitable soil to meet the demands, but also determines the necessary restrictions to guarantee available soil for the future. The social factors are crucial in the use of the landscape, as the active population represents the available energy stock to carry out a process. This factor at the same time is conditioned by the degree to which the original population of a place holds on to traditions. The latter allows preserving the collection of knowledge which shapes the landscape. The lessons learned from the observation of Socoroma as a technical model suggests that the environmental understanding of a region for habitability is a vital factor to facilitate the continuous use of the land without going beyond the limits imposed by the ecosystem. The cultural model is an environmental model and the understanding of the elements which constitute the hydraulic system also represents the social contiguity as to how such a process is carried out. These elements are important for application of the process in the possible interventions in highly environmentally-vulnerable territories. Hence, human actions have to be the mediator between the biophysical processes present in the ecosystem.

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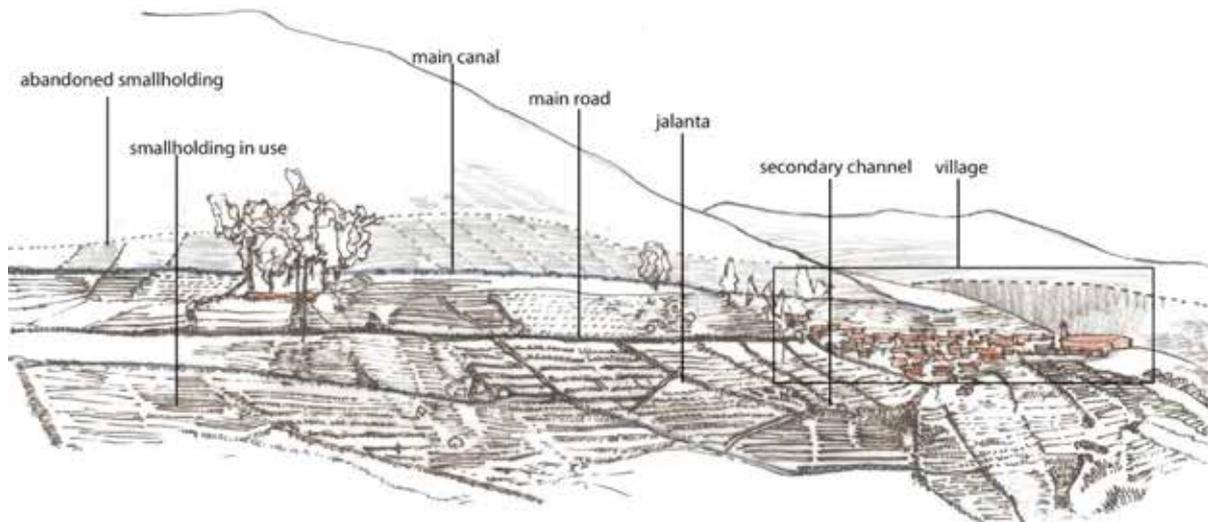


Figure 1: Scheme of built landscape in Socoroma. It shows parts of the technical model.



Figure 2: Aroma river and old terraces.



Figures 3, 4: Two examples of jalanta. This allows water to descend from the main channel into the terraces.



Figures 5-7: Chipana, a tool used to plot Chipallas in the soil from the contras.

The Knowledge of Traditional Constructive Systems and Its Contribution to a Sustainable Practice in Architecture: the Example of the Bourgeois House of Porto

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Abstract

This paper intends to present a constructive model of the bourgeois house of Porto, conceived from the evidences of systematization that appeared along the research on materials and techniques applied in its construction, aiming, fundamentally, its application in the development of intervention projects in these buildings. Moreover, it is expected that all the work of characterization and typification related with the conception of this constructive model, may also constitute an important contribution for the History of Construction in Portugal.

Keywords: *Ancient Buildings; Historical Construction; Sustainable Architecture; Constructive Model; Heritage Safeguard*

1. Introduction

The practice of conservation, very common in the pre-industrial construction, constitutes an environmentally sustainable and friendly attitude, allowing to reduce the consumption of natural resources and energy and the production of construction residues, besides contributing to a balanced occupation of the territory.

Along the XX century this balance was deeply altered by the industrialization process, resulting in serious environmental impacts, along with the exhaustion of natural resources.

Fortunately, in the last decades of the past century, movements centred in the environmental cause have appeared, which, through their contribution for the denunciation of the modern society harms, are gaining more and more supports.

Nowadays, it is possible to affirm that we are living a time of transition to a new paradigm focused on the environmental cause that will certainly refocus our relationship with the planet.

In the Architecture disciplinary field, the promotion of a sustainable attitude should elect as a prime goal the intervention in ancient buildings, either considering simple actions of conservation, increasing their service life, either in more complex rehabilitation interventions, devoted to improve their overall performance and energetic efficiency. Consequently, only the extension of the service lifetime of buildings, through his maintenance and rehabilitation, will be able to reduce the environmental impact produced by the current activity of the construction field.

In this sense, we believe that in a short-term, consolidation of a process already in course - where building rehabilitation is having a major role - will occur, leading to an inversion of the prevailing architectonic practice.

2. The Portuguese context

In Portugal, the years that followed the end of the dictatorship and the entrance in the European Community had been characterized for a strong growth, with particular prominence for the dwelling, which turned in a disordered and uncontrollable occupation of the territory, in the form of “oil stain”, wrapping the degradation of quality soils, an overwhelming pressure over the coastal border and the increase of the risk facing environmental catastrophes, like floods, downfalls or fires.

Even so, nowadays the official speeches of political leaders continue to confound, recurrently, development with growth, demonstrating that we still have a long way to run. In fact, the last census

consultation, carried out in 2011, evidences that the focus on growth remained during the preceding decade, despite some deceleration.

Actually, the data advanced by this report, in relation to 2001, point out for an increase of the total number of familiar accommodation of approximately 16,2%, supported by the vacant accommodations (+35.1%), secondary residence (+22.6%) and ordinary residence (+11.7%). It was also ascertained the existence of 734.846 vacant conventional dwellings, for sale or lease, representing a 35,1% increase. Hence, in a country with approximately 10,5 millions of inhabitants and with the highest percentage of secondary residence among all the European countries, these data really represent a serious situation, being responsible, in part, for the present economic crisis.

Concerning the city of Porto, the same inquiry confirms the trend for demographical loss of the town centre, that in the last decade stood at -9.8%, with the highest level, above -20%, corresponding to the historical centre parishes (Miragaia, Vitória, Sé e São Nicolau), followed by the neighbouring parishes (Massarelos, Cedofeita, Santo Ildefonso and Bonfim), with reductions between -20% and -10%.

Taking for reference the urban area designated Priority Intervention Zone, correspondent to 530 ha, which includes the main parishes of the town centre (S. Nicolau, Miragaia, Sé, Vitória, Cedofeita, S.to Ildefonso and Bonfim) and the UNESCO World Heritage Centre, with 49 ha, we are facing a universe of 11.642 buildings, with 3.789 needing great or very great repairs and 4.703 requiring small or average repairs¹.

In the case of ancient buildings, intervention becomes highly complex, not only due to the use of materials and traditional techniques almost extinct, but also, in many situations, due to the presence of cultural values which impose their safeguard.

The growing interest in traditional techniques and materials (which were progressively moved away by the industrial construction) was primarily due to their compatibility with preexistence, but also reinforced by their appropriate performances, qualities that have been gradually demonstrated in various areas of knowledge.

The deepening of the knowledge on ancient buildings leads necessarily to the reconstitution of its construction, by reversing the design and construction process of a new building, i.e., investigating on the used materials and techniques and registering the subsequent data in drawings and models.

3. The study on the Porto bourgeois houses constructive system

The study of the constructive system of the bourgeois houses of Porto has been initiated at several years ago with the realization of academic works concerning survey and interpretation (fig. 1), which counts on some hundreds of analysed buildings, largely located in the Historic Centre of the city. The first systematization presented from this material², was based on main literature about the subject and on the consultation of architecture licensing processes, existing in the Municipal Historic Archive of Porto. The accomplished research turn out evident that the available specific literature is scarce and dispersed, and includes, mainly, the studies conducted by Ernesto Veiga de Oliveira and Fernando Galhano³, complemented by small monographic essays on applied materials or architectonic elements of the buildings. For this reason, the study was extended to treaties and, in particular, to manuals, that have had great national spreading during the XVIII and XIX centuries, with emphasis for the works of Oliveira⁴, Leitão⁵ and Segurado⁶.

The referred systematization, which has been updated with data resulting from the most recent research, also includes an extensive and complementary graphic documentation of the constructive system of these buildings.

4. The definition of a constructive model

The accomplishment of hundreds of building surveys, coupled with the deepening of the study on its constructive system, made evident a strong systematization of procedures, techniques and application

¹ (Martins *et al.* 2010).

² (Teixeira, 2004).

³ (Oliveira & Galhano, 1992).

⁴ (Oliveira, 2008 [1748]).

⁵ (Leitão, 1896).

⁶ (Segurado, 1920a; Segurado, 1920b; Segurado, 1920c; Segurado, 1947; Segurado, 1908).

of materials, that reached its greater fullness of refinement from the second half of the XIX century, when the processes of industrialization, along with the exportation of new products, takes greater importance (figg. 2, 3). However, the intention to systematize the urban development of the city has been initiated a century before, influenced not only by the illuminist ideals, but also by the process of reconstruction of Lisbon, following the 1755 earthquake.

This systematization, expressed, first of all, through a disciplined urban design, has resulted, in the building scale, in a standardization process of constructive elements, such as balconies, cornices, parapets, etc. On the other hand, the domain of the constructive techniques very centred in a corporative knowledge, also contributed, effectively, to this constructive systematization.

In the case of the city of Porto, it was possible to identify the existence of several standards related to the construction of the houses, with respect to its several components, such as the facades, floors, roofs, window frames, etc.

This context has motivated the conception of a constructive model of Porto bourgeois houses, based on the degree of occurrence of the different constructive solutions identified in the studied buildings. For this purpose, the building model was divided in ten main components of its construction: foundations; buried walls; exterior walls; floors; roofs; interior walls; vertical accesses; exterior window frames; interior door frames; and installations.

The constructive model, elaborated from the dominant constructive solutions taken from the studied sampling, resulted in an abstract building, readily associable to any bourgeois house of Porto of the second half of the XIX century (fig. 4). The association of the model to this period does not result surprising, since the most recent buildings were the ones that had not suffered deep modifications, thus maintaining the presence of many traces of its original form.

The building model is not limited, however, to this particular building, being multiplied, for each of its ten previously identified components, in a number of constructive variants, as many as was possible to identify (figg. 5-8).

In summary, the main purpose of the constructive model is to speed up the intervention processes for safeguarding and upgrading of the buildings, taken advantage of all the information contained in the drawings of different scales, from 1/50 to 1/1, and ensuring its application along the various stages that constitute the intervention process.

5. The application of the constructive model in the architectural design

The intervention in older buildings is a very complex operation, since the traditional materials and building systems, their behaviour and the vast phenomenology associated with damage, are not of easy domain for people with general training, which implies the intervention of several experts. For this reason, it must be considered a multidisciplinary activity par excellence.

Since the Amsterdam Declaration⁷, it became consensual that the knowledge and the techniques applied in the interventions in exceptional buildings should also be applied to the current buildings; however, this transposition cannot be achieved in all cases, since the required technical support is frequently impracticable for economic reasons, at least with the desired amplitude.

In fact, if in the case of monuments or other exceptional buildings, it is possible to fulfil the necessary economic conditions to the establishment of multidisciplinary teams, for the current buildings it is impossible, in general, to achieve the same conditions. For this reason, it must be established methodologies that make possible, through the systematization of procedures, qualify and expedite the intervention in these type of buildings.

Therefore, in a first phase, the information contained in the constructive model has to provide a support to the geometric and constructive survey of the existing building, thus speeding its elaboration, always subjected to some constraints, in particular when the building is occupied. Consequently, through the establishment of analogies between the constructive model and each case, it will be possible to estimate the measurements in situations of difficult determination, as well as interpret the constructive system of the diverse architectonic elements of the building.

⁷ “The specialized techniques that have been developed for the restauration of the important historical complexes must be, from now on, applied to the vastest gamma of buildings and complexes with less evident artistic merit.” (CPAE, Declaration of Amsterdam, 1975).

Through the constructive model it is still possible to define the framework of the elements of cultural value of the building, reflected in the quality of the used materials and relevance of the craftsman work (such as stucco, tiles, elements of carpentry, ironwork, stonework, etc.), thus contributing to its easy identification and subsequent preservation.

Similarly, the constructive model makes also possible to define the context of modifications introduced in the houses, contributing to the identification and discussion of its value, particularly regarding the building identity, and thus justifying its preservation or demolition.

As in previous examples, it is considered that the constructive model is also suitable to the definition of the pathological condition of the houses, when in the presence of little or moderately severe anomalies, thus allowing, during the inspection, their identification and the establishment of the corresponding corrective measures. In practice, the reliability of these procedures will depend, naturally, of the expertise of the technicians involved, however, it must be stressed out that, whenever the situation demands it, the execution of more detailed inspections should always be considered.

Being a holistic process, every aspect of the approach on the condition of the existing building must consider the importance of each part (element) within the overall framework of the building. Similarly, the final diagnostic report must cross all the pertinent information, relating them in order to establish a sound and coherent evaluation⁸.

Finally, through the constructive model several intervention solutions in the building are considered, adapted from the scientific and technical literature available on the subject and following the recommendations of international documents. This base solution, aims to establish itself as a repository of best practices, supporting the development of the intervention design phase.

Therefore, it is believed that, especially regarding the design constructive aspects, it may be achieved considerable advantages through a more systematic knowledge of the buildings characterization and condition, which will result in a typification of intervention procedures, in line, furthermore, with the typical constructive standardization of the buildings that were the subject of the present study.

With other authors⁹ it is shared the conviction that typifying constructive solutions, it will be possible to obtain a reduction of the duration of the intervention and of the mobilized resources, lowering, consequently, the final costs.

It is also important to note that, despite the aforementioned, the proposed methodology is not intended to replace the participation of the technicians or minimize the importance of their role. On the contrary, the presence of the different experts it is essential to avoid the uncritical application of typified solutions and to ensure the qualification of the interventions.

Acknowledgments

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⁸ (Teixeira & Póvoas, 2012b).

⁹ (Paiva, Aguiar & Pinho, 2006).

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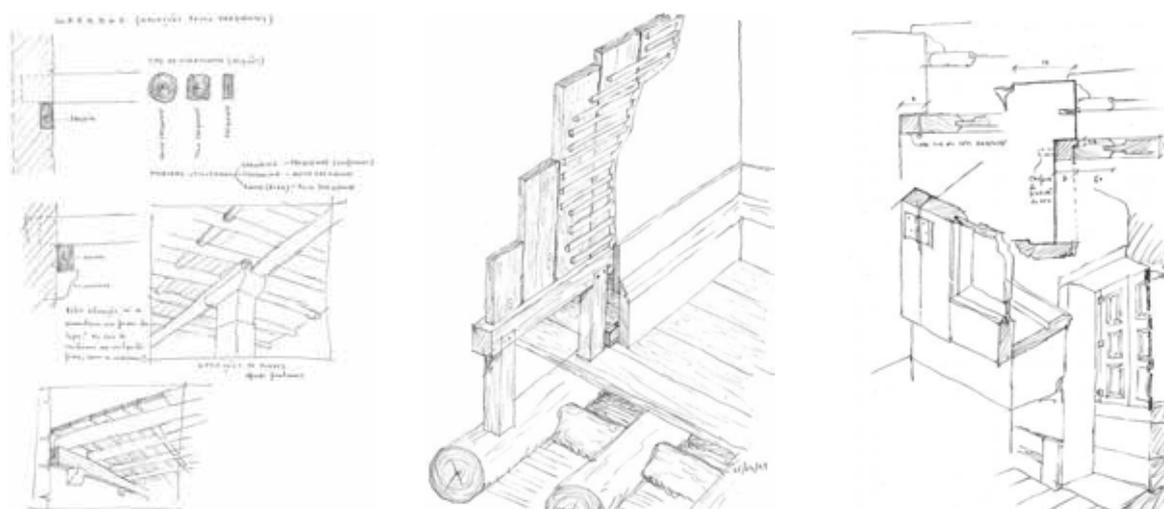


Figure 1: Interpretative drawings of the constructive system of the Porto bourgeois houses.



Figure 2: Overview through part of the historical centre, showing the diversity and the cohesion of the built ensemble.



Figure 3: Overview of a street, showing the systematization of the buildings (facade composition, materials and constructive system).

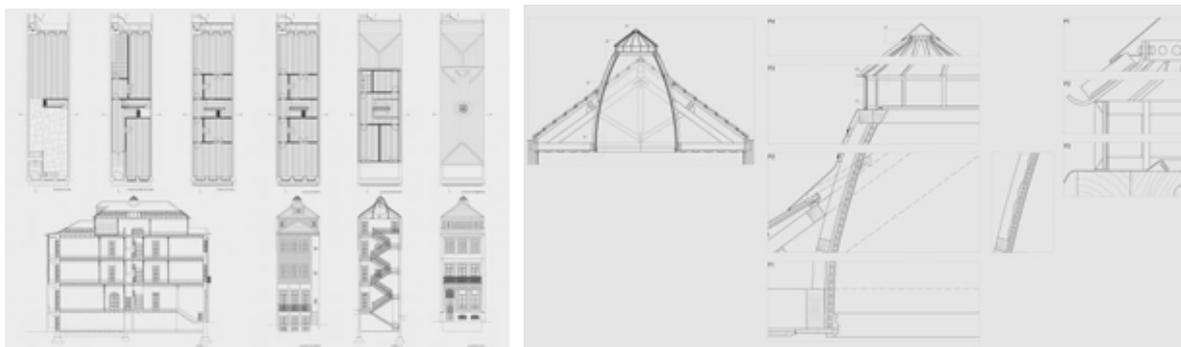


Figure 5: Prominent skylight in various scales of detail.

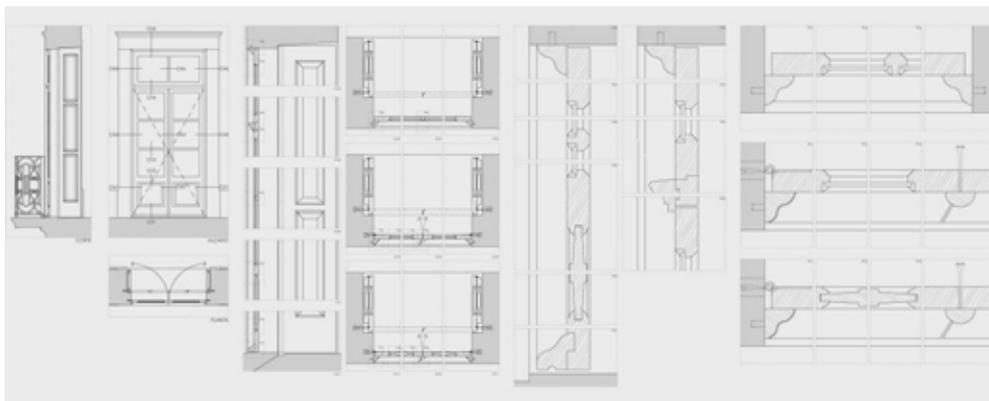


Figure 6: Example of a balcony window in various scales of detail.

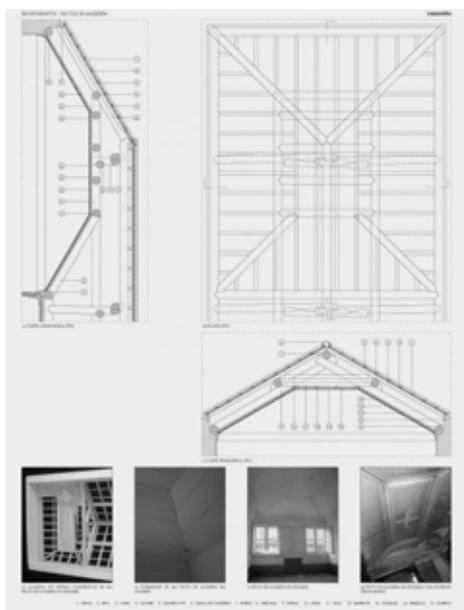


Figure 7: Examples of roof structural solutions.



Figure 8: Types and details of balustrade rainwater gutters.

Adaptive Reuse as a Strategy through Sustainability of Traditional Knowledge: Approaches in Milan

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Abstract

Conservation of architectural heritage is crucial since they are social and cultural evidence of the past. Adaptive reuse is a way to survive historic buildings by changing the function according to the needs of its region to sustain the identity and originality of the traditional knowledge. The study aims to question the appropriateness of the new functions assigned to the selected buildings by evaluating adaptive reuse potentials of the architectural heritage. The focus of the study is limited with the reused buildings with different functions in Duomo Quarter in Milan.

Keywords: *Adaptive Reuse Potentials; Conservation; Architectural Heritage; Decision Making; Sustainability*

1. Introduction

Heritage buildings are valuable in transferring the culture for further generations. In time, they may lose its original use therefore they need to be sustained for the future by renovating and converting into different functions. Where a building can no longer function with its original use, a new use through adaptation may be the only way to preserve its heritage significance.

Deciding the use of heritage buildings is a difficult problem within the decision making since there are many actors in the process. Finding the most appropriate function within the context is crucial in order to sustain traditional knowledge. Adaptive reuse is a special form of refurbishment that poses quite difficult challenges in the decision making process. Firstly, adaptive reuse proposals for a new function must consider whether the building is appropriate for this use. Secondly, it must consider whether the new function and changes protect and enhance the cultural significance of the heritage building¹.

Some of the adaptive reuse projects lack a living function since they are inappropriately re-functioned and are not in use. An inappropriate function can be damaging the originality of the heritage physically and also socio-culturally. Authorities are spending a great amount of money for restoration purposes; therefore buildings should be economically, socially and environmentally sustainable.

The aim of the research is to question the appropriateness of the new functions that are assigned to the selected buildings by evaluating adaptive reuse potentials of the architectural heritage. In order to make the most appropriate decision, the potentials of the architectural heritage should be defined within decision making process. The focus of the study is limited with the reused buildings with different functions in Duomo Quarter.

2. Adaptive reuse and sustainability of the traditional knowledge

“Conservation is the action taken to prevent decay and manage change dynamically. It comprises all acts that sustain the life of our cultural and natural heritage, the object being to present to those who use and look at historic buildings with wonder the artistic and human messages that such buildings possess”². The concern of conservation is the past, present and future of a building. It involves making balanced judgements in respect of evidence, the present day needs and resources available, also the future sustainability.

¹ (Orbaşlı, 2008).

² (Fielden,2003).

In recent decades, people are becoming more conscious of the unity of human values and ancient monuments as a common heritage. Additionally, they recognize the main responsibility to preserve them for future generations³. Today understanding of conservation within historic environments, focus on the discussions on preserving and continuing “cultural identity”⁴. Modern conservation approach does not aim a return to the past. It demands courage to undertake sustainable human development within the reality and the potential of existing cultural, physical and environmental resources⁵. Adaptive reuse of a building provides a link to our cultural heritage and historical memory. Re-use and building adaptations has become an increasing trend within the built environment since increasing the life of a building through reuse can lower material, transport and energy consumption and pollution. Additionally, it makes a significant contribution to sustainability⁶. Adaptive reuse of buildings has a major role in the sustainable development⁶.

“Sustainability can be defined as meeting today’s need without compromising the ability of the future generations to meet their needs. It is a means to provide a safe healthy comfortable indoor environment while simultaneously limiting the impact on the Earth’s natural resources”⁷. Sustainability has different dimensions such as; environmental, economic and socio-cultural. In order to discuss the success of an adaptive reuse project, historic buildings must be sustained in all dimensions. According to the Department of Environment and Heritage⁷ “heritage buildings provide a valuable notice of the past and give character to communities and therefore should be conserved for future generations”.

3. Methodology

Literature survey analysis has been done on the relevant studies as the primary data collection technique. Additionally, analysis is supported by observations and documentation of the selected field study. Adaptive reuse potentials of architectural heritage have been figured out in the light of literature survey analysis. These potentials are defined as: physical, economic, functional, environmental, political, social and cultural. Then, selected case studies have been observed in terms of defined adaptive reuse potentials and evaluated with a developed grading system. At the end, the appropriateness of the assigned function is discussed in terms of adaptive reuse potentials of the architectural heritage in the light of the evaluation results. The new functions of the heritage buildings have been questioned and supported with the proposals for future strategies.

4. Adaptive reuse potentials

Historic buildings represent crucial aesthetic, cultural and economic resources⁸. Change in lifestyle and accordingly the needs of the users may cause many historic buildings to lose its original function and being adapted for new uses⁹. Realization of potentials of the building is crucial in terms of developing suitable strategies for the architectural heritage and sustainability of the traditional knowledge.

“Potential means to realize economic, social and environmental benefits when adaptive reuse is implemented”¹⁰. Identification of the potentials help in decision making process to find the appropriate function for new use of the architectural heritage. There are different approaches to these potentials in many studies; since in this research, potentials are grouped under seven headings (tab. 1).

In decision making processes, potentials of the building should be identified according to the defined aspects (tab.1). Definition of the potentials help decision makers to decide the most appropriate use of the architectural heritage. By this way, originality and the traditional knowledge of the building could be sustained.

5. Milan as the field study

³ (ICOMOS, 1964).

⁴ (Karakul, 2011).

⁵ (Jokilehto, 1999),

⁶ (DEH, 2004).

⁷ (Rabun and Kelso, 2008).

⁸ (Shiple et. all, 2006).

⁹ (Ahunbay, 2011).

¹⁰ (Conejos et. all, 2011).

Today, Milan is the main industrial, commercial and financial centre of Italy. Additionally, it is a major capital for business, fashion and design. In order to perceive today's compact city, which is formed after making Milan an industrial capital, it is necessary to understand the complex layers of forms and reforms of the historic city. The 18th and 19th century resources provide us the evidence of Milan. The transformation of the city center was a long process comprising diverse operations: restoring monuments and re-functioning disused buildings. In this transformation and reuse process of the city center, many buildings adapted and re-functioned for different uses¹¹.

For a long time, Piazza del Duomo was the site of the city's more typical forms and memories. Today the Piazza del Duomo area is, above all, the physical expression of the reform of the city's heart which was started after the Unity of Italy¹². The square was used as governmental purposes since the Royal Palace and the Old Broletto was located there. However, now it is the commercial center and tourist attraction point of the Milan.

There are many historic buildings in Milan that are converted to different functions. However, the focus of the study is limited with the reused buildings with different functions in Duomo Quarter (fig. 1). All case studies are selected from the same context so that the comparison can be done with more ease in order to achieve better results.

Six historic building, which are located around Piazza del Duomo, are selected that were used as different functions before and the present function that is utilized. A general information about the selected case studies have been given below (fig. 2).

6. Evaluation of the case studies

This method is developed to help decision makers in finding the most appropriate new use for abandoned, disused or inappropriately re-functioned buildings. Then, tested on the reused historic buildings with new function. Buildings are selected from the same context so that comparison would be easy and results to be more definitive. The original and new function of the selected case studies is summarized (tab. 2).

Aspects of the adaptive reuse potentials that already defined in the Table 1 is graded from 1 to 5. Followed by, an average that is taken for a total grade of each potential for each case study as shown Table 3. In Table 3, results of the adaptive reuse potential of selected heritage buildings are shown. Results have shown as X/Y. X represents the average of the total points for each adaptive reuse potential. Y represents maximum points for each building. At the end, relationship between new functions and the adaptive reuse potentials of the heritage buildings are discussed in the light of the results of the evaluation.

According to the results, the economic and the political potentials for the buildings are highest in general since they are located in the commercial and tourism center of the city where the buildings are owned by the government. On the other hand, the social and cultural potential for Museo del Novecento and University of Milan is lower since the original function of two is not as iconic and important, socially or culturally like the rest of the examples. If the social and cultural potential is high, using an architectural heritage as university is not an appropriate approach since this function can damage the historic characteristics of the building.

Environmental quality for all cases is high since all are located in the city center around Piazza del Duomo. The Museo del Novecento, Palazzo Ragione and University of Milan are graded lower in terms of functional potentials since in terms of space division and structural elements, it is not a simple task to adapt building for another function. However, university function is appropriate for Ospedale Maggiore as functional potential since it was a hospital building. The space arrangements of a hospital are appropriate for the space requirements of a university in terms of divisions.

On the other hand, although in general, potentials of the Palazzo Ragione is very high, it lacks a living function and is closed nowadays. The use of this building that has especially high economic and cultural potentials as legal archives is not a correct approach. It is located in a strategic point in the middle of Piazza Mercanti, so it deserves a better function with public use.

There are too many buildings around Piazza del Duomo, that converted to museums. Preserving an architectural heritage as museum is the most common approach. But, as Ames and Wagner¹² indicates

¹¹ (Bellini et. all, 1989).

¹² (Ames and Wagner, 2006).

“ Historic buildings cannot all become museums and one of the best ways to preserve a building is to ensure its continued use by adaptation. Examples of design in adaptive reuse projects are very diverse and range from the conservative, where the use is fitted seamlessly into the building, to radical, where the historic fabric is juxtaposed against a new intervention”.

If a building is converted to a museum, it must be supported by sub-functions to be able to sustain the new function socially and economically. In the example of Palazzo Reale, Museo del Novecento and Pinacoteca Ambrosiana, all have similar functions and are located close to each other, but three of the buildings are in use today by the local people and the tourist as well due to the reason that they are supported with different sub-functions. Palazzo Reale has a cafe, exhibition space, wedding hall and a courtyard in the middle which different kind of activities have taken place. Museo del Novecento has exhibition space, conference hall, bookshop and a luxury restaurant which overlooks the fantastic view of Piazza del Duomo. On the other hand, Pinacoteca Ambrosiana is an old historic library and it contains an art gallery and a library part.

7. Conclusion

In general, the conservation and adaptive reuse approaches in Italy, can be acknowledged with a tendency to use the architectural heritage in the form of museum, art gallery or cultural center's in order to preserve the heritage of the buildings and sustain the traditional knowledge. If the correct analysis and identification of the potentials are done, another function, which can sustain the originality of the building, can also be assigned to the heritage of the buildings. For instans the example of Ospedale Maggiore that converted to University of Milan is a successful example in this context. In recent years, buildings with historical value are given elevated functions for it to continue to exist and are turned into 'living assets'. For a sustainable adaptive reuse, detailed analysis should be done in decision making process to find the most appropriate function for the buildings, considering the social, economic and physical benefits of the adaptive reuse in different dimensions.

In the study, this method is developed and tested through some selected case studies in Milan. The method can be applied historic buildings in the decision making process in order to help decision makers to assign the most appropriate function for the building in the decision making process.

Heritage buildings are important in transferring traditional knowledge to further generations. They should be sustained to transfer this knowledge for safeguarding communities and people. When buildings are adapted for different functions, the new use and the interventions should preserve the originality and architectural character of the building in order to not give wrong or missing information for the further generations. This could be possible by the definition of the potentials before deciding how to use an abandoned or disused heritage building.

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Adaptive reuse potentials	Aspects of adaptive reuse potentials
Physical potentials	Originality of the architectural character, Aesthetics, Disability access, Acoustics, Infrastructure, Human scale
Economic potentials	Site access, Population density in the location, Profits from market demand, Market opportunity due to location, Financial resources for maintenance cost
Functional potentials	Space/ structure relationship, Spatial flow, Adaptability
Environmental potentials	Site and location (context), Orientation of the building, Environmental quality of the surrounding, Neighbourhood relationships, Natural lighting, Natural ventilation
Political potentials	Conservation planning requirements, Adjacent buildings, Urban master plan, Landuse plan and zoning, Ownership
Social potentials	Social meaning for the community, Spirit of the building, Public interest to the building
Cultural potentials	Cultural meaning for the community, Historic significance, Authenticity

Table 1: Adaptive reuse potentials of heritage buildings [Developed according to (Bullen and Love, 2011a), (Bullen and Love, 2011b), (Bullen and Love 2011c), (Conejos et. all, 2011), (Conejos et. all, 2012), (Wang and Zeng, 2010), (Langston et all, 2008), (Heath, 2001), (Kincaid, 2002)].

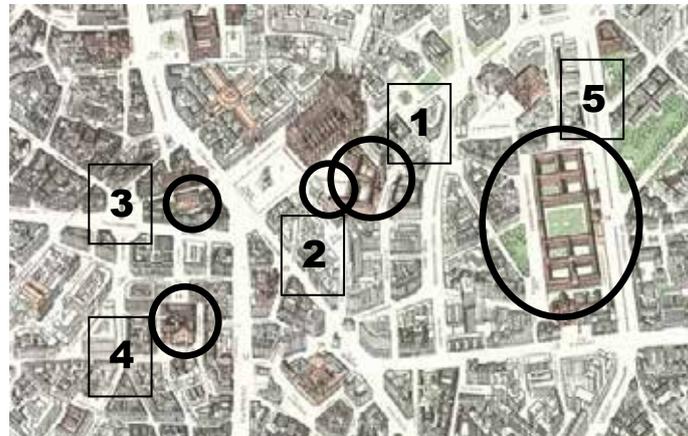


Figure 1: Location of the selected case studies within the city.

General information	Views from the selected case studies	
<p>1.ROYAL PALACE</p> <p>LOCATION: PIAZZA DEL DUOMO DATE OF CONSTRUCTION: 16TH CENTURY DATE OF RENOVATION: 1978-1989 ORIGINAL FUNCTION: ROYAL PALACE NEW FUNCTION: CULTURAL CENTER</p>		
<p>2.MUSEO DEL NOVECENTO</p> <p>LOCATION: PIAZZA DEL DUOMO DATE OF CONSTRUCTION: 1937-1942 DATE OF RENOVATION: 2010 ORIGINAL FUNCTION: TOURISM INFORMATION CENTER NEW FUNCTION: MUSEUM OF THE 20TH CENTURY</p>		
<p>3.PALAZZO RAGIONE</p> <p>LOCATION: PIAZZA MERCANTI DATE OF CONSTRUCTION: 13TH CENTURY DATE OF RENOVATION: 1978-2002 ORIGINAL FUNCTION: TOWN HALL NEW FUNCTION: LEGAL ARCHIVES</p>		
<p>4.BIBLIOTECA AMBROSIANA</p> <p>LOCATION: PIAZZA POI XI DATE OF CONSTRUCTION: 16TH CENTURY DATE OF RENOVATION: 1990-1997 ORIGINAL FUNCTION: HISTORIC LIBRARY NEW FUNCTION: ART GALLERY</p>		

<p>5. UNIVERSITY OF MILAN (OSPEDALE MAGGIORE)</p> <p>LOCATION: VIA FRANCESCO SFORZA DATE OF CONSTRUCTION: 1456 DATE OF RENOVATION: 2004 ORIGINAL FUNCTION: HOSPITAL NEW FUNCTION: UNIVERSITY</p>		
<p>All photos is taken by: (Mısırlısoy,2014)</p>		

Figure 2: General informations and photos of selected case studies.

	Original name of the building	New proposed name of the building	Original function	New proposed function
1	Palazzo Reale	Palazzo Reale	Palace	Cultural center
2	Palazzo dell’Arenario	Museo del Novecento	Tourist information center	Museum
3	Old Broletto	Palazzo Ragione	Town hall	Legal archives
4	Biblioteca Ambrosiana	Pinacoteca Ambrosiana	Library	Art gallery
5	Ospedale Maggiore	University of Milan	Hospital	University

Table 2: Original and new proposed name and function of selected case studies.

Adaptive reuse potentials							
Building	Physical	Economic	Functional	Environmental	Political	Social	Cultural
Palazzo Reale	4.2/5	4.8/5	4.66/5	4.66/5	5/5	5/5	5/5
Museo del Novecento	3.8/5	5/5	3/5	4.66/5	5/5	3/5	3.33/5
Palazzo Ragione	4.4/5	5/5	3.33/5	4.66/5	4.6/5	4.66/5	5/5
Pinacoteca Ambrosiana	4/5	4.8/5	4/5	4/5	5/5	4.33/5	5/5
University of Milan	3.8/5	5/5	3.33/5	4/5	5/5	2.66/5	3/5

Table 3: Evaluation of the adaptive reuse potential according to the selected case studies.

Bolero: Cultural Link to the Americas and the World

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Abstract

Bolero, musical genre and literary expression of the Americas, represents an extraordinary source of knowledge and cultural diversity. Historical and emotional knowledge as well as innovative solutions can be derived today and in the future.

Bolero is an entrenched searching process for Latin-American cultural roots, landscapes and traditions that provides a global approach and value to the Spanish language as a communication medium.

The *Bolero* gives the strongest impact of Latin-American cultural expression. Through the Caribbean and life in plantations, the area and landscape as well as the fusion of languages from Africa, Spain, France, England, China and develops its own identity "*Tarjeta de Identidad*" since 1883. It migrates from Cuba and Mexico to the Dominican Republic, Puerto Rico, Venezuela, Colombia, Ecuador, Argentina, Chile, other LA countries and Spain. To date, it has overpowered borders and reaches all continents.

Keywords: *Landscape; Multicultural; Heritage; Music; Literature*

Exceptional Universal Value

Literary: This gender establishes links with landscapes, literature, politics, dance, war, everyday life. The lyrics become artistic expressions:

- a) Famous writers and chroniclers contributed to the *Bolero*
- b) Literature: Develops many topics and senses, never ending a theme. Literature is another form of «Bolerear life».

Musical : Rhythms and harmonies reinforce its legacy and musical presence,

- c) authors and illustrious composers have enriched their musicianship with instruments from diverse countries.

Performing arts: Expressions on stage and related to the show:

- d) dance: first gender where dancing is performed embracing each other
- e) scenography: musical theatre, cabaret, concerts and recitals.

Research:

- f) ethnomusicology, narrative and history

The *Bolero* of the 20th century and early 21st century has become a clear sign of the globalization of this cultural gender and heritage. From the years 60s not only was the public of the Caribbean, Latin America and Spain who increased their craving for the *Bolero*, something similar happened to audiences in Asia, Europe and United States.

- Can **Bolero** become a vehicle for healing and reconciliation in post-conflict situations?
- In what ways can participatory heritage programmes encourage active citizenship and collective pride?

Bolero allows us to explore new and emerging approaches to cultural creativity and intercultural dialogue through community-driven frameworks that enhance the value of cultural heritage. *Bolero* contributes to the enhancement social cohesion among local residents both regional and international, and by itself enhance and intergenerational transmission of **Intangible Cultural Heritage**:

Vanessa Kinghts considers "the current rise of the *Bolero* has to do with an industry of nostalgia that is responding to the rapid changes that mark our time". In addition, the author argues that *Bolero* can face economic instability, social insecurity and rootlessness, facilitating identity at symbolic levels. In short, *Bolero and the landscapes where it has developed* allow social beings to become ramblers in the era of globalization.

The **Bolero** is a musical and poetic genre, synonym of love, affection, heartache, family, nostalgic and mixed emotions. It has existed for over a hundred years. It is the musical-poetic genre that defines, no just one, but many generations.

The **Bolero** is a culture that unites the Americas and establishes communication with the rest of the world. It is a profound searching process of the Latin-American cultural roots, providing a point of view to interpret the globalized world. The Bolero it's a way to be part of globalization coming from a specific culture.

The **Bolero** has the poetic structure of the European countries that have influenced it and also a melodic, harmonic and rhythmic structure also influenced by the Caribbean and Africa.

Bolero does not belong to a country. Each country takes the genre and transforms it, keeping its base intact. **Bolero**, born in Cuba and considered to be the first "Sadness" ("Tristezas") by José Sánchez, is different from what we know today. It is a rustic **Bolero**. A newborn that sounded very similar to the "Cuban Trova" which was also influenced by the "Clave" the "Bambuco" and "Danzón".

<http://youtu.be/IGAtQO1HRL0>

The strongest penetration of a Latin American cultural expression is the **Bolero**. Through the Caribbean it unites influences from Africa, Spain, France, Netherlands, England and develops its own "identity" since 1883 "Sadness" ("Tristezas"), through its the Golden Age in the 40s up to the 60s and until today.

It consolidates from Cuba and Mexico through Dominican Republic, Puerto Rico, Venezuela, Colombia, Ecuador, Argentina, Chile, Spain and other countries. From Puerto Rico, **Bolero** migrates to the United States. Today it has crossed all borders and reached Japan, China, Mongolia, Singapore, Africa, Australia and Polynesia.

Initially the rustic **Bolero** adopted the same "provision" or number of musicians that played the "Son", very different from what we know today. They played the "clave" and "danzontete" because these were genres that were in fashion.

It was a very tropical **Bolero**, which was accompanied with the Cuban "Tres", guitars and trios. The Matamoros Trio, was one of the earliest and most characteristic expressions with "Lágrimas Negras" ("Black Tears").

<http://youtu.be/qeEqPWeWTAU>

This is a very rhythmic **Bolero**, a peculiar couple or pair of Cuban music with **Bolero** which sometimes is played as « danzonete ». When Danzón is interpreted as a song, it is called danzonete. In any of its musical expressions, the **Bolero** genre transforms itself and has the ability to seduce. The **Bolero** changes in each country. Each community prints its own musical influence, and from there, changes it. It is in Mexico, where the **Bolero** shines with Agustín Lara, who recreates it. Hence, one of the fathers of **Bolero** is Mexico.

From the beginning, the **Bolero** was rich in literary images with the influence of excellent poets and writers. For example, Garay was one of the biggest of the old "Cuban Trova", uses poetic structures such as the 10th and sonnet, highly guarded with the typical baroque verse.

*"Those pearls carefully saved
in such a beautiful red case..."*

*"esas perlas que tu guardas con cuidado
en tan lindo estuche de peluche rojo..."*

<http://youtu.be/TgTjP3ZcQdc>

...or also

*"in a tree trunk a little girl
carved her name with exhilarating pleasure
and the tree emotionally moved
a flower dropped."*

*"en el tronco de un árbol una niña
grabó su nombre henchida de placer
y el árbol conmovido allá en su seno
a la niña una flor dejó caer"*

http://youtu.be/5WVTCgAAg_8

...or also

*“Thought, tell Fragrance that I love her,
tell her that I can’t forget her,
tell her that she lives in my soul.
Go, tell her,
Tell her I think of her,
Even though she doesn’t think of me”*

*“Pensamiento, dile a Fragancia que yo la quiero
que no la puedo olvidar
Que ella vive en mi alma
Anda, dile así
Dile que pienso en ella, aunque no piense en mi”*
<http://youtu.be/5YUJ3-Zu93c>

Upon entering Mexico through the Yucatán peninsula, peninsular poets such as Antonio Merisbolio or José Peón Contreras, began to work in lyrics for the **Bolero** until we get to what we now know as **Bolero Yucateco**. One of the first musicians, post Mexican Revolution, was Guty Cárdenas. Clear example of a Mexican Yucatecan who takes great poets to write songs.

http://youtu.be/vDy_TRHYWys

Another one was Ricardo López Méndez

<http://youtu.be/ACXTbC67AAk>

and another was Osvaldo Basil with the song “Her” (“Ella”) by Domingo Casanova, also Licho Buenfil with Boleros like “Contempt” (“Desdén”).

The **Bolero** is not one rhythm, it includes many rhythms. In the 20s and 30s, the **Bolero** became part of the art deco, and can be foxtrot, clave o danzoente. The **Bolero** is not just four quarters, which is four black compass. Many genres can be numbered like this, in four quarters. But the ballad is not only just four quarters, there are twelve eights and variations. With the French influence of Mexican president Porfirio Díaz’s, **Bolero** became more sophisticated and elegant. After the Mexican Revolution period in 1910 and the 20s, it turned more popular and successful. The influence of Amado Nervo’s poetry in Agustín Lara can be perceived in examples like:

Amado Nervo:

*“She passes by with her mother
What a strange beauty!
What a thin hair like the garzul wheat!
What a rhythm in her step!
What an innate royalty presence!
That shapes under the tulle!”*

*She passes by with her mother. She turned around her head,
She poses her blue deep look into me
I was like in ecstasy... with feverish rush,
Follow her! Screamed body and soul...
But I was afraid to madly love her,
To open my wounds, to make them bleed,
However, my thirst of tenderness,
Closing my eyes, I let her passes by!”*

Amado Nervo:

*“Pasó con su madre.
¡Qué rara belleza!
¡Qué finos cabellos de trigo garzul!”*

*¡Qué ritmo en el paso!
¡Qué innata realeza de porte!
¡Qué formas bajo el fino tul...!
!Pasó con su madre. Volvió la cabeza,
me clavó muy hondo su mirar azul!
Quedé como en éxtasis...con febril premura,
¡Síguela!, gritaron cuerpo y alma al par....
Pero tuve miedo de amar con locura,
de abrir mis heridas, que suelen sangrar,
¡y no obstante toda mi sed de ternura,
cerrando los ojos, la dejé pasar!”*

Agustín Lara:

*“Today I looked at you unwittingly,
I looked at you, passing by my side,
Passing by closed to me.
Those eyes, two crystals,
That another time reflected my love, the didn't look at me.
I had so many things to say to you, I had so many things to tell you,
That I couldn't speak.
I had to swallow my feelings
I didn't know about you breath
I just saw you passes by...”*

Agustín Lara:

*“Hoy te he mirado sin quererlo,
te he mirado a mi lado pasar,
pasar muy cerca de mí.
Aquellos ojos, dos cristales,
que otro tiempo reflejaron mi amor, no se fijaron en mí.
Tenía tantas cosas que decirte y tanto qué contarte
que no te pude hablar.
Me tuve que tragar mis sentimientos,
no supe de tu aliento,
nomás te vi pasar...”*

The beginning of the **Bolero** in Mexico in times of Don Porfirio with Armando Villareal and Guty Cárdenas, and later on to the decade of 1910 to the 20s, was considered as a experimental **Bolero**. It was used, it was sung, it was known but it wasn't a genre in fashion. The **Bolero** explosion was associated with the demographic growth in Latin-American cities and the industrialization process that began living in the continent.

The popularity of **Bolero** occurs with Edison's invention “the phonograph” that begins as experiment in USA. When it got to Mexico like a tool to spread the culture and music is how the **Bolero** was recorded for the very first time in a phonograph cylinder.

Originally, this phonograph was a cylinder that turned for two minutes, while the needle walked over it until it was finished. The phonograph evolved to the disk, first recorder on one side, later with higher quality and in the 20s improved the length and became the 78 revolutions per minute.

With the radio, everything changed. The housewives and the families got together around the radio and got to know the music and familiar with what they wanted to buy in a disk which they played over and over again... too many times. Also, the radio station shows where they would listen to their favorite **Boleros** and look for new ones.

When the disk becomes popular, some artists fade away like Alfonso Esparza Oteo and others emerge like Manuel M. Ponce who rescues old popular songs. Blas Galindo, returns traditions of Son Huasteco and the Sones of Mariachi (different from nowadays) and with this influence, arrives into the 40s and 50s, with many arrangements to **Bolero Ranchero**.

The expansion period of **Bolero** was characterized by, mass media that made it was present in every home

and city, the migratory movements became international contacting cultures, rhythms and different genres. Also, new ways of buying appear and new social sectors, specially the middle professional class and a younger politic elite.

In the 20s, the first Lara's success "Impossible" ("Imposible") was recorded in New York by the Trio Garnica Ascencio, it was a feminine group that was in the popular music. The end of the 20s and beginnings of the 30s influences **Bolero** in United States of America mostly by the jazz and blues from New Orleans, crib of many other genres of African culture.

Because of its marvelous geographic position, Mexico was the territory where Rustic **Bolero** transforms to something different that Lara modernized derived by the influences of jazz, that began with orchestras that were already playing for example, the Posadas Orchestra that used to play Jazz, Charleston, Dixieland, Blues y Swing.

The Nearness of You, music by Agustín Lara / Ella Fitzgerald y Louis Armstrong

<http://youtu.be/0nK-eWID5EY>

With much improvisation trombone was used... suddenly the tuba, the clarinet... There is a recording of an improvisation of high malleability, a Danzón with "clave" and trumpet. In version like the song "Arrogance" ("Altiva") by Agustín Lara, that is totally art deco. In this **Bolero** known as the "Sultana" there is a richness of jazz influence such as ragtime and foxtrot. This is "audio deco" of the end of the 20s and beginnings of the 30s. The **Bolero** went through big historic changes, musically speaking. Besides being malleable, there is also "**Bolero Buruno**" and "**theatre Bolero**". In fact, the great jazz compositions were born with the pen and musical genius of authors like Richard Rodgers, Irving Berlin, Loren Heart and Cole Porter. These great songwriters who made music for Broadway were the pioneers of a school and type of song, which every jazz musician should be able to perform.

Rodrigo de la Cadena considers that the Mexican jazz standard is equivalent with the **Bolero**, because any jazz musician plays "Kiss me a lot" ("Bésame mucho") or "Only once" ("Solamente una vez") by Consuelito Velázquez.

Besame Mucho, Dave Brubeck

<http://youtu.be/rIBITyPm7H0>

Solamente Una Vez, Los Tres Tenores

<https://www.youtube.com/watch?v=6p6zX1CaLZM>

According to Alicia Valdés the **Bolero** was crossed by two trends. The first one, in 1960s and 1980s in which there was a decline and the second one in the 90s with strong revival.

The **Bolero** of the 20th Century and beginnings of the 21st Century has become a clear signal of globalization of this cultural genre and World Heritage. After the 60s it wasn't just audience from the Caribe, Latin America and Spain, who increased their addiction of Bolero. Something similar is happening with audiences from Asia, Europe and United States.

Contigo en la Distancia, Cristina Aguilera

<http://youtu.be/SG3yW9t5j70?list=PL492BgirR5J1TCoL0uWJWxPKOInRS4g4p>

Quizas, quizás, quizás, / Арина Данилова - СП - Голос. Дети - Сезон 1

<http://youtu.be/ViqoFjKLU98>

The **Bolero** can be preserved and promoted making educational campaigns and cultural exchanges between nations worldwide. Through the diplomatic channels where there is exchange of cultural expression and art forms and other cooperative strategies can be achieved.

The best way to preserve and promote the **Bolero** is by exposing it to the public. Making it known and familiar with the participation of broadcasting in radio stations. Seeking mediators in the care of Cultural Heritage like ICOMOS who communicates culture that is common to us all and allow us to be united as a region and as a planet. The **Bolero** is a transmitter of the "Spirit of Place" which we pretend to preserve and promote as our history, identity, magnificent scenery and cultural heritage.

Rodrigo de la Cadena says that "... **Bolero** has historical context that transforms and will keep on transforming through these and future relations that give continuity to change. For this reason, we cannot consider **Bolero** as a finished genre"

Vanessa Kinghts says "The current boom of **Bolero** has to do with "nostalgia industry" and is the answer to the fast changes that mark actual time" The author also says that **Bolero** helps face the economic instability, the social precariousness and the displacement, facilitating identification in a symbolic level. Definitely, el **Bolero** allows the social subjects to be part of the globalization era.

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<http://www.cubahora.cu/cultura/cuba-lleva-la-musica-en-el-corazon-video#.Ux8qbV4mwpI>
ù



Tres Cubano



Phonograph, cylinder



Graciela Mota

Ancient Phonographs playing romantic Bolero music



Graciela Mota. BOLERO.MEXICO, A.C.

Playing serenades scenes singing Bolero on streets and restaurants



Graciela Mota. BOLERO.MEXICO, A.C.

Romantic scene with Agustin Lara composer and wife.
And Years later as good all times Rodrigo de la Cadena playing Bolero to the widow.

Our Intangible Cultural Heritage of Arirang in Two Bordering Koreas

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Abstract

Although Korea is divided into democratic South Korea and communist North Korea by 38 degrees after the Korean War 1953, Arirang has been a folk song of collective contributions composed by ordinary Koreans throughout generations for human creativity, freedom of expression and empathy. As a national evocative hymn, Arirang was inscribed in UNESCO 2012 as the South Korean intangible heritage, and it's another version from North Korea lies in the 2014 nomination. Koreans' common memories of Arirang can enhance dialogues and safeguarding and dissemination strategies among two countries for peace.

Keywords: *Arirang; Intangible Cultural Heritage; Two Koreas; Folk Music; Common Memories*

1. Inter-Korean Relations

When World War II drew to a close, the 35-years of the Japanese colonization came to an end on the Korean Peninsula. Swept by the escalating Cold War, Korea was divided along the 38th parallel into two separate governments. The partition of Korea into antagonistic governments drove to the Korean War as the North Korean military forces invaded the South on June 25, 1950. After the ceasefire, the provisional partition became permanent, which still remains today. Signing the armistice (1953), South Korea adopted a policy with the goal of achieving a unified Korea under a democratic system, while North Korea sought its ways to communize the entire peninsula.

In 1972, the two Koreas held inter-Korean dialogue and exchanges through the South-North Coordinating Committee and the Red Cross Society. However, the two Koreas could not easily overcome the suspect that they had built up over years. It was in the mid-1980 when the communist states began advocating reform and openness that the South-North Korean relationship entered a new phase. The South Korean government attempted national unification, and in the late 1990s, exchanges and cooperation projects with North Korea were increased in humanitarian assistance, the Gaeseong Industrial Complex, and the Mt. Guemgang Tourism Project. Unfortunately, this progress was stopped, due to North Korea's nuclear tests. In 2008, the South Korea introduced the policy of co-existence and common prosperity: (1) to resolve the North Korean nuclear issue, (2) to set up a joint economic community through mutually beneficial economic collaboration, (3) to assist North Korea restore its economy, and (4) to pursue the happiness and security of the Korean people by resolving humanitarian issues facing the two Koreas. In this process, tensions have flared by North Korea's attacks to South Korean patrol ship and Yeonpyeongdo Island.

2. Arirang: Korean Intangible Cultural Heritage(s)

UNESCO 2003 convention regulates that the "intangible cultural heritage" denotes the practices, representations, expressions, knowledge, skills, etc. It associates with communities, groups and individuals, transmitted from generation to generation for identity and continuity, promoting respect for cultural diversity and human creativity in globalization. Its five domains are (1) oral traditions and expressions, including language, (2) performing arts, (3) social practices, rituals and festive events, (4) knowledge and practices concerning nature and the universe, and (5) traditional craftsmanship. Music is the most universal in society with varied contexts of sacred-profane, classical-popular, work-entertainment, etc.

In the case of Korea, Arirang is a popular form of the folk song and the result of collective contributions done by ordinary Koreans across time. Almost every Korean knows and enjoys singing Arirang, and a diversity of local versions handed down throughout Korea. "Arirang" is estimated ca. 3,600 variations belonging to about 60 versions. The simple song has the universal refrain "Arirang,

arirang, arariyo”, and lyrics have developed in a different way from region to region. However, the typical lines express a universal sentiment:

Arirang, arirang, arariyo; Over the Arirang hill you go. (refrain)
Leaving me, my love, you’d go lame before three miles. (lyrics)

It is well-known that human emotions are deeply related to music and poetry, thus it is no wonder why Arirang conveys joys and sorrows of common Korean people arising from love, parting with the beloved, troublesome in-laws, or national struggle against foreign invaders. Frequently depicted as the unofficial national anthem, Arirang is one of the most recognized cultural symbols and a popular topic for visual and material culture, such as movies, dramas and soup operas, even names of commodities, restaurants, and broadcasting companies (fig.1). Being an evocative and powerful hymn, it strengthens communication and unity among Koreans at home and abroad.

Arirang in South Korea was inscribed in UNESCO Representative List of the Intangible Cultural Heritage of Humanity in 2012 with the name of “Arirang, lyrical folk song in the Republic of Korea, 아리랑”. And Arirang in North Korea (Democratic People’s Republic of Korea) is due to evaluate for the inscription in 2014, naming “Arirang, Korean folk song, 조선민요 아리랑”.

So far, I have explained a short background of the current situation in two Koreas and Arirang. Accordingly, my paper discusses of the commonness in Arirang between two Koreas, hoping that its outcome can escalate dialogues and actions, as well as safeguarding the song. In order to investigate the commonness, a comparative approach is taken from both texts and images of the UNESCO applications by two Koreas. The reason for this approach is that text analysis is a qualitative research method which collects and analyses non-numerical data, exposing an objective behaviour and the perceptions which drive it with reference to specific issues. This method is in-depth studies to guide and support the construction of hypotheses with a descriptive result, while image analysis motivates people to understand the text analysis with validity.

In the analysis of Arirang, texts are chosen from the application file on Criterion R.1 (Basic information of Arirang) and R.2 (Contribution to ensuring visibility and awareness and to encouraging dialogue). Images are from the attached files, and here, one can see Korean traditional “Hanbok” costume, worn by the female in singing Arirang with a dance.

3. Commonness in Texts: Korean Folksong “Arirang”

Criterion R.1 asks the “name of the communities, groups or, if applicable, individuals concerned”. Similar words are expressed between two Koreas, such as ‘folk song’, ‘beloved’, ‘Korean people’, ‘wherever they live’, ‘national heritage’, and ‘safeguarding and transmission’. However, South Korea seems to underline more safeguarding than North Korea.

(South Korea) Arirang is a popular folk song beloved by Korean people that even include expatriate Koreans around the world. Koreans can sing Arirang as it inhabits a special place in their culture and community life no matter where they live. Arirang unites Koreans as one community. By keeping it close to their hearts, they are involved in its safeguarding and transmission. A variety of groups and individuals are dedicated to the safeguarding of this national heritage.

(North Korea) Arirang is a typical folk song of the Korean nation which all Koreans, wherever they live, love and enjoy singing at many different types of occasions. Major practitioners of the element, many of whom are socially recognized, and several Arirang societies which are coordinated by national heritage protection committees play important roles in the enactment, transmission and safeguarding of Arirang.

Criterion R.2 (Contribution to ensuring visibility and awareness and to encouraging dialogue) has three questions. First, “How can inscription of the element on the Representative List contribute to the visibility of the intangible cultural heritage in general and raise awareness of its importance at the local, national and international levels?”

Two Koreas believed that Arirang can elevate consciousness of folk songs, the value of intangible heritage and contribution to ICH. Again, South Korea has more enthusiastic and future-minded approach to safeguarding, using terms, such as “awareness, understanding, communication, problems of transmission, risk of extinction”. North Korea have no such terms; instead using the term, “tradition” as a remedy of the past seems somehow passive.

(South Korea) Inscription of Arirang... will contribute to raising awareness of traditional folk songs...increasing overall understanding of the importance of intangible heritage. Actively transmitted in contemporary society, Arirang plays a vital role in enhancing communication and unity among the Korean people... Inscription of Arirang will help promote awareness of the urgent need to address the problems of ruptured transmission and risk of extinction of intangible cultural heritage. Arirang's increased visibility will help... for motivating the global community... as contemporary national cultural icons.

(North Korea) The inscription of Arirang... contribute to more visibility for intangible heritage worldwide... Arirang... helps people to express their emotions collectively and individually in a way that singing traditions are not often reported to be capable of. These binding and healing forces of Arirang are important aspects of the tradition that will see to it that not only in the homeland of Arirang, but also on the local and the regional levels the importance of this element, as well as that of ICH in general, will be better realized.

The next question is "How can inscription encourage dialogue among communities, groups and individuals?"

Two Koreas held that inscription of Arirang will contribute to dialogues between them through various events, arranging the song as discussions on oral traditions and education for future. Here, North Korea shows a joint dialogue with South Korea, and for South Korea, the inscription will prompt reconciliation of two Koreas.

(South Korea) Inscription... stimulate discussion on these oral traditions and joint efforts among states, ethnic communities and nations to study and document them... The Korean National Commission for UNESCO has hosted the annual Arirang Youth Camp since 1995... Because Arirang is being used as a cultural tool for enhancing the bond of identity of Koreans, its inscription will stimulate communication among ethnic Korean communities across the world, as well as dialogue and exchange between people in North and South Korea toward reconciliation.

(North Korea) Inscription will encourage good relations and respect among communities and individuals at various levels within the country... Inscription may also help in uniting spiritually all those who consider Arirang as crucial for their identity across borders. It will thus promote interchange and dialogue among Koreans at home and abroad...about the culture and mentality of Koreans. On the international level, dialogue may further be organized, and good relations promoted, between Koreans practicing Arirang and communities with singing traditions that characterize them in similar ways.

Finally, "How can inscription promote respect for cultural diversity and human creativity?"

South Korea highlights Arirang's merit for human creativity, freedom of expression, and empathy. Anyone can invent new lyrics, adding to the song's regional, historical and genre variations, and its cultural diversity. For North Korea, Arirang may contribute to display the cultural and social multiplicity of humanity as well as motivating people when they realize of Arirang's forms and functions with richness and diversity.

4. Commonness 2: Korean Costume "Hanbok", related to Arirang

Hanbok, Korean traditional clothing, was established as a part of the living culture, influenced by the geography and climate of the Korean peninsula. It has passed from the past to present, demonstrating beautiful curved lines and vibrant colours in harmony with the yin-yang theory. The dress was made to facilitate ease of movement, incorporating many shamanistic motifs with its fundamental structure - jacket, trouser, skirt. Although Hanbok was described on a wall painting of an ancient tomb of Goguryeo in the fifth century, the traditional style dressed nowadays is patterned after that of the Joseon Confucian Dynasty (1392-1910).

This time, Neo-Confucianism was the dominant philosophy and its distinction on formality and etiquette ruled the costume style on all occasions for the royal family and the members of the court, aristocrats and commoners. Yangban, a hereditary aristocratic class based on scholarship and official position, were clad in brightly coloured Hanbok of plain and patterned silk in cold weather and woven ramie cloth or light materials in warm weather. Commoners were restricted by law as well as a lack of finances, thus they bleached hemp and cotton and dressed in white at large. Integrity in men and chastity in women became the principal social values, echoed in the way people dressed.

In traditional Hanbok design, curved features are crucial. The dress is not supposed to be tight fitting, in order to show its innate beauty visible in elegance and style. Consequently, women had layers of

undergarments for the voluminous skirt, made from profuse materials to underline a feminine elegance. Basically, female Hanbok was red, representing fortune and wealth, but everyday clothes were white; and pale pink, light green, grey and charcoal on special occasions.

The Hanbok costume, from the UNESCO applications (fig. 2, 3) confirms the commonness of two Koreas' tradition and heritage, deeply related to Arirang.

5. Conclusion

Culture consists of behavioural patterns, explicit and implicit, constituting the characteristic attainment of human collectives. Acquired and transmitted by symbols, the vital core of culture is composed of traditional ideas and their attached values. And cultural heritage is the legacy of physical artefacts and intangible attributes of a group or society which are inherited through generations, preserved in the present and bestowed for the profit of future generations. Intangible cultural heritage is not the cultural manifestation itself but the continuity of wealth of knowledge. Sadly, many expressions and manifestations are under threat, endangered by globalization, cultural homogenisation, and a lack of support. Therefore, the social and economic value of transmitting knowledge is important for developing State as for developed one, thus intangible cultural heritages can sustain as a culture, practised within communities and between generations.

Although the UNESCO 2003 Convention supports the efforts of its States Parties in safeguarding, in the case of Arirang, States (two Koreas) are more influential than UNESCO or Korean people in actions. Therefore, the texts from Criterion 3.b can be a joint platform for two Koreas towards the same goal – safeguarding.

Criterion R.3.b (Safeguarding measures proposed) asks: “(ii) How will the States Parties concerned support the implementation of the proposed safeguarding measures?”

Two Koreas have positive strategies to this, investing manpower and financial supports.

(South Korea) The Ministry of Education will devise systematic programs that will stimulate education and transmission in the private sector to further consolidate the internal base for the promotion of Arirang. When enacted, the law will allocate budget support for the establishment and operation of new organizations devoted to the safeguarding and promotion of diverse intangible cultural heritage including Arirang.

(North Korea) The adoption of the law has made it possible to further boost activities for the sustainable development of such ICH elements as Arirang, which will include safeguarding and inventorying activities, the promotion of artistic performances and of education, scientific research, publications and international exchanges. The Government approves the fiscal budget for the safeguarding of ICH... to implement and monitor the measures proposed for safeguarding ICH.

Two questions arise:

(1) How Arirang as an intangible cultural heritage in once same (one Korea), yet different communities (two Koreas) can encourage dialogues for reconciliation and unification?

(2) How can South Korea, more developed, and North Korea, less developed in economy according to OECD, improve safeguarding under the current troublesome globalization?

One solution is found in safeguarding Arirang, even Hanbok. Why so?

For me, the term, “safeguarding” implies a positive action towards future, if we follow our eyes/ears to two Koreas' promises. But please wait! Bureaucratic process takes much time in implementing them, particularly under different political systems. And it can be modified, being far from what they promised.

Whatsoever, applying the commonness of Arirang to two Koreas' future strategy is an excellent way of safeguarding, mutual understanding, and tolerance further (fig. 4).

We all know that Korea is a creative nation, and Koreans are willing to any challenges in reflection and with passion. So, I ask to myself and to you. Who will take the initiative? South Korea? Or North Korea? Or both simultaneously? In present Korea, old-new folkways and traditional-newly arriving customs exist side by side, or one is gradually giving way to the other. Despite these changes, Korean society maintains its equanimity and harmony, as the Koreans are born modifiers and harmonizers. If it is, safeguarding Arirang is our common future. The indebtedness of two Koreas' shared future goes to their ancestors who invented an eternal intangible cultural heritage: Arirang dressed in Hanbok by the female.

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Figure 1: Arirang as a national symbol under the Japanese colonisation (1910-45). Arirang movie poster (<http://www.kocis.go.kr>).



Figure 2: Arirang in dance, South Korea (<http://www.unesco.org/culture/ich>. Jeongsan Arirang Research Institute 2009, South Korean application file).



Figure 3: People singing “Arirang” for a pastime 2011 (<http://www.unesco.org/culture/ich>, North Korean application file).



Figure 4: Dancing to the song "Arirang" in the June 15 Festival 2002, a joint event of two Koreas (<http://www.unesco.org/culture/ich>. North Korean application file).

Seeking Models for the Rehabilitation of Collectively Inhabited Buildings

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Abstract

The courtyard dwellings of Tbilisi, Georgia form a critical part of the city's identity. The multiple occupation of these buildings is blamed for challenging their prospects for repair. Models for the shared ownership of residential blocks, originally developed in France in the middle-ages, have been adapted globally¹. Some have established communal sources for rehabilitation and maintenance applicable to historic buildings. This paper tests the relevance of such precedents to the complex context of Tbilisi.

Keywords: *Multiple-occupancy; Tbilisi; Participation; Co-operative; Maintenance*

1. Introduction

The significance of the unique three sided courts of Tbilisi has long been established but fails to muster support with such complex stakeholder arrangements. Bi-lateral efforts to preserve the capital's unique architectural legacy have failed on numerous occasions². In the 1970s and 80s it was reported that state sponsored evacuation was enabling sensitive repair and reconstruction. However, both constructional methods and principles of rehabilitation have been criticised³. Finding the means to work within intensive and impoverished domestic occupation is a key concern. Van Assche identifies the "labyrinthine character of property rights"⁴ as a specific challenge to preservation calls. An argument for community led heritage management in Waterton and Smith's terms⁵ in this case requires the instigation of, by and for the building's occupants, owners and agents - a change of practice more than policy. New developments pose both hope and risk for the city's historic fabric. This paper explores the potential for pre-existing social networks together with an enhanced professional skills base to inform a principle of rehabilitation. It draws comparisons with experiences in other countries and acknowledges challenges and opportunities raised by the specific domestic context of Tbilisi.

2. Poverty and heritage in a post-cosmopolitan city

Suny concludes his seminal history of Georgia with the statement: "The key to the future lies in what a people selects from its past, how it imagines itself as a community and continues to make itself as a nation"⁶. In theorising heritage, Smith has emphasised the significance of everyday practices⁷. In representing Tbilisi's architectural heritage, as is the case in many historic cities, the domestic building stock, although not of the highest heritage value, is understood collectively to define the identity of the city. The old centre, though almost entirely rebuilt in the 19th century, has successively identified as its architectural capital. However, as has been noted, although there is a strong will to retain the old city and for new buildings to associate themselves with its rich identity, few want to live there⁸. Frederiksen notes that the threat of "renovation taxes" has encouraged multi-generational families to leave their historic home⁹. The challenge is significant and the obstacle of poverty must not be

¹ (Leyser J., 1958) p. 8.

² (JWG US-USSR, 1975; Khimshiashvili K., 2001) p. 100.

³ (Tsitsishvili Irakli 1985)p. 40, p. 206, p. 61, p. 59, p. 73.

⁴ (Van Assche Kristof et al., 2009) p. 283.

⁵ (Waterton Emma et al., 2011; Smith Laurajane, 2009).

⁶ (Suny Ronald Grigor, 1994) p. 335.

⁷ (Smith Laurajane, 2006) p. 273.

⁸ (Van Assche Kristof et al., 2009) p. 285 (Manning Paul, 2009).

⁹ (Frederiksen Martin D., 2012) p. 129.

overlooked; a survey in 2013 recorded high levels of unemployment and a gulf between actual and required levels of income in the city; 38% of respondents earning less than 250USD per month although 90% felt that an income of 400 USD was a necessary minimum¹⁰.

It has been acknowledged that the very complexity of the ownership context of these multiple occupied homes has served to secure their survival, no one having the authority to radically alter them¹¹. Poverty has rhetorically been defined as “the best conservator” or the “friend of preservation”, this is in part because people who are unable to afford to transform their environments become victims of them and their physical environments in turn are protected from change. By contrast the key principle behind environmental design standards is that people should not be victims of their environments. This presents something of a conundrum for Tbilisi. Whilst its heritage is recognised for its contribution to its identity, newcomers specifically choose to live in other areas. This is a true crisis because it threatens both buildings and livelihoods. Extracting communities further destroys their historic integrity. Survey results reveal an economy in transition; whereas 26% of Tbilisi households had no washing machine and 11% had no fridge, 95% had a cell phone and 70% a PC¹². The issue of maintenance, municipality and the adoption of responsibility for the environment is a challenging political issue in a society that is struggling financially. One of the most complex aspects of leasehold law is the establishment of reasonable conditions for the care of shared areas. To put the wellbeing of the building ahead of the wellbeing of its occupants is a monstrous suggestion. On the other hand to propose the collaborative adoption of responsibility for the environment touches upon social ideals held close across the political spectrum. In this way the relatively mundane notion of municipal maintenance held great political significance historically. Today, the potential for identity acknowledged through shared heritage is at the core of ambitions for social cohesion.

The buildings that are under discussion here are not the architectural trophies of Georgia, the churches nor even the noted *Darbazi* houses. Tbilisi was razed to the ground in 1795 in the Persian wars. The buildings are an agglomeration of intricately decorated and somewhat flimsily constructed houses (fig. 1). Whereas some, such as 2 Lermontov St (fig.2) were architect designed for wealthy individuals, most are un-designed. They at once express French neoclassical details and bring decorative skills from Persian craftsmen. In this respect they are architecturally cosmopolitan, the term applied to the city from the nineteenth century¹³. Manning has asserted the social nature of Tbilisi architecture, describing it as “the very image of an open society, a balancing of individual and collective”¹⁴ - their balconies and courts serve to blur conventional public-private boundaries. Before 1828 houses had flat mud roofs; *Banami*, which instigated a form of shared semi-public entertainment space¹⁵. It is probable that the regular maintenance of such spaces - they would need to be swept for weeds seasonally - also contributed to a sense of social cohesion. These roofs today are largely lost, replaced by a shallow pitched rusted zinc skyline. Although courtyards are a very common arrangement of houses globally, the Tbilisi three-sided form (fig.3) is a portal in itself, opening onto the street in a uniquely urbane manner and is the most characteristic contribution to urban design made by the city¹⁶. The context is pressurised when it becomes overcrowded; 48% of households in Tbilisi now have three or more adults living in them¹⁷. The fact that the space is shared, not privately owned, not state operated, not municipally controlled, not co-owned, lends it a spatially democratic aspect. To remove the specific conditions of co-habitation and joint responsibility that establish that condition is to destroy as much as the built fabric can maintain. Thirdly, the deep balconies, which emerged in the 1830s (fig. 4), allowed people to share their private lives with the street, sometimes eating and sleeping on them¹⁸. They are a mode of address, a way to present private life in the public sphere. The intricacy of the carving and ostentatious craftsmanship denotes an articulation of care in human endeavour.

¹⁰ (CRRC, 2013) SETTYPExPERSINC: INCSOUGO.

¹¹ (Van Assche Kristof et al., 2011) p. 13.

¹² (CRRC, 2013) SETTYPExOWNWASH: OWNFRDG: OWNCELL: OWNCOMP.

¹³ (Chanishvili Nino, 2013) p. 1.

¹⁴ (Manning Paul, 2009) p. 98.

¹⁵ (Chanishvili Nino, 2013) p. 15.

¹⁶ (Mania Maia, 2010).

¹⁷ (CRRC, 2013) HHASIZE: SETTYPE.

¹⁸ (Chanishvili Nino, 2013) p. 15.

3. Complex Property Ownership and responsibility problems

In 1996 a World Bank report highlighted the emerging problem of a lack of legal framework surrounding the emerging potential for co-ownership of residential property in former Soviet states¹⁹. Recent dramatic changes in the property market demonstrate the capacity for transformation. Property is valued by its comparative relationship to its neighbours, in order that an identity can be commodified and sold to remote markets. Where a historic environment is so specifically defined as the old centre of Tbilisi, this presents specific economic opportunities but also risks destruction. Manning has noted that the reconstruction of decorative elements in previous restorations excluded the restoration of basic services. However, at the time it was argued that a focus on the provision of services dominated rehabilitation efforts²⁰, in any event the current situation is universally recognised as inadequate. The benevolence of NGOs in Georgia since the 1990s has been received with mixed feelings²¹ – only 2% of survey respondents in Tbilisi perceived that NGOs addressed issues concerning regional development, municipal services or local issues²². There is a need for an alternative and less cynical path to be trodden.

4. Examples

Given the cultural context of Tbilisi and the precipitous state of its potential transition, it is relevant to draw parallels across the world. In France a legal framework of co-ownership, *copropriété* is established, in the USA and Canada, *condominiums* and in Scotland, legal frameworks for flat ownership are derived from the common-law notion of *Tenement. Strata Title*, developed in Australia, forms the basis for models in Indonesia, South Africa, Singapore, Malaysia and New Zealand. These systems of tenure have been adapted and used all over the world, providing a significant body of experience to draw upon. Forms of legal ownership are very varied and the impact of numerous stakeholders including lenders, insurers and agents present often conflicting concerns²³. A comparative discussion of the development of legal provisions for shared ownership internationally noted a distinction between systems that envisaged maintenance as a right or a duty and the complexity of shared or individual provisions for structural or servicing elements of the building²⁴. Such arrangements are obviously closely related to the economic conditions of the context and the extent of work required.

A number of projects have already enabled old buildings in Tbilisi to be re-furbished and “slum-dwellers” to be re-housed successfully²⁵, however it seems desirable to aim higher in terms of being able to maintain people in their familiar districts (should they wish it). Fan has also observed a tendency for top-down processes in China and a predilection for using heritage as an economic resource over resident’s interests²⁶, citing an instance where residents were relocated in the old town of Yangzhou. A current example in (the very different economic climate of) Hong Kong, “the blue house cluster²⁷”, has recently succeeded in maintaining its trade tenants in lieu of re-furbishing the domestic parts of the block. The potential for self-management to be a positive step in a renewal process has been established²⁸. A study in 1987 observing maintenance in low income condominiums noted a strong correlation between social cohesion and maintenance, concluding that self-management was less expensive and more effective. The paper found that renewal policies that encouraged residents involvement through Building Committees of unpaid elected residents in their management had a significant impact on the quality of subsequent maintenance²⁹. It is possible that the pre-existing social environment and ownership in Tbilisi presents an opportunity for such developments in the context of historic buildings.

¹⁹ (Renaud Bertrand, 1996).

²⁰ (Manning Paul, 2009) p. 97 (Stepanov Teimuraz, 1970) p. 3 “the lines of life”.

²¹ (Frederiksen Martin D., 2012) p. 132.

²² (CRRC, 2011) SETTYPExNGOAREGD.

²³ (Lemberg Kai, 1979) p. 102 (Yip Ngai Ming et al., 2002) p. 704-5.

²⁴ (Van der Merwe C. G., 2002).

²⁵ (Van Assche Kristof et al., 2011) p. 13.

²⁶ (Fan Li, 2013).

²⁷ (Commissioner for Heritage's Office, 2014).

²⁸ (Wekerle Gerda R et al., 1980).

²⁹ (Werczberger Elia et al., 1987) p. 201.

The complexity of architect's work in the refurbishment of historic shared residential buildings was acknowledged in the 1970s³⁰. A study in Malaysia³¹ has highlighted the need for professional advice to be made available to Maintenance Committees. The example of the Parisian *Compagnie des Architectes de copropriété*³² is particularly relevant. A list of architects offering specifically accredited conservation skills is offered to historic *copropriété* in the city. Clearly the extended history and economic stability of the city provides an enviable context for such practices, however, it is feasible that local professional groups such as *Tiflis Hamkari*³³ may ultimately establish such a facility for Tbilisi. If a professional support network were in place, such as the French *Archicopro*, there appears to be capacity for high levels of organised participation. A survey on volunteering in Tbilisi revealed that 61% of respondents identified that there was commonly an elected neighbour who would organise people or solve a problem him or herself³⁴.

5. Neighbourliness, cosmopolitanism and community Co-ops in Tbilisi

In arguing for greater rigour to be taken in measures used to evaluate the improvement of social cohesion in historic urban environments, Landorf has defined three dimensions of social sustainability as *Social equity*, *Social coherence* and *Needs satisfaction* and sets out the means for these to be evaluated at a local level³⁵. He asserts the notion that *community action* contributes to social sustainability. This is promising in the case of Tbilisi where evidence suggests capacity for such activity is relatively strong, a 2013 survey noted that 61% of Tbilisi Respondents felt it was important for a good citizen to do volunteer work and that 36% of respondents had helped to clean a public space in the last six months³⁶. A significant finding in the Malaysian context is the importance of reinforcing social connections between co-residents and between generations³⁷. In Tbilisi there is an established pattern of prolonged co-residence with parents³⁸. In a survey, 49% stated that they were never alone during the day³⁹. Salukvadze noted that maintenance was a key issue that remained unresolved in the privatisation of land ownership and cadastral reforms of the 1990s⁴⁰. Yet of 90% of survey respondents in Tbilisi who perceived that common space in their area got regularly cleaned, only 26% said it was cleaned by the government, 42% said it was cleaned by neighbours rotating with just 8% saying it was cleaned by a person or company hired by a neighbour⁴¹. These figures indicate existing forms of co-reliance. In contrast to the condominium examples of other nations, it might be assumed that in the case of Tbilisi, whereas there is insufficient economic stability to employ managers there might be better capacity to develop such networks from within.

6. Conclusion

Identity has been cited as a core component of social sustainability. Historically the "ownership" of Tbilisi and its cultural identity was uniquely mixed and this is perhaps an idea that can be translated to help understand the smaller scale. Frederiksen has characterised the Tbilisi consumer as "caught between the unattainable and the inferior"⁴². The notion might be expanded and applied to the whole issue of urban renewal in the city. At a more detailed scale, in the domestic cohabitation of shared spaces, there is a further iteration of the risks and opportunities of this condition. Neighbourliness and co-operation are core components of sustaining such living conditions. It is critical that new professional networks are adapted to be most productive in collaboration with existing conditions. Whilst the tenure is as fragile as the buildings, it appears that the specific social, economic and physical environment could provide potential for a demonstration project engendering the cherished values of sustainability and social cohesion to flourish in this specific historic context.

³⁰ (Lemberg Kai, 1979).

³¹ (Muhamad Ariff Nor Rima et al., 2011).

³² (Compagnie des Architectes de Copropriété).

³³ (Elisashvili Alexander, 2011) p. 91-96.

³⁴ (CRRC, 2011) SETTYPExNEIORGEL: REEBLPR.

³⁵ (Landorf Chris, 2011).

³⁶ (CRRC, 2013) SETTYPExIMPGCVW, SETTYPExCOMCLNER.

³⁷ (Muhamad Ariff Nor Rima et al., 2011).

³⁸ (Roberts Ken et al., 2009).

³⁹ (CRRC, 2011) SETTYPExTIMEALON.

⁴⁰ (Salukvadze Joseph, 1999).

⁴¹ (CRRC 2011) SETTYPExREGCLEAN:COMCLLOG:COMCLNEC:COMCLCOM

⁴² (Frederiksen Martin D 2012) p.131

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Figures 1, 3, 4: Ingrokova Street - Author's image.

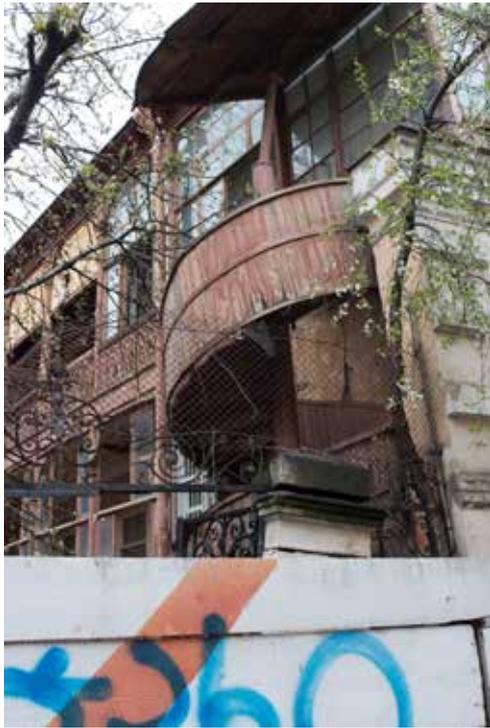


Figure 2: Lermentov St.
Sioni St.



Figure 3: Sided court at 3



Figure 4: Balcony detail at 17 Dadiani St.

Objects of UNESCO in Ukraine as a Factor of the Society Humanization

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Abstract

This paper considers the essentials of cultural heritage and focuses on the role of the preservation and popularization of UNESCO world heritage sites serves as an important factor of the Ukrainian society humanization in the framework of Ukraine and EU integration.

One of the priority directions of a civil society humanization is protection and preservation of natural and cultural heritage of UNESCO. Ukraine's integration into the European society depends on several factors among which the leading role goes to the cultural heritage maintenance and protection.

Keywords: *Cultural Heritage; Social Humanization; UNESCO*

To foster humanistic qualities, dignity, culture of communication and civilized co-existence we need to get acquainted with the world's culture and the essence of culture itself. It turns to be the main task of the society humanization. Culture is an inseparable component of the society humanization.

One of the priority directions of a civil society humanization is the protection and preservation of natural and cultural heritage of UNESCO.

Cultural heritage is a very subtle but extremely important and unrenovable resource. In case of neglecting or demolishing it risks to be lost forever for the present and coming generations. Heritage plays an important role in the identity differentiation. It is a kind of a memory archive for the cultural and social history serving as a factor of a social unity and economic attraction. Considering heritage as a vital indicator of a humane development of the society and ascribing to it new spiritual functions and new regular applications we are likely to gain positive changes in social, economic, cultural and tourism development. We can also provide it with a long-lasting conservation by supplying steady financing.

Cultural monuments of the local, national and worlds' significance play a prime role in the society humanization process as well as their preservation and protection, which appear to a direct duty of both the authorities and average citizens. The emphasis is made upon objects of the universal value from the point of view of history, art and science. The protection of such kind of heritage is regulated by Convention Concerning the protection of the World Cultural and Nature Heritage adopted by the General Conference of UNESCO in Paris on the 16th of November, 1972. According to the Convention the objects of heritage include the following: cultural monuments, monuments of architecture, sculpture and art, archaeological structures and landmarks; ensembles of buildings; places of interests. The natural heritage includes objects of the universal value from the point of view of science, aesthetics and natural beauty, namely, natural monuments; geological and physiographic landmarks; natural attractions. A mentioned above Convention puts forward a system of measures to preserve the world's cultural and natural heritage, to develop international cooperation in this field¹.

Every civilized country finds its ways to protect and preserve its cultural and natural heritage. Innovative, determined and steady steps should be made to solve the problems. A genuine interest in positive changes and improvement in keeping the heritage is not of less importance. A scientific approach to the preservation process proves to be helpful.

¹ Convention Concerning the protection of the World Cultural and Nature Heritage, 1972.

In October 1988, Ukraine ratified the UNESCO Convention Concerning the protection of the World Cultural and Nature Heritage. The country undertook international legislative duties to detect, protect, preserve, popularize and keep for the coming generations its cultural heritage. Since that time Ukrainian monuments have been promoted for the inclusion into the list of the world's heritage objects.

The nomination process is a complex procedure which got more complicated at the beginning of the 21 century. According to the demands indicated in the 'Directives that regulate the implementation of the Convention Concerning the protection of the World Cultural and Nature Heritage' (1972), changes and amendments (2005) the inclusion of new objects into the UNESCO list requires the fulfillment of the following steps: 1. Inclusion into the UNESCO tentative list; 2. Preparation of the nomination dossier and its acknowledgement by the UNESCO World Heritage Center; 3. Conclusions of the experts of the [International Council on Monuments and Sites](#) (ICOMOS) and the experts of the Ukrainian National Committee. The conclusions are drawn after a close observation of the nominated object as well as a buffer zone around it; 4. Inclusion the nomination of the object into the session agenda of the UNESCO World Heritage Committee and voting.

Four Ukrainian objects have been included into the UNESCO World Heritage list, namely, Kiev: Saint-Sophia Cathedral and Related Monastic Buildings, Kiev-Pechersk Lavra as one object in 1990, a L'viv – the Ensemble of the Historic Centre in 1998, the architectural ensemble of a former Residence of Bukovinian and Dalmatian Metropolitans (at present it is Chernivtsi National University named after Yuriy Fedkovych) in 2011, Ancient City of Tauric Chersonese and its Chora in 2013. Also, Ukraine is represented by three trans-border objects, namely, a Struve Geodetic Arc (Norway, Finland, Russia, Estonia, Latvia, Lithuania, Belarus, Moldova, Ukraine) in 2005, Primeval Beech of the Carpathians and the Carpathians and the Ancient Beech Forests of Germany (Ukraine, Slovakia in 2007 and then in 2011 Germany was added) and Wooden Tserkvas (Churches) of the Carpathian Region in Poland and Ukraine (Ukraine, Poland)².

The objects, included into the UNESCO list, are acknowledged to be 'a common heritage of the mankind'. This fact determines their legal status. Ukraine while meeting the requirements of the Convention acts in this filed according to several norms among which the key ones are: respect for the country's sovereignty on the territory of which cultural and natural objects are located and protected by the national legislation; detection, protection, preservation and popularization of the world's heritage is first of all the duty of the state on the territory of which the objects are found; obligatory international cooperation aiming at the world's heritage protection and providing help for the country in need; obligation of the state not to undertake any actions that can harm directly or indirectly cultural and natural heritage.

Ukraine's integration into the European society and the signing of the Ukraine's Association with the European Union depend on a number of factors among which the protection of cultural heritage takes a leading position. The bases for this are laid in the harmonization of national norms and regulations with the European and international demands, in the development of the tourism infrastructure, in the level of citizens' awareness of the national heritage protection.

Undoubtedly, all the objects included into the UNESCO list play an important role in the process of the Ukrainian society humanization. The most vivid example of such object is a former Residence, founded in 1875 by the decree of the Austrian emperor Franz Joseph. For more than half a century the university has been placed in the building. Chernivtsi university has never lost its national identity despite frequent authority replacement (Austrian, Rumanian, Soviet and finally Ukrainian). The University used to be and continues to be a center of education, science and spirituality of Bukovyna region (the western part of Ukraine).

Having realized the need for protection and popularization of the Ukraine's heritage in the world's scope the University authority and faculty strove to include the Residence in Chernivtsi into a prestigious list of the monuments of the mankind. A task team was created in the University to activate a nomination process. The team included historians, archive experts, geographers, architects, builders, biologists. The team members made great efforts to prepare the nomination dossier and then to get the nomination of the object. Great endeavors resulted in the decision of the 35th Session of the UNESCO World Heritage Committee of to include the Residence into the UNESCO world heritage list. A new status of the Residence had a positive impact on the university's further development.

² Ukraine properties inscribed on the World List, 2013.

For more than a century and a half the Residence represented the spirit of Bukovyna. It was a kind of symbiosis of styles and cultures of all the nations that inhabited the region. It has become a unique visit card of an admirably “multicolored and multilingual” capital of Bukovyna, which is “a common home that will never get turbulent in political storms and will never be ruined” – these are the words of a famous historian R. F. Keindl³.

It is worth mentioning that among more than a thousand objects of the cultural heritage included into the UNESCO list only five objects function as educational institutions and centers of the cultural heritage of the mankind. They are: the Monticello and the University of Virginia in Charlottesville (USA), the University of Caracas (Venezuela), the Central University of the city of Campus (National Autonomous University, Mexico), the University of Coimbra – Alta and Sofia (Portugal), the University and a historical city part of Alcala-de-Enares (Spain), the Residence of Bukovinian and Dalmatian Metropolitans (at present it is Chernivtsi National University named after Yuriy Fedkovych, Ukraine).

The unique feature of these objects is reflected in their possibility to unite cultural heritage landmarks and educational, scientific centers, where thousands of young people study. Such unity of functions is highly productive, because students are called on to preserve the world’s heritage for the coming generations, to be the pushing force in the strategy development of the world’s heritage protection. The scientific facilities of the universities enable the continuing elaboration of pilot projects on planning, management, restoration, conservation, tourism infrastructure, various scientific programmes and trainings for the implementation and popularization of the Convention Concerning the protection of the World Cultural and Nature Heritage. To crown it all, it is necessary not only to develop and maintain culture as a certain industry in the country, but to keep it as a valuable phenomenon of a local and world’s dimension. The protection and development of the cultural diversity prove to be a key task of the governmental and public institutions.

The authority of Chernivtsi University realized the responsibility imposed on it when the status of the object had changed from a monument of the national significance to a monument of the world’s heritage. First, as an educational institution, the University is committed to assist the advanced research in heritage sites preservation and all accompanying aspects (economic, international, legal, tourism, etc.). Second, as the World Heritage Site, it provides conditions for the practical implementation of the developed research and ensures experience exchange in this field. The inclusion into the world’s heritage list is a great achievement but the main challenge lies in a proper management of the UNESCO object according to the norms of the international law. By means of formal and informal education, research and monitoring the University contributes to improving the sphere of World Heritage Sites preservation, organizing of cooperation and sharing information about the need to transfer heritage to future generations. For this purpose a Center for the UNESCO Site Management in Chernivtsi University has been created. It consolidated the work of five departments, dealing with the scientific guidance and relations with international and national institutions; organization and projecting; architectural restorations; excursions and tourism; relations with mass media⁴.

The University actively participates in the international and cross-cultural events. It is a member of scientific and public societies aiming at cooperation to share knowledge. It effectively co-works with the UNESCO institutions and funds, it collects and donates financial and other resources to science, education, humanization process, protection of cultural heritage⁵.

Now we plan to establish the UNESCO Chair at the university. The objective of the Chair is to combine the efforts of the university scientists, namely historians, international relations scholars, architects, lawyers, economists, geographers, biologists, theologians and other. The scientists’ activities of the university, which is both the educational institution and the only world heritage site in Ukraine, will facilitate the co-work of the employees who deal with the monuments of local, national and international significance, encourage experts practitioners, public representatives as well as media.

³ Geschichte von Czernowitz von den ältesten Zeiten bis zur Gegenwart. Festschrift zum sechzigjährigen Regierungsjubiläum Sr. Majestät Kaiser Franz Joseph I. und zur Erinnerung an die erste urkundliche Erwähnung von Czernowitz vor 500 Jahren. 1908.

⁴ Номінаційне досьє включення Резиденції Митрополитів Буковини і Далмації до Списку Всесвітньої спадщини ЮНЕСКО. 2011.

⁵ Архітектурні об’єкти і ансамблі – каталізатори урбаністичного розвитку. 2010.

Preservation and popularization of UNESCO World Heritage Sites serves as an important factor of the Ukrainian society humanization in the framework of Ukraine and EU integration.

A human cannot live forever, so today's generation will be replaced by the coming one. But every generation can leave its immortal trace embodied in a piece of art, a historic monument or cultural achievements. We should not forget about the connection between triviality and something that can grant the people and their creations a sign of eternity.

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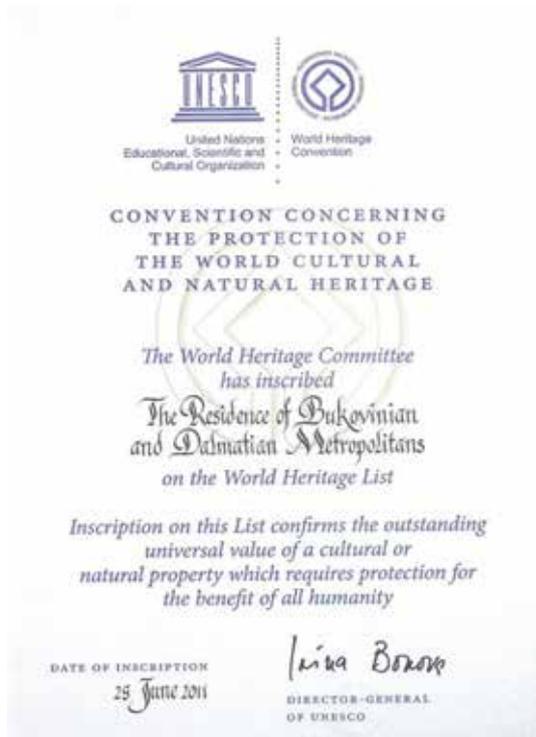
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2. Former Residence of Bukovinian and Dalmatian Metropolitans (now Chernivtsi National University named by Yuriy Fedkovych)



3. Former Residence of Bukovinian and Dalmatian Metropolitans (now Chernivtsi National University named by Yuriy Fedkovych)

Safety in the Conservation Workplace

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Abstract

Human values embodied in monuments are the expression of a particular approach to the context at the time of building, architectural concept, appropriate use of the science and technology available at the time, organization of the job and division of labour, perhaps innovation and invention. Safety in the conservation workplace of a historic building includes respect and preservation of the aforesaid values and of those concerning the health of the people working on the building, combined with the stability of the construction, not only for its own sake but also for the safety of users.

Keywords: Conservation; Human Values; Risks; Prevention; Safety

1. Human Values of the Conservation Activity

The conservation of historic buildings and structures has the obvious aim of their material preservation from further decay and collapse¹ but should also acknowledge their significance. The human values embodied in monuments are the expression of a particular approach to the context at the time of building. Specific values within the architectural concept, aesthetic achievements², appropriate use of the science and technology available at the time, organization of the job and division of labour, perhaps innovation and invention. Not to mention the building's success in lasting until the present day, a circumstance that is in itself a remarkable achievement.

Human values require communication, dissemination and share making use of appropriate terms; therefore they also enter into the sphere of linguistics³. To this effect we should remember that architecture itself is a language that uses specific signs for the transmission of its messages.

In conservation, gradual understanding of the human values inherent within an architectural complex, and the subsequent appreciation of these values, lead to a growing respect for the building⁴. Consequently, those working on the project will have a sense of personal dignity in the planning stage, following idealistic principles and mastering the advanced technologies which are required in the field but which have to be adapted for each individual case. The workers will be conscious that the job demands skill in carrying out difficult operations, familiarity with now-disused materials and former techniques, and feel proud of their success in rescuing a damaged but valuable building. Dignity, awareness of the cultural relevance of one's work, and pride are human values too; the activity of conservation can therefore generate other values than the intrinsic ones. Furthermore, appropriate conservation work confers considerable added value on a monumental building, a value that is evident in the concern shown for its architectural characteristics and in the quality of the intervention.

Values also demand acknowledgement, but the outcome of this turns out to be a statement of the rights and duties of individuals and communities. Rights to be exercised pertain to a globalized sense of cultural heritage, in particular an awareness of history. Duties of both individuals and communities consist primarily in the effort to be made towards passing buildings down to the future in good condition but without substantial changes.

In this regard, whatever the conservation theories of the various cultural, ethnic and religious communities in acceptance of the concept of diversity, the importance of preserving the material witnesses of cultural heritage must be stressed, while retaining their authentic condition. The unnecessary alteration or – worse – removal of these material witnesses, the needless operation of

¹ (Sanpaolesi, 1973; Tampone, 2008).

² (Lipp, 2007).

³ (Tampone, 2008 *Semiological ...*, 2010, 2013).

⁴ (Dezzi Bardeschi, 2007; Tomaszewsky, 2007).

dismantling and reassembling the structures, destroying the original bond, are to be considered an abuse⁵. The effect, at any rate, is an irreplaceable loss of the monument's authenticity⁶.

2. Safety at the Conservation Workplace

The notion of safety in the conservation workplace of a historic building includes the respect and preservation of basic human values such as the health of the people working on the building, combined with the stability of the construction, not only for its own sake but also for the safety of users⁷. Unless the conservation work is carried out with this dual aim, the necessary preventive measures will be in conflict with the conservation tasks, thus compromising the authenticity of the building.

In architectural conservation, attributing a global meaning to the term "safety", i.e. extending its validity (read necessity) from the phase of investigation on the construction, putting provisional works in place, carrying out conservation work on the building itself, leads to an understanding that safety and conservation are complementary and consistent activities. The most advanced criteria to be used for the preservation of the structural system of the building, particularly the task of its "improvement", brought about by introducing repairs without completely altering the original configuration⁸, are not in opposition to the need to establish safe conditions.

The concept of safety is spread transversally throughout the several phases of the process.

The fundamental difference between the construction of a new building and the restoration of an ancient one is that, despite any inspections, specific surveys and accurate assessments that may be carried out⁹, an existing building is never completely known. Particularly prior to the intervention, inadequate acquaintance with the structural scheme of the building in question, insufficient knowledge of the state of decay of materials and the failures of the structure – their nature, severity and extent – are factors that prevent the planner identifying and assessing, and therefore taking into account, a number of risks that, on the other hand, are never easy to evaluate. Documentary and historical research will reveal one important factor, the building's vulnerability to special events such as natural disasters, for instance floods, earthquakes and fire. The risks presented by these events can be assessed, with the corresponding evaluation of possible damage to people and structures. The safety plans stipulated by codes of practice¹⁰ when planning a restoration intervention are necessary tools, but they can be only generic. In this context, practical knowledge gained by the conservator during previous interventions is a valuable source of inspiration when designing the health and safety measures for the planned restoration work; some specific risks can be foreseen and appropriate operational precautions may therefore be enforced.

It is commonly recognized, however, that the fundamental activity of health and safety managers is risk assessment (EU 89/321), since prevention precautions and measures are to be designed accordingly.

But the assessment of risk and hazard must be considered an ongoing activity, depending on progressive acquaintance with the building's condition and the advancement of the specific works carried out. Therefore a continuous updating of the risk-prevention plan is absolutely essential, with the introduction of specific measures designed to prevent damage to humans and property which may be caused by newly-assessed risks as the status of the building is modified by ongoing work.

In addition, the technical specifications in the tender should include a list of the predictable risks with their possible effects; the list should be completed, of course, with the specific precautions and measures to be taken. Further measures designed during the job should be enforced by means of service orders issued by the director of works on behalf of the contracting authority.

⁵ (Tampone, 2010).

⁶ (Tampone, 2002, 2008 *Evoluzione ...*).

⁷ (Capone, 2008; Passerelli, 2008).

⁸ (Tampone, 2002).

⁹ (Tampone, 1977, 2001).

¹⁰ (Tampone, 2008, *La sicurezza ...*).

3. Specific Causes of Accident in the Conservation Worksite

In addition to the general causes of accidents on an ordinary construction site, the major specific causes at the restoration site¹¹ are, amongst others, severity of damage to the building, inadequate shoring, incomplete or inadequate scaffolding, the artisan nature of the work, the considerable variety of tasks carried out on the site, lack of coordination between several contractors present at the same time on site. Other factors are employment of workers untrained for special work and careless of safety precautions, the use of inadequate or worn-out tools and, of course, undervaluation of the risks. This means that the use of normal safety devices such as Personal Protective Equipment (PPE, such as gloves, anti-slip footwear, safety helmets, high visibility waistcoats, goggles, protective clothing, fall harnesses etc.), installation of safety signage, safe storage of materials, fencing, covering and adequate marking of holes, adequate lighting of work areas and passages, attendance of regular training courses and similar are necessary measures but not sufficient in the conservation workplace. These current measures simply need to be supplemented by specific ones.

The most dangerous stages of a conservation intervention are the early ones at the start of the survey when very little is yet known of the building and its condition; moreover, a contractor has yet to be appointed to give the necessary operational support such as preparation of scaffolding for safe approach.

Similarly, the phase of shoring an existing construction which is affected with failures is one of the most dangerous, due to the fact that workers need to get close to the damaged structure and lean the propping devices against it. Sometimes temporary shields need to be installed to protect the workers.

Dangerous workings in the conservation worksite are the use of cutting and rotating tools with reciprocal or rotatory movement, especially if used manually, strengthening of damaged structures without installing specific shoring work or using incomplete shoring: for instance, dismantling portions of stone or brick masonry, excavations at the foot of the construction made in a continuous line, worse still if machine-made, underpinning. Formidable recurrent hazards are wobbling ladders with slippery steps caused by the presence of a biotic coating, and irrationality in the shoring configuration (lack of wind bracings, for instance). Inadequate access is also a hazard.

Since a very large percentage of accidents are caused by manual handling (the transporting of loads by hand or by bodily force) and manual work, these operations should be strictly limited and carefully planned. Other dangers are walking on steeply sloping surfaces made of highly unstable materials with insufficient load-bearing capacity or without supporting elements; and any work that produces vibrations. Regarding vibrations, it is worth mentioning that in safety directives issued by the EU (2202/44/EC), vibrations are considered a hazard capable of causing harm to the whole body or the hand and arm. But in conservation work, vibrations should also be considered a possible cause of collapse of the damaged structures of the building under repair, thus also an indirect cause of severe injury to workers. This is the case when demolishing thick plaster facings or removing sections of a wall (for instance, when making a new opening) using heavy mallets or other percussion tools that in any case cause further damage to old masonry structures and increase the risk of collapse in parts of the building (which is a loss in itself) and harm to operators.

In the preliminary phases of strengthening work, for example, when appropriate shoring of the structures is not yet in place, parking vehicles with the engine still running and tipping materials very often produce shocks in the ground, with the resulting dangerous vibrations both in the ground itself and in the air. These activities should be allowed only in a designated storage area located at a suitable distance. Delivery of materials to the worksite should only be made in small quantities, by manual means of transport. Also the activity of ordinary maintenance of a building, that includes adjustment, servicing, cleaning, is very dangerous. Accident prevention starts right from the initial planning of the conservation project. The objectives of structural strengthening, for instance, should be pursued by selecting techniques proven to be less risky¹². A possible, real alternative is to adapt current techniques to the task of facilitating a safe working environment. International publishing is very rich in works of general and specialized character concerning the topics of safety but the subject of safety in conservation is almost ignored. In Europe and in Italy no specific provisions exist concerning health and safety in the conservation workplace. Amongst the European Directives (in Italy the safety acts)

¹¹ (Tampone, 2008, *La sicurezza* ...).

¹² (Tampone, 2008 *La sicurezza*).

issued so far, the closest to conservation work are those regarding temporary or mobile construction sites, maintenance, and risks arising from physical agents (see Bibliography).

4. Conclusions

Ensuring safety in an ancient building converted to public use, as is normally the case with historic buildings, is much more complex than for a private property due to the higher number of users, the diversity of their behavior and actual difficulties in control management.

In general, no contradiction exists between the objectives of conservation and safety and in this sense the tender, with adequate specifications, proves to be a very valuable tool which can answer the purpose. In this respect, watchful direction of the work is a basic condition. It is impossible to achieve total safety, especially in the conservation workplace, because of the aforementioned reasons, especially the uncertainties of the conservation activity. A radical decrease in accidents, and limitation of their number as well the severity of their physical effects, is the target to achieve.

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Traditional Knowledge of Heritage to Promote Resilience to Disaster in Hilly Regions of India

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Abstract

Traditional construction techniques that have evolved through trial and error methods and processes are proven to be better resilient to disasters. This paper is an attempt to understand how traditional knowledge systems in the development of built heritage have helped in mitigating and sustaining the disaster risk especially in the context of hilly regions. This study is to understand the overall development and features of Kedarnath temple which may be the reason that it could sustain the major disaster and impact of flash flood. It also investigates different methods used for the construction of heritage buildings and use of local material, done in past by the craftsmen that resisted the different type of natural disasters. The approach is mainly qualitative however quantitative methods were adopted to analyze the built forms by using golden ratio. The findings of this paper throw light on the traditional knowledge of built heritage which are resilient to disaster risks.

Keywords: *Traditional Knowledge, Heritage, Promote Resilience, India*

1. Introduction

Kedarnath is a town located in the Rudraprayga district an Indian state of Uttarakhand. Kedarnath temple is one of the important destination which the pilgrims on *Char Dham Yatra* pilgrimages (Badrinath, Kedarnath, Gangotri and Yamunotri) for the Hindus. It is also believed as the highest amongst the twelve *Jyotilingas* spread over the country. It is believed that the temple is more than thousand years old and was built by Adi Shankaracharya. Legends is that the Pandavas wanted to seek redemption for their sins committed during the battle of Kurukshetra in Mahabharata through the blessings of lord Shiva. But Shiva was not ready to give *darshan* (appear before) to Pandavas. He kept on hiding from them and the Pandavas kept on following Shiva. It is said that at Kedarnath, Shiva took the form of a bull and started disappearing underground but Bhima caught the hump of the bull, which remained at Kedarnath and we worship as the *Shivalinga* in the form of a conical rock. The documents say that the present temple was built by Raja Bhoj of Malwa (Central India), who reigned between 1076 and 1099 AD.

Kedarnath temple is located (30^o44'N, 79^o04'E) in the Himalayas, the youngest mountain range, about 3581 mt. above sea level. Many researchers and scholars identified that Himalayan ranges are still gaining height due to movement of the tectonic plates. The mountain is prone to soil erosion, landslides, seismic activities and brutal rainstorms, which is evident from the various disasters occurring in past. It is also observed that the frequency of the various such calamities is increasing exponentially (tab. 1). It has been recently quoted in *Rajya Sabha* that there are more than 17 major disasters which hit the nation after 2010. Unmindful damage to hilly vegetation and climate change had significant impact on high mountain glacial environment; rapid melting of snow and heavy rainfall has resulted in the formation and expansion of moraine dammed lake, creating a potential danger from dammed lake outburst flood leading to the disasters.

2. Flashfloods in Kedarnath

On June 16, 2013 there was flash flood in Kedarnath, Uttarakhand region of North India. It rained continuously measuring 120mm within a span of 24 hours, which caused loss of thousands of human life, more than four thousand persons went missing and many more remained stranded and waiting to be rescued. The historic town of Kedarnath was completely washed away and reduced to a place full of debris and silt brought down by the gushing water. It was surprising that the thousand years old

structure of Kedarnath temple, built in stone, sustained the impact with minor crack here and there where as the modern built structures were completely washed away . It is claimed by the scientists of Wadia Institute of Himalayan Geology, Dehradun, that the Kedarnath temple survived being buried under the snow for almost 400 years when the temple became a part of the glacier. This all indicates that the temple was built thousands of years ago and still sustained in the harsh geological and climatic conditions.

3. The Enquiry Procedure

This paper is an attempt to look into the various aspects taken into consideration for the overall development of the Kedarnath temple. It will also bring an understanding of traditional knowledge system in the development of built heritage that has been evolved for mitigating and sustaining the disaster risk. The environmental aspects taken into account and their sensitivity toward the nature shown by the master builders thousands of years back will also be investigated in this paper.

The methods adopted for the investigations include:

- Observations from secondary sources
- Semi structured interviews
- Photographic and video documentation

As the redevelopment and restoration of the Kedarnath valley is still going on physically visiting the site was difficult. As there is little or no proper documentation of the Kedarnath temple available publicly, various drawings were developed through the use of available images.

4. Analysis of Findings

• The overall settings

The location of the temple is such that it lies in the valley near two glaciers - Chorabari glacier and companion glacier, surrounded by the snow mounted hills in the north and situated on an island created by river Mandakini and Saraswati. The temple is oriented in North-South direction, where the entrance to the temple is from the South (fig. 1). This way the cold breeze or avalanche coming from the northern side has been avoided from entering the building. The ground terrain is higher in the northern part than the southern, considering the level of water in the river and flood, the location of the temple and orientation is supported (fig. 2). The river Mandakini being the major river over here and keeping the highest flood plain in mind the temple was further elevated on a high plinth of around 5 ft.

It is also observed that traditionally the temples or the places of worship are placed at the highest point of any settlement. Here in Kedarnath too we can see that originally only the temple was situated on the Island (fig. 3) and remaining settlement were located on the other higher banks of the rivers. With the passage of time the population grew and Kedarnath was made more accessible by the development of infrastructure which led to the increase in the pilgrims/ tourists. This phenomenal growth, lead to the development of build structure in front of the temple itself i.e. on the southern side of the temple which is lower than the temple itself but above the flood plains of the Mandakini river. These structures are combination of temporary and permanent type (fig. 4). The earlier permanent structures were built in stone, the locally available material, but with the economic development of the area the new construction materials started coming in from the lower plains and replacing the traditional materials.

The stakeholders took the priorities of the diverse tourist types to facilitate them as such issues related with environment, safety and climatic effect were neglected. The high and unmanaged tourist influxes lead to an unplanned development ignoring the development plan 1980-2001 (fig. 5) prepared by the Town and Country Planning Organization, Uttar Pradesh, India. These developments in turn blocked many of the natural runoffs and also led to deforestation of the area. This unplanned development and deforestation can be considered as major culprit for the disaster which took place at Kedarnath. There are other factors which contributed in making the problem even more critical such as development of infrastructure, construction of dams and reservoirs for hydro electrical projects in the near vicinity.

• Golden Proportions

Golden proportion is two ratio between the two sections of a line or the two dimensions of plane figure where the smaller of the dimension is to the greater as the greater to the whole length i.e.

the sum of the both. If 'a' is the longer side and '1' is the smaller side, then Phi is called the golden ratio.

$$\text{Phi} = a : 1 :: (a+1) : 1$$

$$'a' = \{ \text{sq.rt. of } (5+1) \} / 2 = 1.618 \text{ (approx.)}$$

We can find the measuring tools of Phi in the ancient civilizations of Greek and Egypt, which were infinitely rich and subtle. The Phi relationships in various parts of human body was detailed out by Le-Corbusier in 1948 in his 'Le-Modular' based on which he made two red and blue series.

This proportion has been used historically in the places of worships world over, so we can say that it is a sacred geometric proportion. This may also stand true for the Kedarnath temple be it in the plan or elevation. Considering this we have tried to analyze the geometric proportions of the temple, using the photographs available for the elevation and dimensions of plan from the Google earth. When we superimposed the golden ratio on the plan (fig. 6) and photographic elevation (fig. 7), we find that the temple was built using golden proportions and holds true for the plan and elevation. We can also identify that the width of circumambulation is governed by a volute drawn from the same starting square of golden ratio (fig. 6).

- **General Principles of Seismic Resistant design:**

Here we would like to highlight that the following major principles of earthquake resistant buildings, propagated by various institutions¹, researching the design of earthquake resistant buildings, were already known to the craftsmen and executed in the Kedarnath temple building.

1. **Building should be simple, symmetrical and regular in both plan and elevation:** The symmetrical and regular configured buildings produce less magnitude of twist. The distance between the centre of mass and centre of stiffness is less compared to the unsymmetrical shape structures.
 - The temple building is symmetric in both plan (fig. 6) and elevation (fig. 7) through the axis drawn.
 - Use of simple geometrical shape as rectangular shaped *Mandala* and square shape *Garbhagriha* compose the whole structure.
 - The two structures are largely individual buildings in themselves sharing a common plinth, connecting with each other at a very small stretch i.e., in the form of the entrance gate of the *Garbhagriha*.
2. **Inverted pendulum effect:** The distribution of the mass should be proper and gradual. The top of the building should not be heavy but it should be light in weight, to avoid inverted pendulum effect.
 - In Kedarnath, we observed that the base is raised to a height of 5 ft approximately to form a platform on which the temple building is erected. The raised platform is solid in nature and filled with boulders and stone.
 - The *Garbhagriha* is mounted by a pyramidal *Shikhara* and the top is made light and has a kiosk like structure. The *Shikhara* is exalted vertically and is staggered which distribute the mass gradually in plan as well as in elevation. The rectangular shaped *Mandala* is also staggered so that its volume also gets reduced.
 - The walls are made up of massive metamorphic rocks joined together using dry stone masonry with tongue and groove joints. Masonry is tied at different levels with the help of stone cornices acting as lintel bands reducing the overall continuous mass of the structure.
3. **Avoid large projection:** Large projections are vulnerable in earthquake and undergo high deflections and reversible stress that lead to damage of the structure.
 - The roof follows the profile of the *Mandala* without any large overhangs which could be damaging for the structure in case of earthquake. (fig. 7)
4. **Structural Configuration:** It is suggested that the structure should have a uniform and continuous distribution of strength and stiffness. The large openings should be avoided.

¹ Course material of National Programme for Capacity building of Engineers in Earthquake Risk Management (NPCBEERM), 2006.

- In the Kedarnath temple the massive stone masonry wall of *Mandala* have only three door openings on the three sides, while the fourth wall opening is connected to the *Garbhagriha*. There are no other openings in the whole building.
- The *pradakshina path* or circumambulation is done on the raised open terrace formed as part of the plinth height (fig. 8).
- The horizontal beams or lintel, which are supported by columns or post work as a trabeated structure system along with massive load bearing walls which are used to transfer the load of the structure (fig. 9).

According to experts, the causes for failure of masonry buildings are as under:

- Heavy mass
- Large in plane rigidity
- Lack of structural integrity
- Brittle material
- Lack of diaphragm action
- Structural irregularities
- Low tensile and shear strength
- Weak mortar mix
- Poor quality of construction
- Lack of good design
- Excess of opening
- Inadequate foundation

Buildings are generally damaged when the soil that support the foundation vibrate, shift, slide or liquefy, in response to an earthquake, even though the epicenter is distant from the site. In the present case the temple is located on solid rock. In fact the rock that is worshiped as Shivalinga is the rock supporting the super structure as well. It is the ingenuity of the master craftsmen of the time that they could locate it in a place where seismic effects were minimal and the rock was solid. The procedure of this investigation followed by the craftsmen is still under study. The building does not have any of the above mentioned causes of failure except that no mortar was used for construction. The reasons of its sustainability were the keys used between the rocks, the massive size and the intermittent bands.

5. Conclusion

The traditional knowledge of built heritage paid respect to the natural settings, environment and climatic conditions, disaster possibilities, locally available materials and construction practices which is evident from the Table 2. It appears that these factors were considered in design and construction of Kedarnath temple and all these factors have contributed in making the Kedarnath temple sustain from the disaster risk. With the thorough understanding of different aspects of nature and traditional knowledge systems of the built heritage even the advanced building materials and construction techniques can also be used in developing disaster resilient buildings. Focus on creating awareness with the communities and development groups regarding the drawbacks of unplanned development and the relevance of disaster risk preparedness through traditional knowledge systems. Such initiatives could also be done at all levels right from primary school to the management levels. The principles of traditional science of building design '*Vastu*' lays great emphasis on thorough understanding of the natural settings, soil investigation and climatic understanding, so its application in making the buildings resilient to disaster needs to be looked into.

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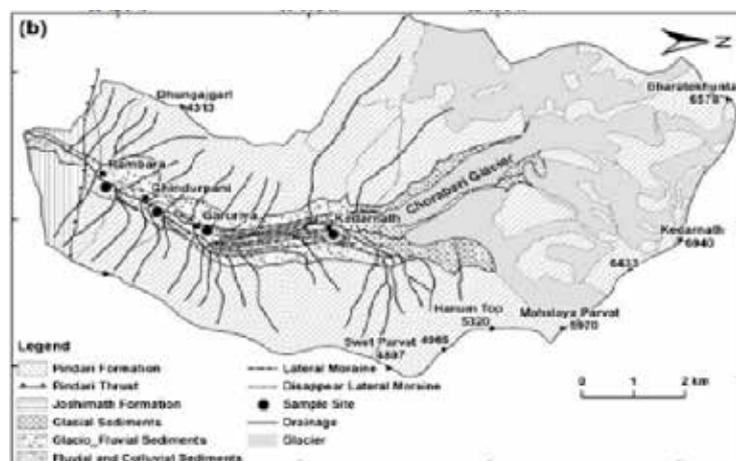


Figure 1: Geographical location of Kedarnath Temple (Source: http://www.doccentre.net/cc/cc_uttarakhand.pdf).



Figure 2: High plinth and development in front of the temple. (Source: Authors)

Figure 3: Kedarnath in 1882 (Source: <http://www.indiatimes.com/news/india/130-years-old-unseen-photos-of-kedarnath-85647-3.html>).



Figure 4: Permanent and temporary structure (Source: Authors)

Figure 9: Inside view of the Garbhagriha (Source: http://3.bp.blogspot.com/-eemlVPX1d_Q/UczzYBR3ruI/AAAAAAAAAK5Q/UOexk13fxUE/s490/Kedarnath+Temple+Inside.jpg).

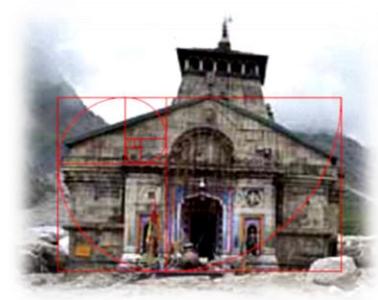


Figure 7: Front view of the Kedarnath Temple

Figure 8: The Shikhara and open terrace. (Source: Author)

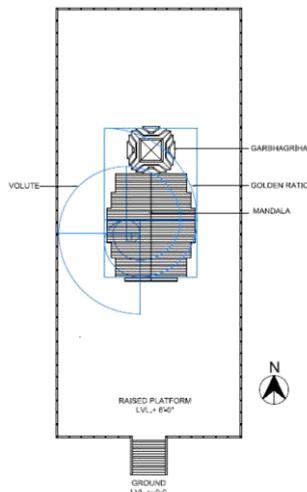


Figure 6: Plan of Kedarnath Temple. (Source: Authors)

Figure 5: Development Plan Proposed by T &CP 1980-2000. (Source: Report by T&CP, U.P. India)

HAZARDS →	Earthquake	Landslide	Flashflood	Avalanche
PARAMETER ↓				
Location of the site	Youngest Himalayan Mountain range, tectonic plate movement	Youngest Himalayan Mountain range, loose soil and erosion	Valley trapped between high mountains and surrounded by the rivers	Snow peaks and glaciers all around
Orientation of the temple building in North-South		The mountains are toward the North, while the two rivers flowing in East and West	The northern portion of the site is highest level.	Shorter side in North side
Shape of the building	Simple, Regular, Symmetrical	Linear, shorter side faces the high mountains.	Longer side is along the flow of the rivers	Shorter side faces the high snowy mountains.
Proportions adopted by the builder of the Temple	Stable and confine geometrical ratio		Smaller but taller structure meets and divert the hazards	Smaller but taller structure meets and divert the hazards
High raised platform	The plinth is made solid in nature with infill of large boulders and stone. This reduces the pendulum effect, as well as make the soil at the base very stiff and firm	The temple building is kept at centre of raised plinth and open terrace all around.	The temple is raised at more higher level with lofty plinth	The temple building is kept at centre of raised plinth and open terrace all around.
Structure Component	Massive masonry wall with key joints, heavy foundation, various bands to tie the masonry	Massive heavy raised plinth and solid base	Massive heavy raised plinth and solid base	Massive heavy raised plinth and solid base
Structure System	Combination of Trabeated and load bearing stone wall			

Table 1: Disaster in Uttarakhand. (Source: Report “Disaster: Natural Fury: A Preliminary Report on Uttarakhand Disaster” prepared by Dehradun-based NGO, HESCO)

S.No.	Year	Disaster
1	1978	Bhagirathi Flash Flood
2	1980	Gyansu Nala Landslide
3	1991	Uttarkashi Earthquake
4	1998	Malpa Landslide
5	2001	Phata Landslide
6	2003	Landslide triggered by a cloud burst in Varunawat hills, Uttarkashi
7	2009	Landslide, Pithoragarh distt.
8	2012	Cloud burst, Okhimath.
9	2012	Cloud burst, Uttarkashi distt.
10	2012	Flood in Kedarnath
11	2012	Cloud burst in Rudraprayag
12	2013	Cloud burst and flash floods in Kedarnath

Table 2: Summarized form of all the findings. (Source: Authors)

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I C O M O S
General Assembly

Symposium
Heritage and Landscape
as Human Values
Florence, Italia
9/14 novembre 2014

Theme 4

**Community-driven conservation
and local empowerment**

Thème 4

**La conservation fondée sur
les habitants et la responsabilisation
des populations locales**

Semantic and cognitive palimpsest Outfitting and communication project

Local empowerment

Specific traditions create the development and fix values directions, from the “local” to the “global” one.



Theme 4

Community-driven conservation and local empowerment

Thème 4

La conservation fondée sur les habitants et la responsabilisation des populations locales

Engaging and empowering communities to identify local values and participate fully in the conservation of their historic centres and heritage resources is a widely shared goal. How can it be achieved most effectively?

Inviter les populations locales à identifier les richesses locales et à participer pleinement à la conservation de leurs centres historiques et de leurs ressources patrimoniales, ainsi que les mettre en mesure de le faire, est un objectif largement partagé. Comment le mettre en oeuvre le plus efficacement?

Sub-themes

- 4-1 Community Engagement in the valorisation of heritage**
- 4-2 Developing a bottom-up approach to the conservation, management and protection of heritage**
- 4-3 Harmonising international principles of heritage conservation with local needs, beliefs, practices and traditions**
- 4-4 Linking heritage protection and sustainable local socio-economic development**
- 4-5 Implementing community driven heritage conservation through participatory resource mobilisation**

Value education for culture, peace and human development

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Abstract

Culture is the expression of human dignity and a guarantee of peace and development. The original meaning of culture, *'cultura animi'*, or *'cultivation of the soul'* is a perfect reflection of the Value Education approach: no fundamental transformation in society can occur, unless individuals constituting it are transformed. Gradual inside-out development of society will lead to the birth of 'culture of the Right to Culture' that will render illicit antiquities' trafficking a violation of this right as it deprives humanity of the right to access cultural heritage and knowledge contained in it.

1. Quo vadis?

The current development paradigm, based on the incessant accumulation of material wealth and dead-end consumerism race, results auto-destructive for the planet as a whole. As Gandhi said, this world can satisfy the necessities of all, but not the egoism of the few. The Western development model is being drastically imposed on the so-called 'developing' countries, under the guise of benefiting them, but in reality destroying their cultural identities and influencing them to join the fatal rat-race, to say nothing of very often destroying the social and biological fabric of entire countries. Massive ecological destructions and enormous public debt that oblige countries to start programs of structural adjustment based on budget cuts in public health, education and farming - are only some disastrous consequences that the so-called 'development' has brought to the so-called 'Third World'. Black are the traces of Chevron in Ecuador.

The fortune of billionaires has doubled since the financial crisis and one third of food is thrown away in the 'developed' world, while children keep dying of hunger and malnutrition. The 5-minutes-to-midnight ecological crisis is being ignored by global decision-makers with only pure cosmetic measures adopted from time to time. *"Only when we cut the last tree and catch the last fish, will we realize that money cannot be eaten"*, say the natives of Tonga. Probably even not then: instead of realizing, we'll be posting and twitting it. Arms' trade is in exponential growth and literally there are those who feed themselves with the blood of others, whatever horrible this may sound.

All the above are indicators of enormous power exercised by anti-human values of egoism, thirst of wealth at any cost, unscrupulous lack of morality and deriving ones. The only force that is able to contrast and overweigh these evils is contained in positive universal human values, the lack of which is perceived as the main reason of degradation: if we preserved the value of earth and our existence on it, of peace, of culture, of beauty, of human relations, of our rights, of our dignity and, finally, of being human – if we preserved these values as our purse or bank accounts – the world probably would be different.

2. Illicit antiquities' trafficking as a violation of the Right to Culture

The illegal antiquities' traffic is a form of transnational organized crime and its roots often lead to drugs' and arms' trafficking, mafia, financing of war and terror organizations, like Taliban, Al-Qaeda and Hezbollah. Serious legislative gaps, numerous law-enforcement difficulties, burden of proof, strongly-felt trade interests, lack of political will and other problems allow for the existence of a flourishing international market of illegally obtained material.

Illicit trafficking in cultural artifacts, with the destruction of unique historical context and often sites and artifacts themselves, represents an important loss to society: we lose our dignity embodied in expressions of human genius and Culture. Not being able to access cultural heritage, humanity is deprived of its right to Culture, right to knowledge and, consequently, right to development.

However, the category of cultural human rights is considered to be an underdeveloped one in the human rights family. Existing legal documents *"do not establish real rights, but rather political commitments of a programmatic character that create at most legitimate expectations but not true rights"*¹. A concerted action

¹ F. Francioni, M. Scheinin, *Cultural Human Rights*, Leiden-Boston, Martinus Nijhoff Publishers, 2008, p. 3.

needs to be undertaken towards the adoption of a new international legally-binding instrument that will recognize the **Right to Culture** as **an inalienable right of every human being**. This instrument shall not only identify all relevant sub-categories of the Right to Culture, but should also provide for the delegation of judicial powers to a supranational jurisdiction institution with authority to adjudicate legal disputes on cultural human rights and other cultural heritage issues.

Only **if** and **when** the Right to Culture is legally recognized, only then the human dignity embodied in Culture will be granted constitutional importance as a guarantee of Peace and Human Development.

“Where there is Peace, there is Culture; where there is Culture, there is Peace”

These words belong to the father of cultural heritage protection legislation Nicholas Roerich (1874-1947), Russian painter, writer and philosopher (fig. 1). Long before the establishment of UNESCO, Roerich spoke about the universal character of the world’s cultural heritage: “*Culture belongs to no one man, group, nation or era. It is the mutual property of all mankind and the heritage of generations. Without Culture there is no truth, no unity, no peace*”². Roerich’s fundamental vision of Peace through Culture was embodied in the Roerich Pact, the first international document proclaiming absolute precedence of cultural heritage protection over military necessity, and the Banner of Peace – a true Red Cross of Culture – a symbolic flag adopted by Roerich to distinguish all creations of human genius in the world (fig. 2). The Treaty was signed in 1935 in the White House, Washington D.C., in the presence of Franklin D. Roosevelt (fig. 3), known to have kept a bust of Roerich in his house. In 1950, after the disastrous loss of innumerable creations of human genius in the Second World War, all documentation concerning the Roerich Pact was transferred to UNESCO and laid the foundation of the 1954 Hague Convention, whereas the Banner of Peace found its direct reflection in the Blue Shield symbol.

“*This Treaty possesses a spiritual significance far deeper than the text of the instrument itself*”³, and with his revolutionary idea of inviolability of cultural treasures, Roerich gave birth to the ‘*culture of cultural protection*’, launching an international debate that led to the contemporary doctrine of cultural heritage legislation. The Roerich Pact is an educating law which is of absolute importance today, when cultural heritage of humanity is being stolen, vandalized and bombed in Iraq, Syria, Serbia, Egypt and many other cradles of civilization. “*There must be means to educate humanity about the dangers of such disregard for what is most important in our lives and our history, and the Roerich Pact is a great tool for this*”⁴. As any other value, the value of culture is to be inculcated in the consciousness of humanity (fig. 4). Once internalized, it will find its external expression in concrete actions on national and international levels.

3. Value Education for Culture, Peace and Human Development: from India to the world

The universal recognition of the Right to Culture as an inalienable human right is seen as a destination point of a gradual inside-out and value-based development of society to be carried out, certainly, on legislative, economical, political and social levels, but first and foremost, on the educational level. The first step lies in the development of human consciousness by means of educating it to true values and, *in primis*, to the value of culture.

Value Education has its origins in the XIX century India in the philosophy of a great thinker and educationist Swami Vivekananda, whose ideas “*influenced the influencers*”, among which John D. Rockefeller, Nicola Tesla, Carl Jung, Leo Tolstoy and many others. Vivekananda was strongly convinced that social evils could be resolved through the transformation of man with the help of life-building, man-making and character-making education. Mahatma Gandhi developed Vivekananda’s education message further and his education policies gradually evolved into the contemporary *Framework for Values Education in Schools* of the Indian National Council of Educational Research and Training and culminated in the recent introduction of *Education for Peace* as a school subject.

Already 150 years ago, Vivekananda’s understanding of human development regarded both global and national levels and contained several focal points considered crucial for the reverse of development paradigm. Thus, on the global level, Vivekananda saw the progress of humanity possible only in case of the mutually beneficial and enriching relationship between the East and the West, and not in that patronizing treatment of Western countries towards the developing world, and policies hardly corresponding to true needs of countries and disturbing their own evolutionary process. He saw human development in

² N. Roerich, *Call to World Unity*, in P. Barenboim, N. Sidiqi, *Bruges, the Bridge between Civilizations*, Grid, Belgium, 2010, p. 48.

³ F.D. Roosevelt, cited in P. Barenboim, N. Sidiqi, *op. cit.*, p. 79.

⁴ D. Entin, Director of Nicholas Roerich Museum in New York, cited in P. Barenboim, N. Sidiqi, *op. cit.*, p. 15.

harmonizing the two ideals of life through a constructive and integrating exchange of best achievements of both the poles. He was deeply convinced that the East had fully as much and more to offer to the West and, mainly, its great tradition of spirituality, since *“the Oriental ideal is as necessary for the progress of the human race as is the Occidental”*⁵.

Concerning local development, Vivekananda was convinced that no amount of politics would move the development of a country, until masses are well educated, well cared for and well fed: *“a nation is advanced in proportion as education and intelligence spread among the masses”*⁶. Long before Karl Marx and his ideas became known in India, he spoke about the role of laboring classes in the development of a country and production of its wealth and legitimate rights of lower classes to education, knowledge, culture and development, equal to those of upper classes.

Thus, human development philosophy of Swami Vivekananda is in strong connection with education, a crucial nation-building power. To teach children *“to be good and do good”*⁷ – that is the essence of education according to him. The aim of education is to foster holistic and harmonious development of personality in its three dimensions: physical, mental and spiritual. The third component was completely missing in the “rotten” British system of education imposed in India by the colonial rule that was virtually creating machines, skeptics and materialists⁸. However, Vivekananda didn't share a classical vision of moral and ethical education, which he perceived as an imposition of do's and don'ts external to the nature of a human being. He gave a new dimension to morality, underlining that education served as a main tool of manifesting the perfection which is already in man, and his appeal *“you have to grow from the inside out”*⁹ became truly world-known. In practical terms, it was not only about ‘teaching’ the morals and goods and evils. It was rather about empowering our thought process, which will help us inculcate self-respect, moral courage, social responsibility and other ‘good’ qualities. Thus, empowered only with the ability of self-respect, an individual follows the norms of behavior that correspond to his inherent self and his vision is transposed to surrounding people, contributing in the longer run to the formation of a value-based society. *“What use in polishing up the outside, when there is no inside? The end and aim of all training is to make the man grow. The man who influences, who throws the magic, as it were, upon his fellow-beings, is a dynamo of power, and when that man is ready, he can do anything and everything he likes: that personality put upon anything will make it work”*¹⁰. Vivekananda's power-generating message was decisive for the pre-liberation India and it remains such now when the development paradigm has found itself in the vicious circle of one-way strategies and new approaches are urgently needed.

4. On the ground: Value Education Survey in India

With an aim of having an insight into the real-time situation of Value Education in India and, especially, in order to understand people's opinion and perception of it, an analytical survey was conducted in two Indian states, West Bengal and Sikkim¹¹. A special questionnaire was presented to the total of 60 people belonging to three different categories: Teachers, age 26-67; School Students, age 8-16; all Other adult respondents, age 21-57. Thus, the respondents were asked a set of questions regarding the importance of Value Education for sustainable development, peaceful co-existence, decreasing societal crime, violence and insecurity and upbringing of “good human beings” with high moral standards and ethical principles (fig. 5, Q1-9). The answers were averaged across the groups to estimate transversally the overall perception of Value Education. Children were also asked to express themselves freely using drawings and colors (figg. 6, 7).

⁵ S. Vivekananda, *My Master*, Baker & Taylor Company, New York, 1901.

⁶ T.S. Avinashilingam, *Education. Compiled from the speeches and writings of Swami Vivekananda*, Sri Ramakrishna Math Printing Press, Madras, 1943.

⁷ ‘Vivekananda Teachings’, *Ramakrishna Math – Nagpur*, http://www.rkmathnagpur.org/swami_vivekananda/teachings_sv.htm

⁸ S. Vivekananda, *My Master*, *cit.*, p. 52.

⁹ Complete Works of Swami Vivekananda, Volume 5, Sayings and Utterances, N. 20.

¹⁰ T.S. Avinashilingam, *op. cit.*

¹¹ The survey was developed in collaboration with Ms. Roshnila Gurung, Government specialist in Urban Development and Poverty Reduction based in Sikkim, India. Moreover, a series of interviews was conducted by Ms. Roshnila Gurung with a number of high-rank Indian education and government officials, among which Mr. Shrinivas Dadasaheb Patil, Governor of Sikkim; Mr. Ravindra Telang, Principal Secretary and Commissioner to Governor of Sikkim; Mr. A.K. Ghatani, Human Services and Family Welfare Minister of Sikkim; Mr. Ashok Sehgal, Member-Professor of National Council of Education, Research and Training; Dr. Sandhya Rai, Vice-Principal of Loyola College of Education, Sikkim University, and Head of Value Education Department at Indira Gandhi National Open University.

All the respondents, independently of their age, profession or type of school, expressed a very high appreciation of the importance of Value Education, which was overwhelmingly perceived as an indispensable part of mandatory school curriculum necessary for fulfilling the role of education for holistic all-round development of personality. The survey provided also a highly useful panoramic overview of innovative teaching methods. It was also inspiring to see people recognize a direct link between inculcated values and sustainable human development – the core thesis of the present research, of which respondents were not aware: *“A society cannot sustain without the universal ideas and ideals of love, peace, respect, tolerance, non-violence, and co-existence. Our world will turn into a hollow shell if such values are not imparted and practiced. So directly and indirectly Value Education is very crucial to sustainability of humanity”*.

An interesting insight was also given through the answers of children, as Value Education teaches them *“innumerable things that help in life”*, such as *“not to lie, steal, always lend a helping hand, respect elders, always share, hard work pays, avoid bad choose good, stay away from bad company, believe in yourself, be polite”*. For them, Value Education *“gives motivation not just to think for ourselves, but for others too. It helps us preserve our culture, heritage, our environment. It arises the consciousness of being a good citizen. It helps us to save humanity”*. In fact, the concept of *“others”* was present in absolute majority of questionnaires: in relation to helping *others*, being compassionate to *others*, not judging *others*, *“Live and Let Live” others*, sharing with *others* and many other variations of not being egoistic.

Henceforth, even being of a limited scope both geographically and numerically, the conducted survey added a precious on-the-ground dimension to the key assumptions of the present research, livening them up with real-life testimonials from people of different age-groups and walks of life. Finally and most significantly, it helped to re-affirm, with ever more certainty and firmness, that *“development can never be detached from values and following good principles. If we want real development, our society needs to have people adhering to values and staying true to themselves. **Value-based development** will not just benefit a small group of people but everyone”*.

5. From India to the World: an international student workshop

The first concrete step of practical application of the ideas expressed here is the organization of an international student workshop *“Value Education for Culture, Peace and Human development: from India to the World”* in the framework of the Annual Intercultural Dialogue Program of the Romualdo Del Bianco Foundation. It is held in the context of the Florence Youth & Heritage Festival, an international youth event promoted by the Foundation in parallel to the ICOMOS General Assembly 2014. With the help of its philosophy Life Beyond Tourism, the Foundation – with its International Institute Life Beyond Tourism – is oriented at contributing to sustainable development with intercultural dialogue: travelling for values helps to discover a world of opportunities (*“life”*), among which *in primis* cultural heritage of humanity and traditional knowledge, which represent an exceptional strategic opportunity for fostering understanding and respect for cultural diversity seen as a guarantee of peace in the world.

Thus, the international student workshop *“Value Education for Culture, Peace and Human development: from India to the World”* aims at introducing students into the Value Education philosophy of Swami Vivekananda and Mahatma Gandhi, raising awareness about the necessity to contrast the erosion of values in society and at providing students with the basic methodology of teaching Values.

6. A journey of thousand miles

The vicious circle of supply-demand of illicit trafficking starts not where we are used to think - in the so-called developing countries, where heritage pieces are sold for the need of survival, or in conflict zones like Syria, Iraq or Afghanistan. It starts in rich and developed countries, most often labeled as promoters of peace, security, human rights and democracy in the world, where unscrupulous ‘lovers of culture’ fuel the insatiable unregulated market in illegal cultural artifacts.

Value Education is seen as a way of developing ‘culture of the Right to Culture’ in the human consciousness, as Culture, or *‘cultura animi’* represents an all-embracing conglomeration of values. If Value Education reaches its ultimate goals of instilling universal values and teaching to *“see good, love good, do good”*, it becomes a guarantee of Culture, Peace and evolutionary Human Development, as the real transformation of our society might occur only from inside. In India, in spite of all the poverty, down-trodden masses, stratification of society, gender discriminations and many other evils equally well-known to other countries,

the goals are set high already for 100 years in educating good human beings. A journey of thousand miles begins with a single step, and it is the “*Awareness of Beauty that will save the world*”, as father of heritage protection legislation Nicholas Roerich reiterated.

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Figure 1: Nicholas Roerich (www.roerich.org).



Figure 2: Banner of Peace, Red Cross of Culture.



Figure 3: Signing of the Roerich Pact, Washington D.C., 15 April 1935 (www.roerich.org).



Figure 4: N. Roerich, *Madonna Protectris*, 1933, oil on canvas, Nicholas Roerich Museum, New York.

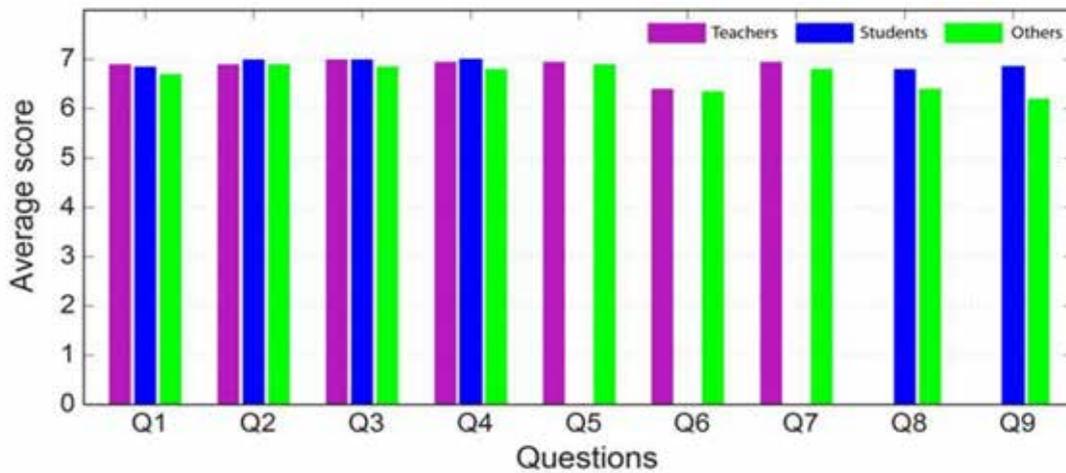


Figure 5: Results of the Value Education Survey conducted in India: importance of Value Education for various societal issues according to the 7-grade scale (7 being the highest grade of importance).



Figure 6: Value Education through the eyes of children

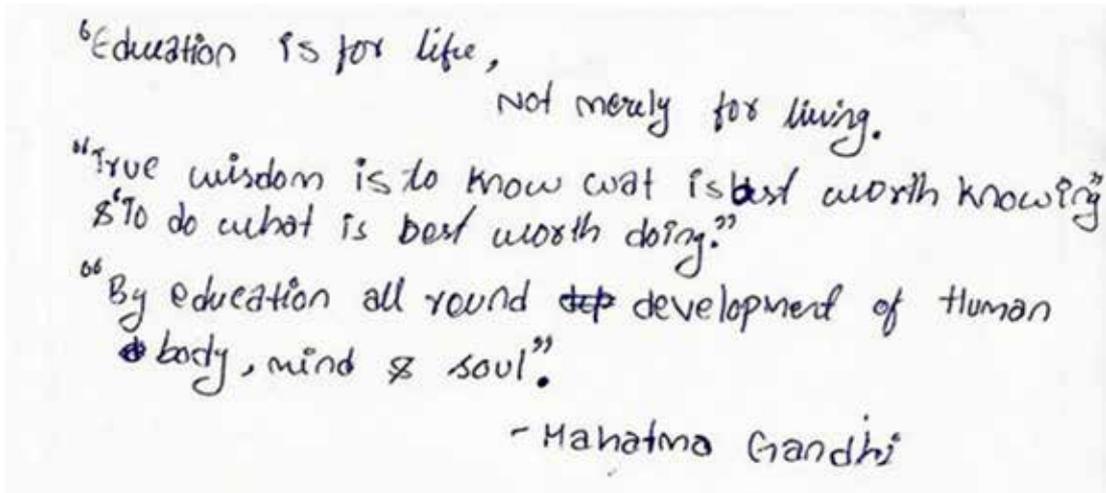


Figure 7: A 14-year old child citing Mahatma Gandhi while responding to the Value Education Survey.

The Path Is the Goal: the Story of the Re-vitalization of an Ancient Temple Access in Ladakh

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Abstract

The cultural landscape of Ladakh is characterised by a high mountain desert dotted with a densely knit network of Tibetan-Buddhist structures like monasteries, temples, *stupas*, and *mani* walls. From 2011 onwards a trans-disciplinary team of the Indian/ Swiss NGO Achi Association and the local population of a small village worked together to re-vitalize a historic temple access path and its religious structures. This paper intends to delve into aspects of the intriguing traditional belief system linked to Ladakh's cultural landscapes and to highlight the experiences of carrying out this project.

Keywords: *Buddhism; Ladakh; Community*

1. Introductory remarks

When cultural heritage is assessed and managed, in most cases this has to include also the surrounding landscape shaped by human interaction. The close interconnection of heritage and landscape today is widely accepted and interpreted¹, even if the 85 properties (less than 9% of all sites) listed as cultural landscapes on the World Heritage List² do not reflect the actual number of sites in which an interaction between man and nature is recognised.

One important component which can tie together heritage and landscape is religion, as also sacred natural sites have a cultural element, namely when people imbue it with meaning.

Even the abandonment of a site, the decay of a once daily used path, or religious structures in disrepair soak the cultural landscape with meaning. In an environment shaped by Buddhist religion, like the Western Himalayan region of Ladakh, the meaning of abandonment is even more difficult to interpret, as Buddhism ostensibly stands for impermanence and the idea of independence from materiality, but also for constant renewal. Even more complex is the situation, considering that sacred nature is a reminiscent of local religion and only subsequently adapted and transformed by mainstream religion, in this case Buddhism³. According to local belief, such a path and its religious structures, but also the ancient trees, may host spirits, just like the surrounding mountains, and should not be disturbed anymore once abandoned⁴. Another reason for not renewing religious structures can be the accumulated religious merit through time by lamas and monks carrying out pujas which gives them a value similar to the *Alterswert*, so far only acknowledged as a typical Western heritage value.

In this regard there will be no easy answer to the question which kind of value a dilapidated path with its decayed religious structures still holds for the village community and if it should be left to decay, or rather conserved or renewed. All those matters show that one of the most important tools of a project dealing with structures in a cultural landscape is to involve the community.

2. The cultural landscape of Ladakh

Images of commanding and extraordinary mountain landscape with a scarce vegetation are conjured to anybody who has travelled in Ladakh or has seen images of it. Ladakh, often described as “land of high

¹ (Williams 1996, pp. 7-9).

² (UNESCO, 2014).

³ (Verschuuren, 2010: p. 2).

⁴ Personal communication in May 2014 with caretaker and former monk of the temple in Kanji.

passes” is an arid mountain desert in the Indian part of the Western Himalayas. Climatic conditions are very harsh throughout most time of the year and nature’s power becomes often very visible. The Ladakhi society, whose agricultural activity is limited to a short time frame depending on favourable weather conditions, is very much connected to nature and feels subject to its whims. Nature with its lakes, trees or mountains is believed to be animated by inherent forces and inhabited by spirits living above, on, or underneath the ground. People have always tried to appease them through rituals. The ancient *Bön-po* religion – which has intertwined with the later arriving Buddhism and Islam – still today plays a vital role in everyday life.

Religion is omnipresent in Ladakh and “the complex relation developed by the inhabitants with their natural environment over millennia has ensured their survival”⁵.

Even the location and auspicious time for building residential homes has to be done accordingly to the complex belief system and rituals, but the most visible signs of the intense interaction with the surrounding nature are religious architectural structures, such as *mani* walls⁶, *stupas*⁷, *gompas*⁸, *darchoks*⁹ or *lhatos*¹⁰ which can be found even in most remote areas and dot the landscape as markers of both the Buddhist philosophy and the *Bön-po* religion (fig.1).

Their position within the landscape is grounded in the religious significance and function the structures are supposed to fulfil, which is above all to appease the spirits and gods and to avoid misfortune¹¹. In Kanji, a small village in the West of Ladakh, several stupas of varying size have been placed within a cave whose opening, like a wide-open mouth, points towards an agriculturally used area with the intention of virtually filling the hungry and menacing cave opening and lessening and even crushing its disruptive forces (fig. 2). As legend in the village of Wanla has it, the different religious structures like temples or *stupas* are able to control a fierce female divinity from creating havoc by tying down parts of her body onto the mountains.

A dedicated maintenance system and religious practice keep these structures and pilgrimage routes in function. Regular maintenance is necessary because all structures are built of earthen mortar, the only material which in history was easily available for building and plastering. The necessary rituals are very much embedded in daily life – not only of clergy but also of the lay community. Both communities participate in the maintenance regimes of the religious structures, such as the yearly white washing ceremony of temples or *stupas*. In religious communities the maintenance methods and duties are passed from senior monks to the younger ones, but maintenance is also carried out either by villagers or, more recently, by their monetary support¹².

3. Maintenance and preservation challenges in Ladakh

In many ways there seems to be a noticeable clash between this traditional system and modernity. Modern life makes people less dependent and affected by nature, so that they become more daring in their endeavours. The availability of different and additional building materials which promise persistence and less maintenance work, has been made possible through an increased infrastructure with a concomitant merchandising of non-traditional building materials such as cement or steel. This resulted in an immense upsurge in building activity and the construction of residential buildings in formerly uninhabited but dangerous areas: the devastating results of this building policy became only too clear in the horrendous flash floods of August 2010 in Ladakh.

In the face of these changes, traditional building and maintenance measures do not play the same role as they did before and the knowledge is in danger of becoming lost. Also the historic buildings not maintained anymore as they should be, are in danger of disappearing. After some years of neglect the only chance to save a structure very often is only a professional preservation measure. However, as very often stated, the concept of preservation may signify a contradiction to what Buddhism stands for, namely impermanence and constant renewal. But delving more deeply into the philosophy of preservation and renewal in Ladakh, it

⁵ (Sharma, 2010: p. 50).

⁶ Prayers carved onto stones and often placed at an entrance or exit of village.

⁷ Stupas (Sanskrit) and chörten (Tibetan) are interchangeable terms for structures of varying size, shape and function containing Buddhist relicts.

⁸ (Part of) a monastery and nunnery, or a small temple.

⁹ Structure with prayerflag.

¹⁰ Structure indicating the place of a spirit.

¹¹ Personal communication in May 2014 with caretaker and former monk of the temple in Kanji.

¹² Personal communication in summer 2006 with a Drikung Kargyü monk in Wanla, report by Verena Knippel “Heritage, Conservation and Communities”, archive of the Achi Association, Zurich.

transpires that the conflict does not only lie between Western conservation ideas and Buddhist thought: The conflict is already present within society itself and lets us remember that the tension between permanence and change is a common phenomenon in all societies.

In Ladakh religious structures as living monuments are considered valuable due to what is known in the West as the so-called *Gebrauchswert*¹³ as coined by Alois Riegl¹⁴, through their function within religion. However, another major value Riegl appoints to monuments is the *Alterswert*¹⁵, which means valuing the traces of age which connect us with our forefathers.

Deposit of soot on wall paintings through burnt butter lamps is the material manifestation of this value and stands for the religious merit accumulated through time by lamas and monks carrying out pujas in temples or *gompas*¹⁶. This *age value* is in conflict with other values, like the use value which would necessitate for the cleaning or renewal of temple wall paintings to keep them legible as tool for the prayers. Also buildings may still have this *age value* when they have lost their function. There are, however, other aspects to consider which concern for instance places or old trees in which spirits are said to live. The belief is that spirits can become upset when these places are being re-used or disturbed after a long time of neglect. With respect towards these spirits particular pujas have to be held to appease them.

The *age value* of structures as well as specific spiritual aspects have to be negotiated against other values like the *use value* in the Ladakhi society as in all other societies.

This kind of negotiation process within the community but also between community and conservation experts in recent years, has been recognised as the only method to obtain long lasting preservation success. In accordance with this, the Achi Association has strived since its foundation in 1999 to include this bottom-up approach into its conservation projects¹⁷.

4. The path and the project

The project was carried out in the village Wanla in central Ladakh and had the aim to revitalize the ancient access path to the hilltop temple. This joint venture was carried out in 2011 and 2013 with Ladakhi conservation trainees, experts of the Achi Association and the local communities with the support of the German *Kulturerhaltprogramm*, the Cultural Preservation Programme launched by the German Foreign Office.

The path connects one part of Wanla village, situated in a small side-valley, with the temple and former castle fortress on the mountain ridge (fig. 3). In ancient times, it was the only route and, together with several other religious structures, formed the *rgya-skor*, the ancient circumambulation path. Presumably the path's course underlay changes in past centuries, but the most prominent part of it is marked by a cluster of *chörten* in an apricot tree garden where the pilgrim had to walk through a passageway *chörten*. Up until roughly 50 years ago, when the main village still lay on the rock close to the castle, the path led through that *chörten* towards the main gate of the settlement. Still today, mostly the older villagers make their daily 1.5 hour walk on the circumambulation path, obtaining thus religious merit.

Due to construction work for a new road to the temple the *chörten* had been partially buried under a landslide. Not only could the path not anymore be used as it was intended to, but the architectural structures were in a bad state of repair, with large portions of mud plaster and pointing of stone foundation missing. Irrigation channels had in time found their way through the structures causing additional damage to the foundations. The path was also littered with plastic bottles, food wrappers and batteries.

Prior to the implementation of the path project, meetings in the village took place to assess previous work undertaken by the Achi Association India in Wanla, and to coordinate upcoming tasks with the community (fig. 4). Together with the representatives of the local community the Achi Association India strived to establish a sustainable maintenance plan for the path.

The re-vitalization of the path encompassed various elements: damage assessment, photographic, graphic and written documentation and research of the central passageway *chörten* and the surrounding nine smaller *chörtens* and the *mani* wall (fig. 5). Of major research interest were the intended, but now partially obscured, *chörten* shapes and traditional construction methods. Water drainage on roofs was improved and lacunae of

¹³ *Gebrauchswert* (German): Use value.

¹⁴ (Riegl, 1903).

¹⁵ *Alterswert* (German): Age value.

¹⁶ Personal communication in May 2014 with caretaker and former monk of the temple in Kanji.

¹⁷ (Oeter and Skedzuhn, 2013).

plaster were filled. The retaining walls for the protection of the *chörten* were repaired (fig. 6). The path was cleared from debris and irrigation path was rechanneled. In several sections of the path stone steps were built to facilitate the steep access to the temple (fig. 7). In August 2011, when the conservation work on the passageway *chörten* was completed, the building was blessed in a ceremony headed by His Holiness Chetsang Rinpoche (fig. 8).

The project work was carried out with a team consisting in all of 80 people: the local village community with the “*Zunu Tsogspa*” – the village society who is responsible for the maintenance work on religious structures – as well as paid craftsmen, trainees and conservation experts.

As the re-vitalization project was well received in the local community, a follow-up proposal was presented to the German Foreign Office, focusing on another section of the ancient access path and the conservation of wall paintings in the main temple. During this second project one significant outcome could be assessed, namely that the initial spark had managed for local empowerment had born fruit. Before the follow-up project commenced the local community had already begun with the rehabilitation of another section of the path, and a more sensitive handling of the buildings could be noticed as sheep and goats were now kept away from the *chörten* that had caused debris to slide down the mountain.

5. Concluding thoughts

The disused temple access path reflected progress and modernity: alternative roads and means of transport to visit the temple or other parts of the village are taken, and the environment is littered with the waste of modern times. But this path appears also to tell stories of ancient and contemporary religious belief and an on-going or revived faith in the spirits of nature, which might be also inspired by an increasing awareness for the responsibility towards nature¹⁸, or as a reaction in times of dramatic effects, such as climatic change.

The community engagement in the re-vitalization of this ancient temple access path adds one more chapter to the story of how the community acts and reacts on the increasingly rapid changes of life in Ladakh where traditional maintenance systems are falling more and more into oblivion.

Interestingly, it is not foremost the Buddhist philosophy of impermanence and renewal which is in conflict with preservation of historic structures, but rather a modern and increasingly competing “newness value”.

In former times the Ladakhi cultural landscape featured numerous ancient meaningful structures. The negotiation between the world of spirits and humans, and between one generation and the next decided over maintenance, repair, renewal and decay. The fast changes, road construction, and abundant housing construction, but above all the unprecedented possibility to obtain the ideal for perfection of all built structures, rendering buildings “new and nice” poses a great threat for this cultural landscape.

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¹⁸ (Verschuuren, 2010: p. 3).



Figure 1: Religious structures in a village in Ladakh with mani wall, chörten and darchok (prayerflag) (Skedzuhn-Safir).

Figure 2: Chörten placed into a cave facing a field to appease spirits and prevent failing harvest (Skedzuhn-Safir).



Figure 3: Temple with remains of former fortress and access path with group of chörten in Wanla (Oeter).



Figure 4: Meeting between Achi Association and local community (Skedzuhn-Safir).



Figure 5: Documentation of passageway chörten in Wanla prior to conservation work (Oeter).



Figure 6: Plastering of passageway chörten with earthen material (Pfund).

Figure 7: Transport of building material for the reconstruction of retaining walls (Pfund).
Figure 8: Blessing of the passageway chörten after conservation work by His Holiness Chetsang Rinpoche (Angmo).



Empowering Community Heritage Synergy by Sharing Information via New Technology

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Abstract

There is a growing interest and increased awareness for local heritage in many communities; however, there is a lack of synergy to connect the various factions and groups into a cohesive force which can engage in the conservation process of their Cultural Built Heritage (CBH).

This paper focuses on the valorization of preserving community cultural heritage. The paper provides an introduction to the use of new technology practices in community-led knowledge processes as a tool to help communities define their CBH and create a collective identity for CBH, and to provide a basis for engagement and empowering the community.

The suggested methodology process allows communities to use this new technology as an inexpensive connecting tool to define the suitable applications and a set of system components for introducing new information to different groups in the community.

Introduction and objective

The fear of damaging a community's cultural assets and identity during the course of planning and development reinforces the importance of comprehending the value of historical and social heritage assets. 'The change in a society's attitude to its cultural heritage, emphasis on values – esthetic, symbolic, objects which society demands to protect' (Amit-Cohen, 2011). Heritage is assigned as a positive value, by which everyone benefits, personally and communally. Sharing CBH value can format a strong local identity (Silverman, Ruggles, 2007). Sharing CBH value in modern society is vital for fostering conservation process "knowledge is power" (Patel et al, 2012).

Empowering communities with CBH information enabled by technology serves to promote wider understanding of heritage values and to foster a communal identity. Technology allows the greater community to connect and create new opportunities, advancing information adapted specifically to a community. One such opportunity is ...'on the social media sites There had been a lot of suggestions made, this allowed more definite ideas to be proposed and actively encouraged people to have greater involvement' (Stone, 2014). The various communication channels offered by technology, include those most relevant to disseminating CBH information (Rios et al, 2014).

The importance of CBH information in communal communication is suggested in early ICOMOS charters; every act of heritage conservation is a communicative act: 'Interpretation refers to the full range of potential activities intended to heighten public awareness and enhance understanding of cultural heritage sites (ICOMOS, 2008). From these statements, it is clear that communication is a vital part of the conservation process, to promote public participation.

Public participation is encouraged in the conservation process by sharing information in 'key heritage messages' in a way that is both engaging and approachable to local population. Such is the case of the Heritage Perth campaign; 'through innovative projects and high media profile, a huge impact on the way people perceive the value of Perth's heritage sites, significantly increasing public awareness of the importance of heritage' (Offen, 2014).

This research field of public participation contains a considerable body of existing empirical and theoretical knowledge, especially regarding the outcome of effectively enhancing and advancing involvement in

sustainability goals. Participation fosters the effective implementation of decision-making in conservation (Beierle and Cayford 2002; Koontz and Thomas 2006). A CBH communication process is required in defining the conditions necessary for sustaining heritage and deciding whether it is an asset or a liability (Grefe, 2004). Similarly, in many communities, heritage contains a variety of decision-making and community-based needs for identity and more. (Walle, 1998).

A sanguine approach to community-based decision-making is presented by Stone, at the REHAB 2014, **Gate 81** - Preston Bus Station. Collaboration between designers, academics and arts organizations created a series of events and programs intended to raise the profile of the building, to oppose the City Council's proposal to demolish the local CBH. The project suggested alternative situations and possibilities; Gate81 contributed towards a cross-section of local people, engaged with this communal project; the collaborative elements collaged into the local environment, and thus the discourse around controversial heritage contributes to the composition of the community. Ultimately, the Station was granted Listed Status, meaning that the Building cannot be demolished (Stone, 2014).

The purpose of this paper is to promote community heritage by sharing information among local communities, via new technology, Therefore this paper proposes a new approach in defining cultural content and creating personalized interaction with CBH through social media, specially designed applications and more, providing new means and devices for sharing information and encouraging participation in communal CBH.

Methodology

The research method proposed, based on analyzing and adapting the key characteristics of CBH messages and delivering them to different groups in the community, is called The ABC Heritage approach; this includes three stages.

The initial stage of the method proposed is to gather and collect information related to the conditions of the heritage and its potential. It then analyzes the valorisation heritage, i.e. the needs and values of the community to its CBH. In the first stage a focus group of trendsetters in social media and blogospheres work together for the base interdependence between the heritage-related information and the community's desires, demands and needs.

In the second stage, a new application is tailored to a specific community; the data collected from the focus group and readers' comments are analyzed in order to divide the people of the community into three defined heritage groups via the applications, differentiate them by their impact on the community and assemble a model of the ABC groups. The application uses only data from positive or neutral comments from the first stage, which could translate into potential recruits to the valorisation effort.

The third stage uses the suggested ABC model to ensure that different people receive the proper conservation information they require, gathering and processing conservation knowledge and distributing it according to the different groups, this stage is crucial for drawing the community into the communal conservation process, promoting education and awareness programs modified to the community.

The ABC Heritage approach:

A. Awareness: This group knows and cares about the community CBH value. They want more information and activities to engage in conservation. The A group app information should inspire them to join in the discourse, and possibly to recruit more participants.

B. Balance: This group tends not to be interested in conservation value. They might be encouraged by information and enriching knowledge. B group members may have varied perspectives of CBH due to their knowledge, or lack of knowledge, of the local heritage. It is important to ensure that the app information is open and accessible to the B group.

C. Connecting: This group will connect groups A and B by using the key messages and monitoring the overall community, turning negative attitudes toward heritage into a positive recognition of their value. The C group app information should inspire them to create new ways to engage the community with their CBH. This paper relies on the European research project TAG CLOUD, introducing CBH information technology to European study groups, which defines the functional range of applications and a set of system components to be implemented (Rios et al, 2014).

To test the effectiveness of the proposed methods, appropriate means will be taken to validate the tools-based method in terms of time and quality of study. Possible issues may arise in the initial stage (recruiting trendsetters and respondents, convincing them to use the app and to encourage others to participate). Those people selected for observation will be approached after a specified time, to determine the changes in their views and their engagement in conservation processes. At this stage, the ABC method will not differentiate between communities based on their size.

The proposed ABC Heritage approach method suggested could be replicated around the world, promoting engagement in CBH on a relatively low budget; and creates a greater synergy between the community and their heritage through information, transferred into knowledge. Empowerment is based on interdependence of the conditions necessary to define sustaining CBH as an asset to the community, creating identity and empowerment and leading the community to congregate in shared valorisation of the past for future generations.

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Assessing Value of Building and Maintenance Activities for Living Religious Heritage: a Case Study on the Katase Catholic Church, Japan

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Abstract

This study analyzed the intangible character-defining elements of the building and maintenance activities observed with living religious heritage. The case study used is Katase Catholic Church in Japan. Through the review of the history of building activities, six character-defining elements of human relationships, mission strategy, design, donations, general and professional voluntary works, along with seven stakeholders involved in these elements, were identified. Yet, they are destined to change or disappear in the course of time and cannot always or necessarily be conserved.

Keywords: *Living Religious Heritage; Church Building; Catholic; Value Assessment; Character-defining Elements*

1. Living Religious Heritage and the Value of the Building Activities

This paper specifically discusses building and maintenance activities by the religious community, in particular, the Catholic Church, as one of the values of living religious heritage with the focus on the roles of the different stakeholders.¹ Building and maintenance activities include planning (inception, feasibility studies), designing (outline schematic proposals, detailed design), funding, and execution of new construction, extension, addition, remodeling, restoration, rehabilitation, conservation, relocation, demolition, rebuilding, facility upgrading, and regular and daily maintenance such as cleaning.

Since the 2000s, there has been growing attention to conservation and management of living religious heritage: ICCROM 2003 Forum on the conservation of Living Religious Heritage, Kyiv Statement on the Protection of Religious Properties in 2010, and Resolution on Protection and enhancement of sacred heritage sites, buildings and landscapes adopted at 2011 ICOMOS General Assembly all recognized that heritage authorities and conservationists often have an insufficient understanding of the nature of living religious heritage such as continuity and the importance of the custodial role of the religious community, which is often very different from those of secular heritage, and require specific policies for protection and management that take into account their distinct spiritual nature as a key factor in their conservation (Stovel *et al.*; ICOMOS; Ministry of Culture and Tourism of Ukraine *et al.*).

As these initiatives indicate, the intangible value of building activities is often underestimated if not completely neglected. The modern heritage legislation with the emphasis on physical dimension of heritage often led to or could potentially lead to the deterioration or the loss of such intangible value. Hence, there is a need of intangible value assessment specifically catered for living religious heritage.

This study identifies and analyzes intangible character-defining elements (CDEs) of the building activities at a Catholic church as well as different stakeholders involved in CDEs. CDEs are defined by Canada's Historic Places as "the materials, forms, location, spatial configurations, uses and cultural associations or meanings that contribute to the heritage value of an historic place, which must be retained in order to preserve its heritage value" (Canada's Historic Places, 2010). CDEs include both tangible features (materials, forms, location, and spatial configurations) and intangible features (uses and cultural associations or meanings) (Canada's Historic Places, 2006).

2. Case Study: Katase Catholic Church

¹ Catholic Church was chosen as the case study because it exists globally, and its organizational and hierarchical system is universally the same in any region, which would possibly make this study applicable or at least comparable to other regions.

St. Joseph's Katase Catholic Church under the Diocese of Yokohama in Japan is used as the case study (fig. 1). The author traced back the building activities by the interviews with the Diocesan staff, parishioners, a parish priest, and an architect as well as the archival research at Katase Church including Diocesan and parish newsletters, meeting minutes of the parish council, old photos, building plans, official documents, correspondence, unpublished historical records of the Church written by a parishioner, and anniversary booklets.

The author divided the Church history into four phases as below according to the transition of the management method of building activities:

1891 to 1945: management by foreign missionaries and a limited number of the laity

The Katase Church was informally set up in 1891 by using the residence of the Yamamoto's, a local Catholic family, as a temporary church. The plan to build a proper church building formally began in 1937. A foreign missionary provided one third of the expenses for construction. The French Bishop of the Diocese of Yokohama provided the concept of the church building in consideration of the political and cultural situation at that time: he proposed the building with an exterior of a traditional Japanese Buddhist temple so that hostility held by the majority of the Japanese towards Westerners including the Catholic Church during the war time could hopefully be eased; he also thought the Japanese design was more appropriate because Katase was a part of the territory of Kamakura Shogunate (military government) from the 12th to 14th century.²

Regarding the laity, the Yamamoto family played a significant role by donating the sites for the church premises and a Catholic school, and liturgical vessels. A limited number of parishioners, who were wealthy families donated two thirds of the construction expenses. The Bishop established the "Church Building Committee" and a parishioner was appointed as the chairperson to take charge of practical works.³ The students of the Catholic school next to the church were responsible for the regular cleaning of the church. Yasushi Tamura, a non-Catholic architect, designed Katase Church. He worked closely with Yamamoto on Yamamoto's residential development business in the Katase district.⁴ Kouji Kawasaki, also a non-Catholic, participated as Tamura's assistant. After this project, Kawasaki worked as a full-time staff for facility maintenance for the Catholic school next to the church.⁵ The church construction was completed in 1939 as a one-story wooden structure with a concrete foundation, and a gambrel roof with clay tiles (fig. 1). Liturgical art works such as hanging scrolls of holy pictures at the sanctuary, the paintings of the Way of Cross on the sidewalls, and liturgical furniture are the works or design of a Catholic artist, Roka Hasegawa, who is a significant figure in Japanese modern art (fig. 2).⁶

1945-1985: towards gradual independence by the parishioners in management

During this period, Missionary Society of St. Columban was responsible for pastoral care and management of Katase Church along with 10 other parishes in the Diocese. The Church depended heavily on official and personal financial provisions and loans from Columban Fathers for maintaining and upgrading the facilities, altering and extending the church building, building a parish hall, providing the clergy's living expenses, and paying staff wages.⁷

Compared with the previous period in which a limited number of the laity were involved in building activities, a larger number and a wider range of the parishioners came to participate in building activities: in 1958, the Society of Madonna consisting of female parishioners, was established at Katase and it became responsible for organizing bazaars to raise building funds and collecting special donations from parishioners for building projects. Since 1977, the Parish Council appointed a member specifically in charge of facility

² Katorikku Katase Kyoukai [Katase Catholic Church]. 1989. *Katorikku Katase Kyoukai Kendou Gojusshuunen Kinenshi* [The 50th anniversary booklet of the Catholic Katase Church]. Katorikku Katase Kyoukai [Katase Catholic Church]. 17, 20, and 21; Mankichi Akabane. 1964. *Katase Kyoukai* [Katase Church], Katase Catholic Church; Akiko Yamamoto. interview by the author, 22 November 2012, Katase Catholic Church.

³ Katorikku Katase Kyoukai. *Katorikku Katase Kyoukai Kendou Gojusshuunen Kinenshi*, 18 and 21; Katorikku Katase Kyoukai. *Karashi Dane* [newsletter of Katase Church], S55-1. February 1980, Katase Catholic Church; Akabane. 1964.

⁴ Katase Kyoukai. *Gojusshuunen Kinenshi*, 21; Tamura's given name is spelled as "Hisashi" or "Makoto" in other articles and the correct name is unknown.

⁵ Masamitsu and Mariko Kawasaki, interview by the author, 27 January 2013, Fujisawa.

⁶ Katase Kyoukai. *Gojusshuunen Kinenshi*, 21.

⁷ Catholic Katase Church. *Karashi Dane*, February and September 1974; Katase Kyoukai. *Gojusshuunen Kinenshi*, 33.

maintenance.⁸ The *ad-hoc* “Building Committee” was organized in 1979 to assist the construction of a parish hall. Laity from the building professions such as engineers and mechanical engineers participated as members.⁹ Together with the parish priest, they were responsible for project inception, feasibility studies, tendering, and financing. They made various efforts to consult with the all parishioners and incorporate their opinions in the project planning. The weekly cleaning of the church was divided among the parishioners according to their residence district, and predominately female group of parishioners from each district cleaned once a month. This system continues to this day.

The non-Catholic architect, Kouji Kawasaki, who had been participating in the building projects of Katase Church since the previous period, established an architectural firm near the church. He was the contractor for the extension of the church in 1967.¹⁰ Other major building projects in this period were the restoration of the church roof in 1949, building a new parish hall in 1950, the addition of the choir in 1964, remodeling and renovation of the church and priest’s residence, extension of the church in 1967, rebuilding the parish hall in 1980, and extensions to the parish hall in 1984. The architects of those projects were both a Catholic and non-Catholics. They were usually appointed not by open competitive bids, but by nomination by the clergy or the religious congregations because of close relationships developed in past projects.¹¹

The 1990s – 2000: independent management by the parishioners

In 1985, the management responsibility of Katase Church was formally transferred to the Diocese of Yokohama.¹² This was partially because of the decrease of the number of the clergy of both the foreign missionary societies and the Diocese.¹³ The overall financial status of the Diocese improved but it was not completely self-sustainable.¹⁴ The Diocese launched a series of reforms including the entrustment of the evangelization and pastoral care of a group of parishes to the several priests.¹⁵

The laity of Katase Church continued to serve as the members for maintenance in the parish council and *ad-hoc* building committees. The finance of Katase Church became self-sustainable by the late 1990s, which allowed more independent building project planning. More active involvement of the laity in planning and designing of the church facilities were observed though the Diocese, and the parish priest had the authority for decision making: from 1992 to 95, the parishioners formed the “Committee on Road Issues” and negotiated with the municipal government to transfer the ownership of a piece of land informally used by the government to the Church.¹⁶ The parish priest and parishioners decided to redesign the landscape of the extended premises. The nominated designer was a non-Catholic landscape architect, who has worked with other Catholic churches.¹⁷ The statue of St. Mary designed by a nominated local Protestant artist was placed on the open space. In 1995, the toilet for the disabled was added. In 1996, the narthex (entrance room) was added to the church building. The architect and contractor for the latter two projects was Masamitsu Kawasaki, the son of Koji Kawasaki.¹⁸ The selection method of architects/designers was nomination, the same as the previous period. A series of building projects were entirely funded by the donation of the parishioners.¹⁹

2001 – 2014: Diocesan centralization of church building project management

The decreasing number and the aging of the clergy became more serious during this period.²⁰ The Diocese turned to consulting with the parishioners on mission strategy for the present and the future.²¹ In 2001, the

⁸ Catholic Katase Church. *Karashi Dane*, July 1977.

⁹ Katase Kyoukai Kyoukai Iinkai [Parish Council of Catholic Katase Church]. Meeting Minutes, 17 June 1979, Catholic Katase Church.; Tetsuya Kanaiwa. phone interview by the author, 18 February 2013.

¹⁰ Mariko Kawasaki. phone interview by the author, 6 March 2013.

¹¹ See note 4 and 9 above; Akabane 1964.

¹² Katase Kyoukai. *Gojussuunen Kinenshi*, 35.

¹³ Takehiko Tsuiki. interview by the author, 4 March 2013, the Diocese of Yokohama.

¹⁴ Catholic Diocese of Yokohama. *Katorikku Yokohama Kyouku Hou* (the newsletter of the Catholic Diocese of Yokohama), no.41, 1999 July, The Catholic Diocese of Yokohama.

¹⁵ *Katorikku Yokohama Kyouku* [Catholic Diocese of Yokohama]. *Katorikku Yokohama Kyouku Hou* [the newsletter of the Catholic Diocese of Yokohama], no.31. July 1995, the Catholic Diocese of Yokohama.

¹⁶ Catholic Katase Church. *Karashi Dane*, H2-1 to 1999-2. February 1990 - March and April 1999.

¹⁷ Catholic Katase Church. *Karashi Dane*, H4-5 and H6-1. October 1992, February 1994, and August 1995.

¹⁸ Catholic Katase Church. *Karashi Dane*, 1997-1. February 1997, and H7-5. December 1995.

¹⁹ Catholic Katase Church. *Karashi Dane*, 1997-6, December 1997 - January 1998.

²⁰ Yokohama Kyouku. *Yokohama Kyouku Hou*, no.49 to 57, December 2003 to March 2008; Catholic Bishops’ Conference of Japan. “Statistics of the Catholic Church in Japan.” 2000-2012. <http://www.cbcj.catholic.jp/jpn/dogma/index.htm>.

Diocese set up “the Yokohama Diocesan Building Commission (*Yokohama Kyouku Kensetsu Inkai*)” to centralize all the major building projects of the Diocese and parishes including planning, decision-making, and financing. The commission was composed of four clerical and four lay members. It was in anticipation of the decreasing amount of donations and the increase of churches without resident priests, which requires careful and strategically planned decisions for priest’s residences and other facilities.²²

In 2003, Katase Church formed an *ad-hoc* “Committee on Rebuilding Parish Hall and the Priest’s Residence” due to the residence’s structural deterioration and danger from earthquakes.²³ The members included the parishioners of engineers, architects, a banker and representatives from various functional committees of the parish. They were nominated by the parishioners and appointed by the parish priest. A consultant architect, who has designed a number of Catholic facilities, was nominated by the Diocesan Building Commission to join and assist the committee. The committee, being responsible for inception and feasibility studies, consulted with the entire parish as much as possible by organizing meetings, and distributing questionnaires, through which the consensus to rebuild was reached. The Diocesan Building Commission, after considering the proposal from the parish, requested the parish to redesign the overall function and plan of the facilities on the premises. The committee was reorganized into four specialized committees of design, finance, public relations, and moving. The Design Committee chairperson was an architect and the three other members were building professionals. It worked on the stages of feasibility studies and outlined schematic proposals, assisted by the consultant architect, and proposed eight schematic designs, on which all the parishioners were invited to vote. However, in 2007, the Diocesan Building Commission decided to shelve the project anticipating that Katase Church might not have a residential priest in the future and could possibly be merged with another parish.²⁴

3. Character-Defining Elements and Stakeholders

Through a historical review of building activities at Katase Church, the author identified seven categories of stakeholders involved in most of the building activities: 1. the clergy (e.g. parish priest, religious congregations), 2. lay individuals in general (e.g. parishioners), 3. lay general organizations (e.g. the Parish Council, parish committees), 4. lay individuals in the building profession (e.g. a Parish Council’s member for maintenance), 5. lay/clergy organizations for building projects (e.g. building committees, the Diocesan Building Commission), 6. non-Catholic building professionals (e.g. consultant architect), and 7. the government (e.g. the municipal government).

The author identified six intangible character-defining elements, which compose the value of building activities as explained below.

Figure 3 illustrates the relation of the stakeholders in the CDEs at Katase Church in the period from 1891 to 1945, during which foreign missionaries and non-Catholic architects were mostly in charge of the building activities. Fig. 4 illustrates the period since 2001, in which organization, systematization, and centralization of building projects became more prominent. It is suggested that the degree of the involvement of stakeholders varies in different periods, churches, and regions.

1. Human relationships

There are two different levels of “human relationships” as the CDE.

Tesshu Shaku, a Buddhist monk and scholar, interprets Buddhist temples as the “places for human relationships” where the laity come together, organize various activities, and share personal thoughts and experiences (Shaku, 2011). Young generations learn about and come to understand Buddhism not through formal education but through such human relationships and observing how other laity behave, practice, think, and pray. Hence, human relationships are the prerequisite and the foundation for substantial understanding and faith in Buddhism.

²¹ Catholic Katase Church. *Karashi Dane*, December 2006 - January 2009.

²² Yokohama Kyouku. *Yokohama Kyouku Hou*, no.45, December 2001; the details such as professions of lay Commission members are unknown as the Commission did not disclose the information.

²³ Catholic Katase Church. *Karashi Dane*, February and March 2003 to January 2007; Katase Kyoukai Kyoukai Inkai [Parish Council of Catholic Katase Church]. *Katase Kyoukai Inkai Gijiroku* [Meeting Minutes], 2003-2007, Catholic Katase Church.

²⁴ Tetsuya Kanaiwa. phone interview by the author, 20 July 2014. The Great East Japan Earthquake on 11 March 2011 posed another issue: the location of Katase Church is expected to be affected by Tsunami of 7 -8 m high in the future. Besides, the zoning regulation does not allow the building of two stories or above. Hence, The Diocese and the parishioners came to think that the location itself is not suitable for priest’s residence.

This theory is applicable to living Catholic churches, too. Human relationships are the CDE because they provide the very basic foundation for the cause and continuation of building activities.

Other human relationships are presented by Howard Davis, in his discussion of the “building culture”²⁵:

A building’s construction is almost always embedded in a recognizable web of human relationships between many participants: contractors, craftspeople, clients, building users, architects, building officials, bankers, material suppliers, surveyors, building appraisers, real estate brokers, manufacturers. This web of relationships, in turn, is characterized by the predictable ways people carry out their jobs and the predictable ways they deal with each other. Buildings are products of social processes that vary in systematic ways from place to place and over time. (Davis, 2006: 5, 11)

Such human relationships, which directly constitute building activities, are the CDE.

2. Mission strategy

The Church’s mission strategy and method vary depending on the political, economic, and cultural situation of the place, the number of the Catholics, and the number of the clergy available. At Katase, the mission strategy of the Church in the 1930s defined the architectural design of the church building. It also influences the method for funding (e.g. provisions from foreign missionaries or collection by the laity) and management and decision making system of building activities (e.g. the degree of the involvement of a parish, a Mission Society and the Diocese). Hence, it contributes as the CDE.

3. Design

The clergy designed Katase church in the pre-war period and renovated/extended by Catholic and non-Catholic professional architects with the extensive involvement by parishioners in the later periods (figg. 3, 4). Lay professional artists designed the liturgical art since the pre-war period. The architectural and liturgical design as an intangible act reflects the mission strategy, human relationships, liturgical function, the number of the parishioners, and the financial status.

4. Donations

Foreign missionaries and a limited number of the wealthy laity financed the building activities in the earlier period, but by the 1950s the laity had established the method to raise funds by bazaars, special events, and call for special donations. Donations reflect the mission strategy and contribute to enhancing human relationships.

5. General voluntary work

Since the beginning, the laity volunteered for general and practical work related to building activities, which do not necessarily require professional building skills, such as financial management; public relations; documentation; correspondence with architects, contractors, the Diocese, and the government; monitoring and reporting any maintenance issues; and daily maintenance like cleaning the premises.

6. Professional voluntary work

The laity of building professionals such as engineers and architects volunteered in building activities mostly as the members of the parish council and the *ad-hoc* building committees. Apparently they utilized their skill

²⁵ Davis. 3. Davis defined the “building culture” as “the coordinated system of knowledge, rules, and procedures that is shared by people who participate in the building activity and that determines the form buildings and cities take.”

in understanding the requirements of the parishioners at large, acting as a bridge between the parishioners and the architect, and materializing the schematic design.

It should be noted that identified intangible CDEs and involved stakeholders inevitably change and sometimes disappear. For example, when the mission strategy changes, the method of donations, design, general and professional voluntary works as well as the stakeholders involved change. Hence, those CDEs cannot be always conserved or do not necessarily be conserved. When there are such changes, which fundamentally modify or affect the value already assessed, it is necessary to study whether they are considered as a part of the historical transition and should be acceptable.

4. Conclusion

Through the review of the building activities at Katase Catholic Church, the author identified six character-defining elements (human relationships, mission strategy, design, donations, general voluntary works, and professional voluntary works), which compose the value of the building activities and seven stakeholders (the clergy, lay individuals in general, lay general organizations, lay individuals in the building profession, lay/clergy organizations for building projects, non-Catholic building professionals, and the government) involved in and contribute to the building activities. It was revealed that each period of the Church history saw the different degree of involvement of the stakeholders in each CDE. When assessing living religious heritage, careful attention needs to be paid to such intangible CDEs, and more importantly, how to conserve, inherit, or embrace changes of them in a comprehensive and sensible way.

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Figure 1: Katase Catholic Church.

Figure 2: Sanctuary of Katase Church.

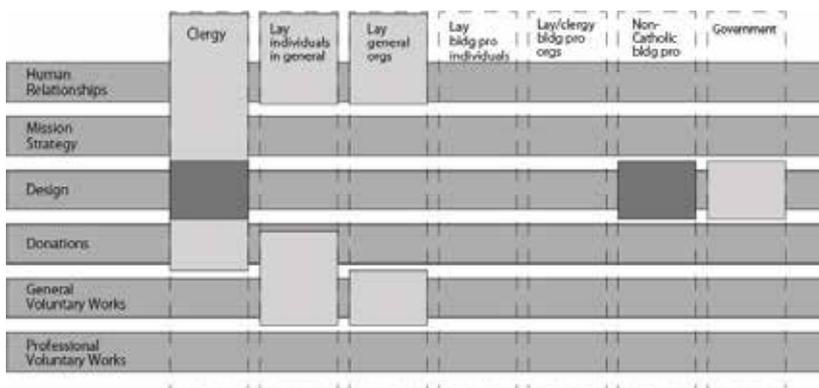


Figure 3: Character-defining elements and involvement of stakeholders at Katase Church from 1891 to 1945.

*The darker color indicates the deeper degree of involvement.

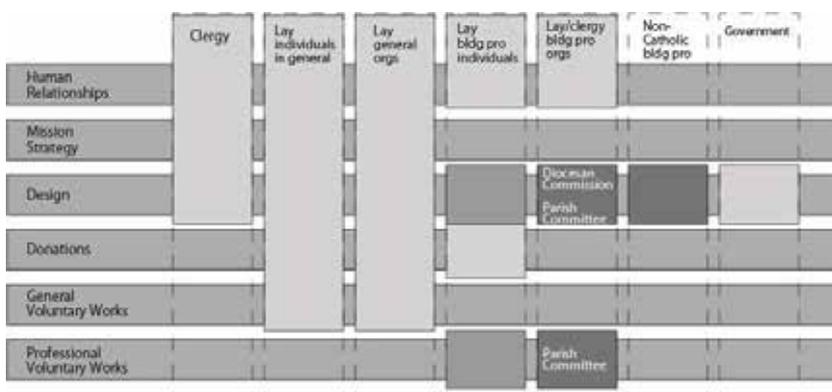


Figure 4: Character-defining elements and involvement of stakeholders at Katase Church from 2001 to 2014.

From Unconscious Heritage's Need of the Individual to Conscious Protection of Heritage in the Society

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Abstract

Identification of heritage and guidance of society into protection are possible identifying heritage values, perceptible by human essence. A qualitative connection between humankind and heritage is possible recognising heritage's need of an individual and community in relation with their anthropological and social sources. The methodology of recognition arises from biologic, sociologic and spiritual human components and not self-conscious, subconscious and conscious possibilities of perception. They offer the opportunity for recognising heritage as humankind value and consequently allow its protection in the environment.

Keywords: *Needs and Values of Individual and Society; Recognition of Heritage; Conscious Protection; Qualitative Methodology*

1. Introduction

Conscious protection of cultural heritage represents the basic aim of humanisation and the essential element of human development. A creation is the expression of natural sources, technical stage of development, economic possibilities and of philosophy, art and psychology of the community. Heritage and landscape in centuries still represent a felt beauty and not only a recognized value.

An actual challenge for heritage protection science represents the recognition of heritage's needs and values of individual and society as basic conditions for a conscious protection. It's necessary to approach heritage and landscape to human essence and to set up the bases to assure a wanted protection of heritage and landscape in the environment. This is possible through linking anthropological and social sources with attempted results of heritage values researches. It's necessary to highlight the peculiarities of heritage, recognisable from human perception as base for his voluntary response.

2. Methodological approach

Identification of heritage and guidance of society into protection processes are possible using a large-scale methodology for identifying multidisciplinary heritage values in the environmental context. Base of the methodology is the sustainable triangle human-space-time. The starting points for the recognition of heritage values are human creations:

- in their specific and spatial appearance as personified careers of needs and values of human civilization,
- in their historical context and in situational time.

The methodology enables the recognition of heritage in human sphere by introducing multidisciplinary conservation in co-operation with psychological, sociological and philosophical science. Starting points for the recognition of local heritage values for the community are:

- needs and values of an individual as an awareness acceptor of the importance of heritage,
- needs and values of community as a spiritual driving force of progress.

With that is possible to close the core of heritage for the individual and the society in a logic understandable and internally comprehensive way, becoming a proper and consequently a desired core.

Theoretical base for recognising the values of creations is the qualitative methodology that connects matter as exterior of creation with thought that represents the interior of creation²⁶. Exterior and interior are static categories, while the dynamic category is the consequence of the organisational link between them. This link enables us to recognise:

- the qualities of creation as heritage,
- the qualities of heritage for the individual and the society,
- the qualities of individual and society, hidden into the heritage.

With the mentioned methodology is possible to recognize:

- heritage components of individual and society through time, incorporated in heritage,
- components of heritage, hidden in the individual and in the society.

3. Potential of the individual to recognise the values of heritage

Humans are a creature of evolution, bearer of culture and spiritual being. Needs, social coexistence, cognition and creativity are all evolutionary by nature. As a spiritual being too, he is part of evolution. When studying psychological potential to recognise heritage needs of the individual, psychology science results are to be used. Psychology has determined that culture is not merely a conscious duty brought to the mentality of the individual and society in the course of an education process, rather it is the intuitively conditioned anthropological characteristic saved in *Memos* (it comes from “memory”) as a counterweight to the genetic characteristics hidden in *Genes*²⁷.

Genetic studies and behavioural genetics demonstrate that personal traits as well as views, beliefs and values are influenced by heredity²⁸. Two significant contributors to philosophy of values are German philosopher Max Scheler and Polish philosopher Roman Ingarden. They divided values into two large groups: life values and cultural values. While the first are a reflection of man’s biological essence, the second are a reflection of man’s cultural endeavours and activities, particularly in the sphere of cognition, aesthetics, morality and ethics²⁹. If we transfer this categorisation to the cultural heritage field, we can claim that the attitude towards cultural heritage is a result of man’s cognitive, aesthetic, moral and ethical values. In order to connect the individual with heritage, we must study forms of recognition and perception of heritage close to his anthropological and personal basic elements, cognitive processes and awareness. The level of awareness influences the treatment toward heritage.

Personal basic elements of an individual are formed by³⁰:

- spiritual component (soul, spiritual experience, consciousness),

²⁶ (Tomšič, 2008).

²⁷ (Makarovič, 2003: 215).

²⁸ (Musek, 2000: 277).

²⁹ (Musek, 1993: 86).

³⁰ (ib., 276).

- biological components: biologic factors, genetic factors and factors of evolution,
- sociological components: social factors, cultural factors, education, etc.

Cultural factors consist of respect for culture and respect for cultural achievements as components of cognitive maturity³¹. Cognitive maturity derives from cognitive factors, which depend between others on these ones, significant for recognising heritage values:

- intelligence (visual and spatial ability, intuitive ability, abstract and schematic ability),
- emotions (natural, cognitive),
- motivation (subconscious – instincts, conscious – will, reason),
- needs and values (organic, psychological),
- creativity (interaction of the individual and social environment).

Psychological science has embraced the definition by German sociologist Norbert Elias that the ability to experience emotion is hereditary (culture-independent emotional elements) and cognitive (emotional experiences dependent on social-cultural processes). While the society has no direct influence on the hereditary part, cognitive experiencing of emotion develops gradually under the influence of learning, experience and values – i.e. it is shaped by culture and history³². Values are linked to their emotional content, which is expressed as satisfaction. Emotions develop according to the law of effect, as formulated a century ago by American psychologist Edward L. Thorndike. He states that emotions, which bring positive experience, are enhanced³³.

The dichotomy between reason and emotion, marked ever since the era of humanism, was supportive of the divide between other substantive elements of the Western culture (spirit-body, culture-nature etc.). The influence of this divide is evident in treatment of immovable heritage, which only include recognised psychological elements as its value components (memory, meaning of place etc.) a mere decade ago. Elias explicitly emphasises the link between emotions and changes in structures of power and authority, as well as the link between objective structures (power, authority), the state (in the case of heritage institutionalised cultural heritage protection) and subjective structures (cultural habits and norms)³⁴. Accordingly, issues of the cultural heritage protection cannot be solved in disregard of their emotional context. An integrated experience of heritage can only be achieved through a proper disposition of our spirit and emotions, otherwise the sole distinction of any immovable cultural heritage is its organised material form. However, culture should induce contemplation as a special form of emotive reaction to stimuli. We must find the connection between what culture “appears” to be, and what it actually “is”³⁵. This is especially important concerning materialised forms of culture such is immovable cultural heritage.

Cognitive processes trigger perception, enable education and learning, shape memory, experiences, thinking and understanding. The substrate for awareness and respect of cultural heritage constitutes the attitude towards things, mentality, awareness and decision making. This personal substrate shapes heritage values as a psychological phenomenon. Behaviour of the individual is the result of all above-mentioned factors.

The value system present in the cultural environment is transmitted to the individual. The essential condition for change is abundance of available material and ideas in the environment. In the world of today, mass consumption and culture became the two fundamental spheres of personal identity formation. However, only culture offers the sphere of distinctions where identities are created³⁶.

³¹ (Musek, Pečjak, 1994: 86-137).

³² (Šadl, 1999: 150).

³³ (Musek, Pečjak, 1994: 85).

³⁴ (Šadl, 1999: 149, 173).

³⁵ (Muhovič, 2002: 54-56).

³⁶ (Sekloča, 2000: 127).

Therefore, the formation of values is influenced not only by the biologic and personal, but also by the social substrate, which formulates needs and encourages motivation. Values are important from the individual and social viewpoint because they are the reference for the society in rebuilding its structure. Therefore, it depends on social rules of cultural environment what type of feelings the individual will develop regarding cultural heritage and how they will be expressed.

4. Potential of the society to recognise and develop heritage values

In order to identify the potential of the society to recognise heritage values, we must:

- identify the substrate for formation of social awareness of cultural identity,
- define components of needs of society for cultural heritage.

Social awareness is a result of the synergy between individual and society. Social awareness of the meaning of heritage springs from biologic, social and spiritual components of the individual and from direct and indirect social stimuli (collective memory, learning, upbringing, models, unwritten conventions of value measuring), produced by the society in the process of personality formation and socialisation of the individual into a being of socially acceptable behaviour. Interpretation, orientation and evaluation made possible by culture shape the identity of the individual and collective cultural identity of the community. In sustainable development, genetic rules of the community (its attitude toward its own area) become the key to quality of life.

Investigate of how society acknowledges heritage, an important finding of current studies is that cultural identity is a collective need and one of the most important contemporary indicators of welfare, alongside ambient and urban quality³⁷. The need for heritage is a social necessity for a harmonious progress of society. Failure to develop this need leads to a personal and social crisis. Development of the need for heritage is thus a social necessity for its harmonious progress.

Immovable heritage represents an essential material component of the need for heritage. It includes its intangible meaning as well. Thus, heritage as a product of the uniqueness of any given place and meaning, is recognised as a universal value for humanity and a development element of civilisation (image 1). The scale of universal values is essential to identify the importance of heritage in a global environment. Shalom H. Schwartz certified eleven universal values on intercultural level. Tradition occupies the tenth place among them³⁸. Consequently also heritage, as a constituent part of tradition, represents a recognised universal value.

5. Conclusion

The article presents a methodology for identifying multidisciplinary heritage values, perceptible by environment. The methodology derives from the orientation of nearing the heritage to personal essence, and of creating conditions to recognize the internal need of an individual and the society for heritage within the range of their possibilities. Consequently, it enables to satisfy the need of heritage and to orient the care for it. From biologic, social and spiritual human components and his not self-conscious, subconscious and conscious possibilities of perception derive the main possibilities for recognizing heritage as a value. Social conscious originates from synergic influence between individual and society. Recognition of local values and concentration of social processes in the development of heritage depend on anthropological sources of the individual and on incitation generated by the society. Collective perception of heritage depends on stimuli we produce as a society. The task of a civilised society is to extend as much as possible the circle of

³⁷ (Magnaghi, 2000).

³⁸ (Musek, 2000: 170).

stimuli for recognition of heritage. This recognition can be developed by introduction of the multidisciplinary conservation in cooperation with psychological, philosophical and sociological science. The methodology enables a holistic approach to recognize the values of heritage as contingent for a conscious decision of society about its future, future of heritage and future of the whole environment.

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Image 1: Intertwining of tangible and intangible heritage values as product of the uniqueness of place in Piran, Slovenia (author: Ubald Trnkoczy).

Communitary projects for the protection of the Prehispanic Heritage in San Juan de Lurigancho

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Abstract

In the sixties, the prehispanic monuments in San Juan de Lurigancho, were occupied by poor people coming from the country as part of the migratory movement developed in Peru as a result of the centralist policies developed by the government. These archaeological sites were the only places without apparent owner and people chose them for that reason. Nowadays, the scholar community of the district is developing interesting cultural projects for the recuperation of this invaluable heritage in risk, like Canto Chico, Mangamarca and Fortaleza de Campoy, most of them from the Inca's Empire period.

Keywords: *conservation, appropriation, heritage communitary projects, archaeological sites.*

1. San Juan de Lurigancho, a district of milenary cultures. The context and problem.

San Juan de Lurigancho is the most populated of all the 49 districts of Metropolitan Lima, the urban area of the capital of Peru. Lima is located in the coast side of the country, and historically, the sea has provided food and diversity to the human being from this side of the world, and also it has given the possibility to connect with other people and other cultures. Maybe it was for that reason that the more antique civilizations discovered in the present territory of Peru were located near the coast, for example, the civilization of Caral. Lima was not the exception. Before the spaniards chose this place as the capital of the Viceroyalty, the valleys of Lima around the three principal rivers (Lurin, Rimac and Chillón) were occupied by complex civilizations from the Inca's Empire period that were the continuation of previous regional cultures. During this time, many constructions were built, like ceremonial monuments, administrative complexes and places for housing, all dispersed around the actual city. Lima was also connected with the Qapac Ñan or Inca's Way, having a strategic location for commerce and interchange.

Many of these archaeological monuments were destroyed during the colony (1532), but some other ones remained in time. Most of the sites that weren't destroyed were located in the peripheral areas, far from the Spanish center. At the same time Lima was growing, some other sites that have survived the conquer period disappeared progressively.

In the sixties, it was possible to see archaeological sites dispersed by all the city yet, most of them, in the expansion area of the city. In this decade, the migratory movements to the capital began to densify Lima, and the central districts, already populated, were not the first alternative. It was in this context that the archaeological sites that still remained in the peripheric districts were occupied by the informal settlements. This was the case of San Juan de Lurigancho, a district of the east extreme of the capital, whose prehispanic monuments were "invaded" by immigrants who didn't find another place for housing in the principal city of the country.

This was the way the district of San Juan de Lurigancho grew, between the "huacas" (sacred places for the prehispanic population), and although most of the first modern inhabitants didn't know about this heritage and its relevance for them in the near future, they preserved them for the next generations. The principal archaeological sites that remained in SJL are Mangamarca, El Sauce, Canto Chico (fig. 2) and Campoy. Today, the new communities of San Juan de Lurigancho are people deeply involved with the protection and diffusion of these archaeological sites, and most of them are young people and children.

2. The patrimonial education from the communitary projects in the archaeological sites: Huaca Mangomarca, Huaca Canto Chico and Fortaleza de Campoy

There are many experiences of patrimonial education developed from and by the local community focused on the archaeological monuments of the district. Some of them we show in the following lines:

Mangomarca

Near the 900 A.C., Mangomarca was constituted as one of the most important administrative centers of the right side of the lower valley of the Rimac River in Lima. It was the capital of the *curacazgo* *Luriganchu*, place of residence of the Seniors who governed this comarca until the arrival of the Inca's Prince Tupac Yupanqui, who approximately in 1470 joined the *ichmas* to the Tahuantinsuyo Empire (also called as the Inca's Empire).

Mangomarca is an architectural structure built with adobes and stones, that give shape to a pyramid. The way to access the pyramid is through a curved stair. Two big contention walls and a complex system of rooms and passages are the most remarkable elements of the building. This archaeological site was abandoned during many decades, it lost a great part of its territory because of the absence of care and protection of the cultural heritage, the poor interest from the governors and local authorities, and the necessity of the new immigrants to the capital who didn't know the cultural value of this heritage. It was even converted in a place for throwing the garbage and a refuge for criminals, delinquents and people addicted to drugs.

The project Kusillaqta, Permanent Pedagogic Atelier is a project conformed by a team of teachers who lead the realization of many cultural activities with students from the schools in San Juan de Luriganchu since the year 2007. Some of the activities oriented to the valuation of the cultural heritage they developed with the scholar community are:

- Guided visits and excursions to the "huacas" (fig. 1).
- Symbolic actions of cleaning.
- Painting of murals with prehispanic iconography in the walls near to the archaeological sites. These murals also content messages about the protection and valuation of the cultural heritage.
- Artistic activities and events.

The most important event organized by many cultural associations is the very known local fest of "Hauca Raymi Manqumarka". In this event participate the Neighbors Association, schools and artistic groups, and the fest is about the histrionic representation of an Inca's Fest accompanied by different kinds of representation of typical and traditional dances. This is the way the archaeological site begins to become in the scenery for contemporary creations with prehispanic reminiscences. The population begins to value their own heritage and to feel an emotional link with it, giving the monuments back the prominence before they had and that was lost during many time.

Campoy

Also known as the "Fortress of Campoy", it was an administrative center conformed by very high adobe's wall, where the *elite* who governed and controlled this territory lived, with a numerous population of people who was dedicated to the exploitation of the fertile soil with an intense agriculture that gave to all enough food and excedents. These excedents, well managed, took part of the magnificence of the Curacazgo Luriganchu. This archaeological site also suffered the lost of a great part of its territory because the invasions of its fields, and the use of the site as a dump, and as a place for burning the garbage. Here there was also archaeological robbing known here as "*huaqueo*".

The collective of teachers, students and fathers of children from the Daniel Alcides Carrion School formed the Institute of Culture, History and Environment – ICHMA (fig. 3). They have organized many activities for the re-valorization of this archaeological site, like excursions (fig. 4), conferences, ateliers of iconography

and designs, and they have also developed a cultural fest called “*Inti Raymi Campoy*”. This fest is composed by more than a thousand individuals in a collective representation, dressed with imitation of clothes from that period of time and with prehispanic iconography. This big fest called all the local population of the district, and also people from other districts that are neighbors. They produce a representation that has been selected by the Cultural Management Area of the Municipality of Lima and the Ministry of Culture to receive financial contribution for its realization. First, the organization of this event was possible thanks to the manage of the team, that gave this initiative an important social sustainability.

3. Projects with replicable methods in other contexts: common characters of the projects, methodology, involved agents, achievements

With the contribution of the Archaeologist Julio Abanto, the Professor Àngelo Valderrama, and other scientifics and students of the cultural heritage of the district of San Juan de Lurigancho, the collectives began with the organization of communitary projects, having as the main figures the hundreds of students from the different schools of the near zones to the archaeological sites.

The projects are developed as part of educational projects where the teachers of the different disciplines took part. But also, it’s important to mention that the participation of the father of the students is called and required to take part of the festivals and excursions.

They work having the local prehispanic iconography as a reference, recreating in a creative way the designs of the antique Ichma and Inca` cultures, but with a contemporary ideas full of colors and designs, and with this they make their clothes, posters and scenarios.

SERPAR-LIMA is a public municipal institution that is part of the Municipality of Metropolitan Lima. It is an institution involved with the care and development of the parks in the metropolitan city. As part of the recent policies of management, this institution has been created cultural centers in the principal parks located in peripheric areas of Lima, called CREA - LIMA (Centro de Cultura, Recreación y Educacion Ambiental de Lima, in spanish) with the intention of introducing the cultural component to the quotidian life of the population in this public spaces, as part of other recreational and sporting services. One of these cultural center is the one in the Huiracocha Zonal Park, in the central part of San Juan de Lurigancho. This cultural center (as the others) has been built as communitary spaces to promote local cultural initiatives. Inaugurated in 2012, the first administrations did the valuable labor of identifying these local groups to give them not only diffusion but also recognition. In the exhibition area are exposed the local history of the district and the people who has made possible the construction of a strong identity. This groups are part of the exhibition, and this place contribute to the systematization of the experiences and promote the replicable effect in the community of San Juan de Lurigancho. The people from the community and involved with this projects also are who lead the groups of visitors to the cultural center (fig. 5 y 6).

4. Conclusions

- The most effective projects call the active participation of all the members of the community.
- The generation of new artistic proposals in a motivation for the active participation of young people, like we can see in the representation of the prehispanis fests where the dance, the theater, the music and the visual arts have all a place.

The interdisciplinary projects must create a consense for the participation in the pertinent areas, from the anthropology, the archaeology and the education.

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Figure 1: Excursion in the Mangomarca Site. It can be seen the houses created near the archaeological site.



Figure 2 – Canto Chico Site.



Figure 3 – Visit to the Huaca Campoy, led by the Young students from the Daniel Alcides Carrion School from the Campoy urbanization.



Figure 4 – Karla Vásquez from the ICHMA Collective, explaining about the history and characters of the Fortress Campoy.



Figure 5 – The archaeologist Julio Abanto explaining about the petroglyphs in the cultural center CREA LIMA in the Huiracocha Zonal Park.



Figure 6 – Antonio Cristobal explaining the time line of San Juan de Lurigancho in the cultural center CREA LIMA Huiracocha.

Tool kit of Cognitive Skills for Managing and Community Engagement in the Valorisation of Heritage¹

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Abstract

Data analysis demonstrates that the rescue of cultural heritage and landscape requires involvement with situational learning processes which empower people to achieve greater habitability, civility and social cohesion in their daily lifestyles. Looking for psycho-sociological diagnosis of collective trends in public spaces supported on a methodological package (Mota, G., 2009). Our Tool Kit confirmed we could influence public practices engaging them with caring the space options linked with spatial and dialogic skills that let promote community driven heritage conservation as a net of communicative and participatory mobilization resources. In this paper we present the results obtained in three public world heritage Mexico City spaces.

Keywords: *Technological Innovation; Spatial Education; Cognitive Skills; Complexity; Situated Learning*

1. Introduction

If the environment of the communities who live or are related to the cultural landscapes are tangible elements they must be provided with access and cultural rights requirements. Respect for intangible forms, represents a collection of imaginary dynamic that should apply the definition of authenticity based on the Charter of Nara (1994). To make it shared and assimilated by the communities involved.

According to the OMS definition of “quality of life”² our Tool Kit aims to work with local communities as well as they become involved in the process of identification of their heritage resources. Supported by holistic management perspective, we look for develop constructing checking list procedures giving us a double kind of results: a) Values from local communities b) constructing meaning process that reinforce the own relationship with the site and cultural landscape.

Sustainable behavior has the purpose to increase “quality of life” (OMS) as a shared well being sense, in several spheres of human existence. Their domains include enjoyment of a healthy and meaningful life, linked with “subjective well-being”. In other words: understand happiness is a psychological construction derived from sustainable lifestyle. One of the challenges for environmental psychology is to increase our understanding of the causal relationship between behaviors pro-ecologic like frugality and altruism, with factors such as justice and welfare. (UNESCO, 2010).

Individual, collective and cultural issues reinforce the human spirit sense that a “place” must signify. This participatory social construction on what cultural landscape requires also actualized a kind of individual net of mental combinations that reinforce intangible resources and human values.

Involving people into a reflexive thinking process in a living place experience. Our “spatial learning procedure” is an interpretative exercise that let us obtain an holistic diagnosis of the state of the place. As well a multiplication of own beliefs, actions, images and wishes that let transform each participant on it’s own spatial relationship with the place. 1) In a first step linking the sense of proximity as a cognitive process: “Differentiation”, “integration” and “semantic” issues enrich environmental, cultural, and situated

¹ This paper derives from our research program untitled: Genius Loci. Where’s the spirit of the place? PAPIIT IN403810 Universidad Nacional Autónoma de México.

² Quality of life is “the perception that an individual has of his place in the existence, in the context of the culture and the value system in which physical health of the subject, his psychological state, their level of independence, social relationships, as well as its relationship with the essential elements of their environment.

experience as a net of constructive sense of combinations. 2) In a second step, defining architectural and psycho-sociological attributes qualities, opinions and facts with observation register survey.

Finally we obtain three kind of data contents: a) graphs derived from the way we conceive, construct, perceive and interpret a place as a net of dialogic relationship between grassroots and living experience sense. B) a diagnosis of the infra-structural state of the place. c) Schemas of social trends of collective actions, uses and practices.

2. Theoretical Supports

“Regard” unlike “living the place” depends on two parallel paths that go in depth in the appreciative view phenomena. Express language as communicative skills dimensions in the quality of personal experience expands knowledge. The degree of proximity of an attribute must have to be named as well as by their own “difference” sense. Conviction that the value of a heritage property is linked to its exceptional differences, submits it to a comparative analysis that requires application of dimensions and levels of differentiation. To interpret to spatially significant situation as opposed to another, hierarchized learning cognitive skills that differentiate one cultural landscape from the others. Compare it with others, and not just those playing the opinion of the marketing or conventional beliefs represents a constructive spatial sense style of the living place.

What kind of relationship exist between “differentiate something” and evaluate it as “judgment of taste”?

Philosophical perspective, proposes that faculty of taste means communicability of mixed feelings *-non-concepts-* joined by one representation (Kant, 1790). Thinking process means criteria 3 steps: to) think on their own. (B) Think in the place of the other. (C) Reinterpret and act in order to be consistent with the way of thinking judgment. (1977: p. 200). By the aesthetics context, Susanne Langer confirms “when there are not words to express emotions or feelings, we have the use of metaphors, analogies and indirect forms where the words used are non-discursive forms” (Langer, 1942). Language for sociology of knowledge (Berger and Luckmann, 1967) makes its appearance in the social construction of the context with three characteristics: a) the society built from inter-subjective relationships of semantic fields, b) define linguistically circumscribed meaning areas that play a key role in c) ordered the real world.

Psychological perspective of the thinking processes, poses that major dimensions and differentiation, higher “cognitive complexity” understood as the increasing way of the essential conceptual system to differentiate dimensions as carried to complex judgment (Bieri, 1955). The capacity of the language simulates possible realities and forms as constructive to vehicle that allows learning the way to different meaning contents the experience on a “particular” situation. Cognitive complexity and Mind (Gardner, 2005) are both instrument multifaceted of components that cannot legitimately captured with single sheet of paper through a special type of pencil or. Mind is an act of human possibilities not even established certainties (Bruner, 1986). It therefore produces world into four levels: 1. Subjunctive, 2. hypothetical, 3. Uncertain and 4. Possible.

Adding more can increase the dimensionality of a stimulus and more independent stimulus dimensions to a given stimulus dimension. However, the quantity of information in a given stimulus dimension may be increased with the dimensionality held constant by adding information from the same behavioral dimension. What sort of indicators should be considered on a same frame of analysis between spatial measure “*rational* and *functional*” level context dimensions, “meaning and collective memory values” and “historical and imaginary past people time attributes” to the place? How foster a dialogue between rational character of architectural spatial forms and ubiquity of aesthetic experience? How grant “sense of taste” to contextualized experience around a heritage appreciation? How enrich the sense of uniqueness in a sustainable future plan manage?

Learn to differentiate pragmatics of everyday behavioral dimensions, is not inherently linked to architectural spaces proportionality. Nor much less to the deductibility of logical thinking. Differences between “logic” and “daily” practices are: In everyday life, problems are not well defined and there is not clearly the sense of correct answers. And unilateral solving problems. (Lawrence and Mc. Daniels, 1990). The phenomena of “cognitive complexity” (Bieri, 1955) depends on the ability to perceive events in more than one-way, and raise the multidimensional nature of its dimension. Since thinking process is marked by “fuzzy associations and constructive steps that by conscious deductive reasoning”. (Mc. Daniel & Lawrence, 1990). “Who owns higher complexity is able to define more dimensions and fine distinctions among them than who does not”.

The elements of the social environment, takes dimensional value. But it doesn't mean a relationship more adaptive is functional with the collective context. "Adaptive problems have to limit". What is good for the individual isn't necessarily for the society (Anza, 2008). Supremacy of the market is against retail and creative social construction both as sediments pathways of dialogue and peace.

Psychologists are receptive to learn more about situational mechanisms, and the transformational, from the levels of individual action. To study the effects of social change on the adaptation and individual development, psychologists point to the limited scope of social mechanisms studied so far (Mayntz, 2004). The consequences of social adaptation in the changes of social structures are rarely addressed, except for some of the community of researchers in social psychology. Wright (2002) found that people are driven by the collective action with the perception of the problems for their own group and the weakness of his opponent. The flexibility inherent in some social institutions can also contribute to its malleability (Macmillan and Biaoocchi, 2010). (Silbereisen, Ritchie and Overmier, 2008).

Cognitive complexity is *continuum* from the simple keystone of information, to the ability to generate theoretical networks, which organize events and complex relationships (Daniel & Lawrence, 1990). These strands have been combined to differentiate between levels of overall complexity in thinking. Tripod & Bieri (1963) have demonstrated the equivalence of own and provided constructs in assessing cognitive complexity. The use of *complexity cognition* approach in understanding the nature of taste judgments processes has intensified in recent years. Mainly while Garner (1962: p. 119) have shown that it is possible to use *information theory* as to the conceptual model as well as to statistical mode of analysis in studding judgment as well as a number of other cognitive behavior. *Information theory* provides indexes, which can be used to describe the formal relations between stimuli and responses. Thus *Information transmission* is an index of the extent to which can be reliably discriminated by stimuli judges...that describes a judge's capacity to discriminate among behavioral stimuli reliable optimal...can be computed from a matrix in which the columns represent alternative responses, and in which the frequencies of each response to each stimulus are tabulated.

Our tool kit for stimulates learning mechanisms that enrich individual and collective skills through re-creative experiences of cultural heritage spatial dimensions. By understanding people peculiar sense of their own cultural landscape experience represents practices, feelings and ideas. People use to learn the exceptional sense of cultural site place as an outstanding value with their own abilities but they are not as complex as they can be, to re-create develop enough appreciated sense an to their cultural landscape context. Learn the way different cognitive processes, are interfering with collective behavior should begin developing and sharing same levels of communicability that reinforce the value of uniqueness of a place. How collective meaning sense can be translated into measure index that promotes interdisciplinary programs and decision-making?

3. Method

Promoting the familiarity felling sense each heritage context requires to be attributed, as "different" as well as closeness require identification attitudes of the appreciative sense of the place. We look for integrate constructive complexity facts into a tool kit of spatial learning that reinforce decision-making and complex evaluative judgments. Based on the two thinking ways the living context interpretation: a) *Paradigmatic or logic-scientific* b) *Narrative*: (Bruner, 1983). Enrich sustainable heritage students' concepts, linked whit their constructing living sense of the place (genius loci) were the goal. Developing their meaning sense of the spatial experience mainly enriching semantic skills and sharing into a dialogic field of questions an own kind of writing text.

Confirming that perception is thinking language non-sensoriality experience. It depends on time, constructive schemas. Patterns, pre-ceptions and cognitive process that promote words but not even judgments. We designed a mental model that distingue pre-reflexive cognitive processes of an indivisible schematic three dimensions that supports comparison levels: a) "symbolic-affective" (b) "pragmatic-functional" c) "semantic-interpretative". Those three dimensions of the same spatial experience fact, we stimulated complex cognitive processes into a 10 X 15 matrix structure. Designed with 15 bipolar balanceated antonymous word variables in to score 1-10 scale. Each one should be answer combining the meaning sense of antonymia and synonymia derived from to 3 abstract phases of situated questions.

Supported by the sense of an opposite continuum word meaning of 15 files content of the matrix. Each one can be combined using personal images, feelings, memories, affectiveness, perceptions, needing's, attributes, prejudices, thinking's, learning and dreaming wishes all of them joined and registered in a same "living time

situation". Promoting the fact of evaluation and judgment. Increasing learning process on spatial *information transmission and translating the way living experience* defines spatial judgments. We select architectural and behavioral dimensions that form a field of possible combinations to increase learning phenomena. The five dimensions Functionality, proportion, motivation, reflective and effectiveness were selected.

The personal way to answer this Matrix Tool Kit lets students to construct a Dialogic meaning sense of the place that let them increase an interactive and dialogic process through to complex combination trip derived from metaphoric constructive sense of thinking supported by a matrix structure instrument. Each matrix lets student developed by their own sort of style of recognition the discovery of their own sense of the place. This complex thinking style combines: a) living and learning experience's, b) logical and historical attributes, c) dilemmas between memory and creative meaning sense from several organization qualities classifications. Focusing on 3 increasing dilemmatic questions. We trained high level education interdisciplinary students to develop critical judgment skills with 5 Cognitive Matrix. Gathering data from the register of the collective trends and infrastructure of three public heritage spaces in Mexico city during 5 days in three times: morning, day and night. Matrix was applied before observational register instruments by those 10 students during each time turn. Sharing their meaning contents and meanings in collective group dynamics spatial discrimination qualities had been increased.

4. Results

Our goal to strengthen cognitive potential that generates new attributes of information that lets create more connections for "integrative complexity" was successfully. We empowered students letting them to go deep in their own learning elaborative process of spatial perception. Through a self-report "complexity matrix" that asses them in overall organization in thinking process.

The framework of data processing allows that system norms, needs, strategies, opinions and attitudes being seen as stimuli structures had sand for design abstract questions of information processing, with the function of differentiating the environment quality and integrate their insights into new beliefs and actions. The ability to translate in combinations with proper and peculiar sense, the series of questions and reflections which promotes metaphorical thinking of its own styles, cognitive operations increased problem solving as well as degree of integration and conceptualization significance. All essential when judgment issues are not induced. Involving learning people into the power of affection, the senses of taste, and the experience of contextual experiences living, are the framework of collective behavior. Consequently, it's important to increase the multidimensionality of the differences that make exceptional heritage values, to privileged arena to develop creative and constructive practices enrich the cultural landscape for. In this other hand, collective behavior can be creative and constructive, but not necessarily conceived by false or true, good or bad, white or black attributes. Our psychosocial option promotes cognitive operations that must be differentiable as well to make them formal language that allows people share communicable contents and logic measure scales of their own feelings and perceptions to enrich for public decision-making criteria.

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Figure 2: Comparative Complex Matrix Data Between Psychological And Arquitectonical Issues.



Figure 3: Comparative Graph Between 5 Dimensions of Cognitive Matrix applied on 3 Public World Heritage Places: (Plaza de la República. Plaza de la Constitución. Campus Central Ciudad Universitaria).



Figure 3: Integrative Collective Trends of Public Practices in Mexico Downtown Square Plaza.

High Level Education Contribution that Enhances Community Engagement on Heritage Protection and Sustainable Local Socio-Economic Development Skills

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Abstract

Contemporary context raises a violent present, diminishing access to the progress of people and an uncertain future for youth. Mexicans live their current days, immersed in problems that overwhelm them, submerged in collective forgetfulness of notions, such as: sharing streets, city and urban landscape, history and culture. MEC-EDUPAZ¹ is a high-level education interdisciplinary training program aimed at reinforcing the social responsibility and duties of public Mexican universities towards society by promoting active citizenship participation in everyday lifestyles, seeking to find the spirit of specific urban places, and constructing social caring practices based on the values of cultural heritage.

Keywords: *Training; Interdisciplinary Solutions; Knowledge Innovation; Genius Loci*

1. Introduction

Cultural landscapes provide tangible elements of the environment of the communities and of the cultural rights of the people who live there or that are related to them. What would happen if Mexicans overcome economic backwardness applying best education models aimed on the sustainable management of its world heritage values?

MEC-EDUPAZ's objective is to reinforce social responsibility with university attributes by promoting *social distribution of knowledge*, focusing on education to eliminate socio-cultural asymmetries, rescuing the civility and multiplying the sense of collective identity in everyday life.

Knowledge is an intangible asset, and has always played a strategic role for the creation, transformation and generation of added value to people and society. "Knowledge innovation" is a real engine for the development of mankind, and more than ever, impacts economic, social and environmental development, just as pre-historic men made tools to change their environment. Today, technological products and their impact on Habitat are instruments that share lifestyles and give rise to conceive new everyday uses.

The cycle of "knowledge innovation" conceptualizes education and its relation to creativity and the management of leisure time in a different manner. Besides the game and the entertainment, it strengthens its links with multiple intelligences, and leads to the challenge of stimulating productive imagination skills for the benefit of new educational programs aimed to benefit the quality of life and the coexistence of millions of people currently displaced by the magnitude of the social, economic and cultural asymmetries.

Innovation based on knowledge, not only strengthens the role of big companies but also universities and each academic as trainers of new world citizenship. The main challenge is to know how to face the magnitude of the problems. Should we link them with challenges of contemporary culture and heritage values?

Cultural heritage is one of the guarantees of the identity of people, and one of their meaningful values through history. Shared with their neighbors, becomes a factor of growth, engine of peace and an accelerator of human development. Accomplishing these factors, their potential would be fulfilled. The ability to keep the cultural competence among us (states) would largely depend on our respect for cultural property and our ethical and humanism views' support. Without them peace can't be permanent nor even a supportive development (Bokova, 2013).

¹ MEC-EDUPAZ : Civil and Cultural Heritage and War on Poverty Program. Universidad Nacional Autónoma de México. PAPIME No. PE302311 y PAPIIT IN403810.

Bonding nets of relationship and membership are necessary for people and social sectors of society, so that they can learn to have access to opportunities and challenges of our global world. This is an alternative procedure option for a social construction framework of conditions for better contexts and quality of life.

Sustainable behavior has a purpose: to promote the well being of persons in various spheres of human existence. These areas include the enjoyment of a healthy and meaningful life, and subjective well-being. In other words, “happiness” is a visible psychological result form of a sustainable lifestyle. One of the challenges for environmental psychology is to increase our understanding of the causal relationship between behaviors pro-ecologic like frugality and altruism, with factors such as justice and welfare. (Corral, 2010).

MEC-EDUPAZ: Is an alternative structure of learning and interdisciplinary program supported by participatory training strategies with students, academic, local groups and other NGO institutions like ICOMOS Mexico, AC. Linking and working all together for the development of the four main public universities in Mexico. Functions: researching, teaching, spreading and distributing knowledge as a communitarian intervention with social services and research programs.

As a program designed by University academics for university students and people, it promotes the creativity of the living culture that depends on generated knowledge. Feeding with it and working for it as a daily lifestyle’s perspective oriented to self-training. We empower students as individual, professional, researchers and specialists related to handling non-violent actions. Improving the livability and sustainability, we enhance living styles to share and learn to care the public and heritage spaces. As a program that has an impact on the improvement of co-existence as a response to the possibilities of the “revolutionary role of the small things”, we integrate an institutional model of situated learning context to enrich the character of society and cultural heritage, and the virtual and urban public spaces in a sustainable way.

2. Procedure

The development of the Cultural economy and knowledge innovation system emerges as a model, not only of intervention but also as an argument of the task of higher education in its role as generator of innovation, developer of strategies and implementer of knowledge derived from educational institutions.

From our perspective, it is the impact of learning models traditionally used in personal and professional development of future graduates. It is necessary to establish a *continuum* of the screening process starting from the construction of learning objects, their relationship with the development of skills and abilities to the contextual implementation of strategies of transformation and change in situated contexts. This is consistent with the situated teaching socio-constructivist approach, which “assumes that the student is approaching knowledge as active and participatory, constructing apprentice of meanings and sense envelope generator what he learns. The student does not build knowledge in isolation, but in virtue of the mediation of others, and in particular a time and cultural context”, with orientation towards defined goals (Rogoff, 1993) (Díaz Barriga: 2006: 14).

Developing spaces of interdisciplinary professional training to the undergraduate and social services such as human resources, and link them with high-level research, have been definitive. Connect them directly to the performance of tasks, logistics, procedures and application delivery that demands the goal of research, such as the delivery of products, or direct approach in everyday contexts. Involvement of the problem and the potential that encloses the field of remodeling heritage, and exalt the relevance that might have their professional interventions, are essential. (Mota, 2012).

As Walter Gropius Bau Haus workshop we share the goal of “Learning by doing jobs and working making learning scenarios”. In MEC-EDUPAZ program we succeed by depending on the goals and motivations of higher education students coming from 56 disciplines and specialties of 3 universities that want to be accepted in our social training. Sharing the opportunity of getting several accreditation and extracurricular options, we promote those activities in the same model of interactions and relationships:

- We Research: Genius Locci: where is the spirit of the place?
- We develop skills and competences based on group interaction, teamwork, personal development, building interdisciplinary goals, etc.
- We have a high level training program through interdisciplinary dialogues and seminars with several specialist and academics.

- We document and edit contemporary heritage culture with an electronic scientific journal: formatting, management, evaluating with peer review, and enhancing editorial design line guides. <http://www.journals.unam.mx/index.php/mecedupaz>
- We design local intervention strategies: “By neighborhood” interdisciplinary programs.

We developed a tool kit to stimulate learning mechanisms that enrich individual and collective skills through the challenge of promoting 10 pragmatic skills with all of those goals:

1. Linking the process of vocational training of academic and specialists of high level education, with social needs and demands to be assessed in order to realize and implement, effectively and timely, handling equity plans. We strengthen the close relationship between “heritage and territory” and research advances. Dissemination and implementations models of innovation of knowledge are essential for a sustainable management of the civil, cultural and natural resources.
2. Centering culture and cultural values, as starting points for enriching styles of daily life and human rights, as well as those of the conservation and preservation of their resources. Enhancing the point of view of the different specialties involved in the development, and non-violence management of conflicts.
3. Promoting the potential development of groups using participatory schemes that contribute to strengthen empowerment and sustainability of their localities, territories, and municipalities.

We promote (Mota, 2012) a sustainable design of civic and cultural heritage conception. Which is understood as an integral process of revitalization and social production of the Habitat, establishing criteria that guarantee the recovery of public spaces so that the people reach by themselves a generative constructive process of permanent conservation of living styles.

The goal is to let them enhance the role of their cultural heritage as a sustainable policy management derived by: planning and fixing agreements, collective pacts supported by collective decision-making, applying several strategies of collective process, promoting a generative dialogue approach of learning communication plans derived from the notion of desirable and possible future scenarios as daily life contexts.

The axis columns of this first intervention time phase are: “the propagation of the role of cultural and civic heritage values”, “the confidence in the other”, “the spatial education”, “the reaching of a desirable place”, “the negotiation” and “the decision making for participatory strategies”.

The next phase holds educative modalities of: “qualification”, “management”, “planning normative” and “public policies”.

The relevance in the commitment of the diverse actors, are expressed by themselves and other members of the community as a dialogical representation process of social construction of continuity. They strengthen their options to improve an alternative symbolic-emblematic character of the place that also reveals and discovers their sustainable social constructive profile.

Psychologists are receptive to learn more situational and transformational mechanisms from levels of individual actions. To study the effects of social change in the adaptation and individual development, psychologists point to the limited scope of social mechanisms studied so far (Mayntz, 2004). The consequences of social adaptation in the changes of social structures are rarely addressed, except for some of the community of researchers in social psychology. Wright (2002) found that people are driven by the collective action with the perception of the problems for their own group and the weakness of their opponent. The flexibility inherent in some social institutions can also contribute to its malleability (Macmillan and Biaocchi, 2010). (Silbereisen, Ritchie and Overmier, 2008)

Our denominated strategy “Model of Cultural Economy and Knowledge Innovation” (Mota, 2005), consists of guaranteeing the integral treatment of the local problems, promoting the physical-environmental”, “civic-cultural” and “economic-productive” improvement “of the public space, oriented to the participatory design of handling programs, derivative of a cross-sectional process of planning and territorial ordering.

All these arenas we named: “integral rescues of the public space”, included by a holistic perspective by four complementary dimensions untitled: “urban”-“Heritage”-“of-the-society”-“virtual”.

Each one, guarantee the rescue, maintenance, continuity and creative hierarchy of the patrimonial values as engage into a dynamic dialog between past, present and future.

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Figure 1: MEC-EDUPAZ Program reproducing Public University Functions.



Figure 2: Training workshop with MEC-EDUPAZ students.



Figure 3: Four dimensions of Public Space.

Teenagers in Local Empowerment in the XXI Century

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Abstract

We are on the opinion, that children without getting acquainted in local values, there is no hope in maintaining cultural heritage in the future.

Teenagers trend in Budapest in 2014.

- Education system in helping our goals.
- Responsibility of family, education and local communities.

How to involve children in the theme?

- Discussions and contacts.
- Common programs for children as part of the official system.
- Local competitions and summer camps for children .

Observations, ideas.

- Observations of presentations, walks and competitions.
- Ideas for the future, plans.

Keywords: *Programs for Children; Education; Interactivity*

Children between 14-17 age are the same, as all over the world. What are the most important attributes?

- Using all communication advantages, between each other, and via internet.
- They are very much influenced by their close milieu, mostly by school friends, by favorite teacher, by their family.
- Mostly they don't like books, for information they use the internet.
- It is not a trend to walk on the streets, parents are driving them into school and back, or to different extra programs.
- Well to do families are living mostly not in old "heritage part" of cities. The children going however into schools into that part are not "at home" there. To recognise the surrounding is an extra task for them, not part of their everyday life.

1. Education system helping our goals

Education system in schools in Hungary is regulated by the "National Requirements for Education" /Nemzeti Alaptanterv/ Last modification was in 2012. For our goals helps the chapter : "The Person and the Community Education Method"

It includes among others the following parts:

- Accepting human and personality rights, high principles.
- Acquire, realise, and to make real in knowledge of civics, national and international values.
- To make real in knowledge of values in social rights, solidarity and fairness.
- Development of responsibility for environment and sustainable growth.
- To get acquainted with culture both of Hungary and the world, and accept the differences.

The most suggested development areas are in subjects: history, ethics, moral philosophy, cognition culture of country and folk, economic- and social sciences, civics, philosophy.

Framework of development areas:

- To get acquainted with the theme, place, person, situation. /Via personal communication, direct monitoring of buildings, areas, pictures, reading about them, by internet, or by other scientific research./
- Individual thinking /Recognize and draft historical, cultural, economic coherence./
- Communication /Formulate opinion, objective argument, creative presentation/
- Orientation in space and time. /Decade, century, millenary, comparison the life of people in that time and in the present, show places on relevant maps./

What kind of items has the subject: “Country and folk culture”?

- Legacy of old Hungarian culture.
- Hungarians in the former and in the present country.
- Ethnical areas, units and ethnical groups in Hungary.
- Culture and traditions of that.
- Natural, built and cultural heritage, world heritage areas.
- Worldwide issues of Hungarian scientific and cultural activities.

2. Responsibility of family, school and local communities

It is well known, that education starts in the early childhood. To fulfill this requirement everybody dealing with children has responsibility. My topic is now children between 14-17. I think the influence of the family is not the most acceptable for them. This is the age for starting to be as independent, as possible. Therefore the responsibility of schools, civil organisations, youth organizations play a very important role. The national sponsoring system, tender possibilities, fundraising activities of the management of schools and organizations helps to reach the goals of a well operation.

How to involve children in the theme?

- In the frames of school education system, mentioned above.
- In family organized tours, mostly with friend families together.
- School excursions.
- Different kind of competitions.
- Special Camps.

Example for local competition in Budapest V. District.

Our five year old Civil Organisation “Treasure City” in year 2012 decided to activate its members in cooperation with schools of the district, to work out and sponsor a three round competition for 13 14 years old students. It had a tradition in our district, but the former organisers wanted not to continue it. The three rounds were followings.

1. **Practical.** In 2013 was the 100 anniversary of death of Georg Klösz very famous photographer, who made lot of photos from Budapest in the late XIX. and early XX. century. The task was to go to libraries, find photos from him, and make picture from the same place today. Create a photo album with the parallel pictures and write some headings to them.

2. **Written exercise.** To fill out a questionnaire, after having taken part on a walk in the city, or listening to a slide show presentation, held by a representative of “Treasure City” club. In 2013-14 the motto of the competition was “Jubilees”. The area of questions were marked on a map. For example see the followed:

- 265 years ago was elected the first democratic government in Hungary. Mention some of the people taking part in the government, and mention - as much as possible- of streets or places in the district which have the name of that persons.
- 85 years ago got the square around our Parliament the name “Kossuth”. In 2013-2014 the area is under reconstruction, the former statue moulding the ministers of the first government will be placed again ti its original place. Tell something about the original sculptor and the history of the monument.
- In 2014 is the 170 anniversary of the birth of Georg Klösz the famous Photographer. He has his studio first at the corner of “Uri” Street and

“Kiskorona” Street, but later he moved into the “Hatvani” Street. What are the existing names of that streets.

- At the corner of Realtanoda and Károlyi street there is the famous building of the former “First Savings Bank of Pest”. Who was the architect, and which anniversary are we celebrating in 2014. What other buildings of him are in the district?
- 140 years ago was the unification of Buda-Pest and Óbuda. Where is the memorial of that?
- A 100years old sculptor made a character sculpt facing a famous square in the district. Who is the sculptor and where is the sculpt.
- Other questions were about the 100 years ago born Hungarian origin other photograph Robert Capa, the 60 years ago rebuilt Elisabeth bridge, the new opening of the Redoute building, which was designed 180 years ago, the break out of the first world-war 100 years ago, etc.
- The last exercise was a cross-word puzzle, with relevant questions as well.

There were 20 teams – each with five students- from five schools. The teachers of the children were informed about the sufficient bibliography. It was a big help the calendar of the district, written and published since 2010 in every year by the “Treasure City” association. It was a good marketing for the club too. The jury was an independent group, consisting from representatives of the district municipality and from the “Treasure City”. For the last step the ten best team were chosen.

3. Deciding competition. The first ten teams were together in a conference room of the District Council, and had to work out different exercises. Some examples:

- The teams had to prepare previously a study in PPS. It was free choice from three mentioned temporary not used historical protected buildings in the district. They had to find out new functions for them, and show the architectural, economical, social and cultural advantages of the decision. They had to make a slide presentation on site.
- **“Odd one out”** task. There was one place, object or person mentioned, and five statements about it. They have to find the uncharacteristic one.
- **“Quick questions and answers.”** For 4 questions every team got two answers, and they had to find the right one as quick as possible. The 10 different group of questions were about: buildings, statues, bridges, jubilees, styles, schools, museums, architects, churches, streets.
- **“Through or false”** From 10 statements they had to find out, weather they were through or false.
- **“Puzzle”** Photos of 10 different buildings were divided into 9 pieces. The children had to ask for parts, and find out the building from less asked parts.

All teams taking part in the last step got small presents, and the first 5 team won a “premium excursion” organized by the “Treasure City” club, financed partly by the club, partly by the education committee of the local government. The whole organization was a successful cooperation between the schools, club, and education committee.

The premium excursion was in 2014 year partly culture, partly fun. We visited the Károlyi Castle in Fehérváracsurgó, which was picked out from three reasons:

- Miklós Ybl, the famous architect-who had two jubilees in the 2013-14 school year, was the “site-manager” during the construction works in the middle of the XIX. century. The Architect was Heinrich Koch from Vienna. Ybl was working in his office as young practitioner.
- Georg Károlyi head of Károlyi foundation runs the building as multifunctional object. This is the single case in Hungary where on the basis of an agreement with the state, the representative of the original owner family has the right to do this for a hundred years period. The castle is still in the ownership of the Hungarian State. /All the goods like this were nationalized by the socialist regime, and in Hungary there was no reprivatization/Georg Károlyi lived in France after the fifties, and following the political changes he moved back to Hungary. He met the children, and it was a very interesting communication between him and

the students. For the students his life story was a live history. The castle reconstruction was a "pilot project" how to fulfill requirements of a new function in a protected historical monument.

- There was at the same time a scale-model exhibition from the existing buildings of the architect Miklós Ybl, made by the students of the Technical University of Budapest. The children were very much interested in it, and for us it was a good chance to declare in one room the skills of the famous Hungarian architects.

The fun was near to the lake Balaton in Balatonfüzfő, where a new amusement park is existing.

3. Observations

- The children between 13-16 age were very much interested in the "learning with play" method.
- During the preparation period they were interested in sight seeing, with "our eyes".
- The PPS. was a hard work for them, everybody had to activate fantasy and knowledge. They solved the problem excellently. It made them fun!!!
- The competition was exciting for them, they were very much interested in being within the five best groups and take part in the "premium excursion".

Special camp in Budapest

Former chief architect of Budapest: Éva Belezsnay after finishing her work at Budapest Council, came on the same recognition, that we have to activate children in becoming acquainted with our values around us. Therefore since a couple of years she organizes a one week camp in Budapest, for children between age 10-14. The title of the camp: "Roaming in Budapest". A pedagogue and architect students are coworkers in the program. It was financed partly by the families, partly by a tender "Bank Budapest, for Budapest".

The basis of the five-day program were in 2014 the developments in Budapest in the last 150 years including the present. They focus on the question, "What values of the past form values today, and what think the children valuable in the present, and for the future too?"

What was the program this year?

- "Changes in trends of developments in the structure of the town". What were the consequences of the highwater in 1838. What are the trends today. Live geography and history at the cupola of St. Steven Basilika, where one can have a far view to Budapest. Creative work: Townmodell. Theme attendant: extracts from the book: "Memories of a gallant" written by. Frigyes Podmaniczky.
- "Building estate" Visiting an existing estate in Budapest, and following a discussion "people and their close surrounding", what they think about it. Creative work: "richness of forms, create a building estate model of them" Thema attendant: Discussion with a famous actor.
- "Miklós Ybl architect and his works in Budapest." Walking to the new restored "Ybl Bazaar" at the bottom of Castle Hill. Theme attendant: discussion with alive relatives of the architect. Rhythm and music in architecture.
- "Sport" Stadion and other sport buildings in Budapest. Visiting the Puskás Stadion. Creative work: Building an open air sportplace. Theme attendant: Films about sport events.
- "Museum" Importance in preserving culture and history. Visiting the Museum of Handycrafts.
- Creative work: making a mosaic. Thema attendant: extracts from the Hungarian literature in the first part of XX. century. /Secession/

4. Observations

- All the children were very active and happy during the camp.
- It was very important in every moment to make them interested via their world to accept our intentions.
- It was a very good idea to involve architect students into the project. It was a good practice them to give the information with very simple examples to the teenagers. On the other side, the children were much more bright with the youngsters, than with adults.

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Photos: Fodor Györgyi Szeréna /Local Competition excursion/, Beleznay Éva /Local camp/.



Image 1: At the model of the Károlyi castle.



Image 2: At the Ybl market.



Image 3: At the local camp.



Image 4: Building in the local camp.

Gezi Park, Construction of Public Space and Community Engagement in Preservation

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Abstract

The paper here presented discusses Gezi Park protests in Istanbul and carried out by conservation expert architects and cultural anthropologists. Focusing on the reconstruction of the historical relation of the state power with the park and on the public resistance put in place by protesters, this study tries to shed light on the processes of occupation, transformation of a 20th century architectural heritage into a cultural habitat and into a public space. This study also reflects the significance of community driven conservation.

Keywords: *Gezi Park; 20th Heritage; Public Space; Collective Memory; Community Engagement*

Gezi Park is located in the European part of Istanbul, in Beyoğlu district. It is surrounded by Asker Ocagi Street on the north east, Mete Avenue on the east and Cumhuriyet Avenue on the west (figg. 1, 2). It is a part of Taksim Square along with Monument of Republic, Atatürk Cultural Center and Taksim Reservoir (Maksem)¹. Designed in the period of 2nd president of Turkish Republic, İsmet İnönü; Taksim Square reflects the features of early republican architecture. It is a major leisure district and touristic attraction that also represents unique symbol for public gatherings, celebrations and parades. Focusing on the reconstruction of the historical relation of the state power with the park and on the public resistance put in place by protesters, this study tries to shed light on the processes of occupation, transformation of a 20th century architectural heritage into a cultural habitat and into a public and symbolic space.

The public dimension of the space is intimately related to the history of a culture and should not be taken for granted. Indeed, if the modern concept of “public” in Western history is related to the bourgeois society and appears since the end of the 17th century, it arrives Turkey with the secularization of the State and the birth of the Republic. Gezi Park can be seen, therefore, as the first urban public park built by the new Republic in the core of Istanbul.

It was constructed between 1803-1806, in the vast area between a Muslim and an Armenian Cemetery, was referred by names like ‘Taksim’, ‘Topçu’ or ‘Beyoğlu’. Barracks has a rectangular plan and a large courtyard located in the middle which had dimensional aspects of a football stadium. According to the Pervititch map dated to 1925, building was approximately 146.0 m x 176.0 m, while the central courtyard was 110.0m x 140.0 m size².

¹ <http://www.mimarist.org/2012-08-13-16-09-05.html>.

² (Çiftçi, 2004).

According to engravings of Preault, it is clear that barracks had been through many alterations and even partial demolitions through 19th century³ (figg. 3, 4).

The documents belonging to the 2nd half of the 19th century indicate that Barracks was conveniently located on a spot where inhabitants could gather to participate various activities. Interesting shows and sport activities are organized in the Talimhane Square in front of the Barracks before the design of Current Square. In 1870 the first parks and recreation areas were created around the Barracks which foresees the arrangement of first Public Park in the city⁴.

In the last days of Abdulhamid II, a major military revolt took place in the barracks. This incident led to the destruction of the building and it has not been through an elaborate restoration afterwards. Barracks, which had lost its function after 1909, was used as a stadium and sport activities until the early years of republic (fig. 5). It continued to be used as a stadium more effectively after the proclamation of the republic⁵. During heavy military use and occupation of opponent forces in World War 1, Taksim barracks was a ‘Popular’ place intended for different activities.

In 1928, Barracks’ barns were partially destroyed due to the installation/construction of Monument of Republic. Barracks and Talimhane square have been used for various commemoration ceremonies after the establishment of Republic Monument. The necessity of a major square that will host military parades in Istanbul was already evident due to the social and political conditions in 1930s. Barns of the barracks were completely destroyed until 1939 which triggered square the arrangement of a new Republic Square (figg. 6, 7).

Barracks was proposed to be completely demolished and be replaced by a major public park in the master plan prepared by Henri Prost in 1936. After Inonu became 2. President of the Turkish Republic, an immediate decision and execution period commenced regarding public development.

Plan was executed and park was established following the Barracks demolish in 1939-40. The decision of demolition such a huge Barrack during the 2nd World War, led to strong opposition stating the building could be used for immigrants if necessary⁶. Destruction of Barracks not only aimed to create a public park in the city, but also symbolized the beginning of a new era and new values. Indeed, in the early years of the Republic the urban plans reflected the secular and modern national identity, called Kemalism. However this project was not a social process of *longue durée* as in Europe, but a top-down modernization where the new “modern city” with its squares, parks and public buildings should reflect the meanings and values of the new State⁷. No other forms of modernity, other than the Kemalist one, were allowed and the national identity became the only legitimate actor in the public sphere. Indeed, the state-centred definition of public sphere adopted by Kemalism ideology and its secularization process was far away from the habermasian idea of public sphere as a “communicative action”.

Gezi Park was firstly designed as a massive green area extending from Dolmabahce to Macka Park as a result 11-12 year of expropriations (fig. 8). The integrity of the park survived only a few years until the construction of the Hilton Hotel and Ceylan Hotel⁸. Taksim and its neighborhood were turned into an attraction center and an extraordinary profit area for the city.

Reconstruction of the barracks at its original location within different projects was at part of the government’s agenda since 2011. Indeed, the transformation policies and urban requalification of the government have the target of changing the face of a symbolic place of Turkey, impressing the new course of a no longer Kemalist State in the architecture. Despite promises of improving democratization of the Country, the politics of government revealed the same attitude of past political

³ (Cezar, 2002).

⁴ (Üzümkesci, 2010).

⁵ (Üzümkesci, 2010).

⁶ (Ziyaoğlu, 1971).

⁷ (Keyder, 1997).

⁸ (Angel, 2013).

elites. Namely, a concept of public space as a repressive place for other views in disagreement with the State position.

Consequently Istanbul 2nd Cultural and Natural Heritage Preservation Board registered Barracks as 1st degree Historical Architectural Asset on 2nd September 2011 and indicated that reconstruction of the Barracks should be considered within Taksim Square Urban Design Process as a whole.

Project was firstly declared as “taksim square pedestrianization Projects” by Prime Minister on June 1st 2011 and included in the 1/5000 and 1/1000 scale Conservation Revision plans prepared by Istanbul Metropolitan Municipality on September 16 2011. Although plan revisions were approved by Istanbul 2nd Cultural Preservation Board, no elaborate architectural detail was given to public regarding the content of the Project. Whole project based on superficial visual studies⁹ (fig. 9).

“Taksim Pedestrianization Project” was basically presented to public through visual renderings. (fig. 10). It recommends putting motor vehicle traffic underground through 70m. wide tunnels at five points of the square. Project was prepared with a focus directly on construction phase, lacking a comprehensive research and management plan. Instead of existing surrounding avenues which enable mutual pedestrian-vehicle use of square, highways that divides the city were proposed. Entrances of tunnels would create big gaps and block the relationship of square with surrounding avenues. People who try to reach square by motor car would just follow the signs and pass by without even seeing the square. Sidewalks would get narrower and pedestrian traffic would be blocked by proposed retaining walls. Metro and tram systems should be preferred instead of provoking motor vehicle usage in city centre. Project should have been planned based on long term studies of an special executive committee and shouldn't have been described with an authoritarian manner in pre-election phase for political goals¹⁰.

Protests begin when the project was officially announced by the municipality on February 14 2012. There has been strong opposition from various social classes including NGO's. Many protests and demonstrations were organized and hundreds of petitions were given to IMM (Istanbul Metropolitan Municipality) especially by UCTEA (Union Of Chambers Of Turkish Engineers And Architects) and Taksim Solidarity; an NGO comprised of approximately eighty organizations including civil society groups, professional associations, political parties, and platforms set on 19 July 2013¹¹. Although UCTEA sued in order to halt the execution of the project on May 11 2012, IMM completed the tender and Kalyon Construction Company took the tender on August 24 2012. by Istanbul 2nd Cultural and Natural Heritage Preservation Board, declined the reconstruction project of the barracks due to the lack of adequate information regarding interior plan, ornamentation and other authentic architectural features. However, project continued to proceed after dismissal of Minister of Culture and Tourism and approval of Cultural and Natural Heritage Preservation Supreme Board which is comprised of mere politicians¹².

Although Taksim Barracks was a remarkable building, it wasn't an example of Ottoman Architecture that represents architectural characteristics of Ottoman Empire which could refresh memory of the society. While on the other hand, the park constructed in place of the barracks could be classified as a 20th century architectural heritage that should be preserved. Between 1940 and 2013, Gezi Park located memory of the city. Although it was luscious target for many construction entrepreneurs, it managed to remain the only space that is free of charge and public accessible. Since preservation of cultural heritage could not be considered apart from public approval and participation, public benefit would require preservation of the park.

On the other hand, reconstruction projects of Barracks despite adequate information, brings to mind the concept of 'eclectic historicism' which puts the preferred period forward. This can be dangerous

⁹ <http://www.mimarist.org/2012-08-13-16-09-05.html>.

¹⁰ https://www.academia.edu/2412125/Soylesi_Korhan_Gumus_Taksim_Yayalastirma_Projesi_nedir_.

¹¹ <https://www.facebook.com/pages/Taksim-Solidarity/320882008043110>.

¹² <http://www.mimarist.org/2012-08-13-16-09-05.html>.

for multilayered places because it lacks objectivity. Multi-layered places and structures should be preserved with an objective approach/method¹³. ‘Data of any culture (or period) should be preserved to reveal the data of other culture (or period) unless it is unnecessary’ as stated in ICOMOS Turkey Architectural Heritage Conservation Charter 2013, Intervention Principles of Architectural Heritage, Article 3¹⁴. ICOMOS Turkey National Committee also made a statement on February 28 2013 that Gezi Park should be preserved retaining authentic features. The loss of Barracks has no significant defect on social memory and due to the lack of sufficient information, reconstruction of the Barracks will not be more than creating Disneyland in Taksim¹⁵.

The incident that brought police and protesters across was the start of construction and closure of the square. Closing symbolically the most significant square in the country for demonstrations carried things to a different dimension.

On May 28 2013, demonstrators led by Taksim Solidarity protesting the destruction of the park and dismantling of trees faces abusive reaction of police. Number of protesters reached thousands following excessive force of police and protests switched to other cities. The subsequent occupancy for 15 days of the park by people with different social status and political views, like Muslims, Kemalists, members of the Turkish left, nationalists, Kurds, Alevi became immediately a turning point in recent history of Turkey. During the protests, 6 people were killed, thousands were injured and thousand were taken under custody. On July 8 2013, the case opened by UCTEA was accepted and project was declined¹⁶ (fig. 11).

This movement of protest presents several levels of analysis that we could try to illustrate in four different points.

In first instance, we have to take on mind the neoliberal policies that have progressively transformed the urban landscape and the social composition of Istanbul. Since the 80s, and above all in the last decade, gentrification has been on the top of urban policies reducing public spaces, parks and squares. This process of dispossession of the urban space reflects the emerging universal model of a capitalism that should not be considered as a mere mode of economic management, but rather a political rationality fostering an authoritarian neoliberal development. The initial resistance organized at Gezi Park, thus, had a clear urban agenda against a way of governmentality “embodied in malls, which became the tangible symbols of the global financial capitalism, escaping the influence of the citizens”¹⁷. As other processes of reappropriation of the city also Gezi park protests can be read within the theoretical frame of the ‘right to the city’¹⁸, since it involves the right to participation and the right to appropriation¹⁹.

Nevertheless, we should stress that Gezi Park was in a state of neglect and decay: if we exclude the LGBT community, almost nobody was using the park nor was presenting a relevant relationship with it. But during the days of protest people established a new link with the park picking their memories up from the past. In an era characterized by post-national amnesic setting where any “old attic” can be a possible memory store, people started to share their personal memories publishing photos of them in the park on the social media²⁰. In other words, in order to connect themselves with Gezi Park they created a memory bond that did not exist before.

Moreover, we have to take into account that the protests for Gezi Park represented the first great wave of protest since the depolitization of Turkish society, subsequent the military coup of 1980, and they introduced a new political language and new actors on the social scene. As Louis Quéré (1992)

¹³ (Ahunbay, 2012).

¹⁴ http://www.icomos.org.tr/Dosyalar/ICOMOSTR_0623153001387886624.pdf.

¹⁵ <http://www.mimarist.org/2012-08-13-16-09-05.html>.

¹⁶ Ibid.

¹⁷ (Göle, 2013).

¹⁸ (Lefebvre, 1968).

¹⁹ (Purcell, 2002; Harvey, 2012; Sassen, 2011).

²⁰ (Gillis, 1994).

pointed out social actors take shape by incorporating symbolic negotiations that are both external and internal. In the case of Gezi Park a new kind of social actor appeared on the public scene. Through the imposition of the term *çapulcu*, which can roughly be translated as “looters”, through a mixture of pop culture, humour and “carnavalesque” practices²¹, people in the protest managed to reappropriate to their own advantage this label marking their visibility in the public sphere, speaking outside the boundaries of hegemonic frames and identifying an adversary with whom to establish a contrastive relationship. If public space is the space of appearance, as sentenced by Hannah Arendt (1958), the political struggle can be intended as a struggle for visibility. Therefore, the sharing a new idiom and new codes enabled people on the street to draw a new visibility, that worked as public agency allowing to think and to build Gezi Park as a social reality that could not be reduced to previous classifications.

We should see public space not as something already given, pre-established or frozen, but as something continually questioned, that has to be built in the “here and now”. As stressed by Nancy Fraser (1990) public space is not a place open to everyone, but it reflects specific hierarchies, where social actors fight to control it and to reinvent the forms of common life. In this perspective, public space can be intended as a social text that actors not only reproduce, but use to open the “plot” to new possibility, that we can see as the “invention of the social”. Thus, the experience of living the park all together can be seen as a physical space for rethinking society upsetting the dominant codes upon which social relationships are founded. Gezi protest appears as a “collective thereness” in which it was created the idea of a public space as a place where people with different lifestyles, political views, religious inclinations and ethnic differences were able to confront to each other²². Namely, a “relational space” where people could challenge and protest, recognizing the value of diversity or renegotiate it²³. The experiment of Gezi Park was a “discursive dissolution of the power” that should not be read only in synchronic terms against the neoliberal power but also in a diachronic perspective against a power that, as we tried to stress before, is historically exercised in Turkey a top-down manner. Fragmentations characterizing Turkish society (e.i. the dichotomy between secular and religious people) continue to exist, but they were rearticulated during the protests, supporting not the coexistence of “frozen identities”, but rather as a “cohabitation”, in which the mutual involvement transforms differences from reasons for conflict into cultural sources²⁴.

Finally, we can observe that, even if nowadays the park is still not effectively used by people in their daily life, it became a symbolic space²⁵ and can be intended as the depositary of a double memory: that one of the hope of changing against a top-down policies and that one of a new social imaginary where different people could coexist together²⁶. In the same time, this case is a global achievement of a society in a conservation field. This process showed us importance of the community engagement in preservation with introduced a new way ensuring its role in future decision making processes.

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²¹ (Bakhtin, 1981).

²² (Butler - Athanasiou, 2013).

²³ (Young, 1990; Robbins, 1993).

²⁴ (D’Orsi, 2014).

²⁵ (Halbwachs, 1950).

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Images 1, 2: Gezi Park current plan and air photos (Url.7; Url.8).



Images 3, 4: Taksim Artillery Barrack after the restoration in 1862(Yılmaz,2013; Url.9).



Image 5: Taksim Artillery Barrack belong to the period after 1909 (Yılmaz,2013).



Images 6, 7: Taksim Artillery Barrack with Republic Monument belong to the period after 1923 and Taksim square after arrangement (Üzümkesici, 2010; Url.10).



Image 8: Taksim Square and Gezi Park in the 1940's (Daver, 1944).



Image 9: 3D animation of New Taksim Project with the Reconstruction of Old Artillery Barrack (Url.11).



Image 10: Taksim Pedestrianization Project Rendering (Url.3).



Image 11: Abusive police power against protestors (Url.3).

The Community as Custodians of the Built-in Tangible and Intangible Heritage Values: Historical Center *El Sagrario* Parish, Mérida, Venezuela

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Abstract

The historical center filled with buildings, squares and monuments, colonial, with neoclassical and modern reminiscences; together is representative of our culture spatial data. Added to this, there are traditions and customs as conforming elements of cultural heritage. It is necessary to propose the formation of guides trustees thereof, with community members to conduct tours to disclose this heritage, through appropriate action, which in turn highlight our built heritage in its values (tangible values and intangible) to reveal our identity as people from Merida.

Keywords: *Architectural Heritage; Community; Evaluation; Dissemination*

1. Preamble

This paper is a partial product of the research called: Training guides custodians of the built cultural heritage (tangible and intangible values), with members of the community, El Sagrario parish, to implement heritage tours around the historical center of Merida, Venezuela²⁷. Its main purpose is framed within the larger historical purpose of the plan of the mother land which is to defend and protect the Venezuelan historical and cultural heritage and our American, so this research addresses the need for community organizing.

The object of attention is the historic center of the city, El Sagrario²⁸ parish, configured as a context full of architectural objects, open spaces and referential landmarks (fig. 1), where traditions and customs are added as common feature to all; therefore they constitute the supports that help rethink ourselves as citizens; and thus promote a new way to give value to cultural heritage, to assert and enhanced over time. This heritage is to become into a tool for thinking, promote and manage its recognition. For this purpose, it is necessary to create or strengthen mechanisms for dissemination actions.

On this view, the training of guides custodians of heritage arises in order to approach to history and memory of the city, through heritage tours.

In recent decades there has prevailed a vision of the cultural heritage, some cities have approached the concept of heritage in terms of promoting actions contributing to the preservation, promotion and spreading. According Fajre (2006), it is essential to search for specific options to respond to increasingly complex problems, is facing new scenarios to undertake participation, diversity and professionalism with efficiency and be able to respond to new challenges.

The various experiences at international, national and local level should allow implementing the search for concrete actions to address our complex problems today. Encourage participation and union individual efforts within the community and then invite the public and private sectors in an integrated

²⁷ The research called: Training guides custodians of the built cultural heritage (tangible and intangible values), with members of the community, parish "El Sagrario", to implement heritage tours through the historic center of Merida, Venezuela, was sent to the call for research projects and university innovation, 2013, the Bolivarian Government of Venezuela, Ministry of People's Power for Higher Education and the Ministry of Popular Power for Science, Technology and Innovation. Notably, since 2013, at present, no one has answer the call.

²⁸ The Historic Center of Merida, which is the Parish "Sanctum" is spatially bounded from 18th Street to 26th Street; and from Av. 2 Lora to Av. 8 with an approximate area of 70 hectares, also comprised of public and urban spaces as complementary elements of the private space.

action to achieve relevance spaces within a culture that promotes our heritage. In the case that concerns us, the people of the community are potential actors to act as social agents involved, which is also a law guaranteed by the Constitution of the Bolivarian Republic of Venezuela since 1999, with the aim of having a role to assist in the construction of true citizenship that generates action of interpretation of cultural heritage.

In this sense, the target of present work is forming custodians of heritage guides to achieve citizen participation driven by the community itself. As Fajre says, awareness of community is built only in the recognition of the diversity that is our own, but not from the static defense of minority participation, but much under the conviction that individual's culture contributes to collective identity. Thus, cultural property, beliefs, values and practices- which shape our identity-constituting the capital inherit and bequeath to future generations, and it is for this reason that the value of the cultural heritage of the historical center of Mérida city, can be recognized only from the deep roots and awareness that this of belongs and represents the community. Here is where the citizens training as custodians of heritage, can be alive and raise awareness and daily presence at a time when the Venezuelan cities are dangerously degrading their heritage, so community involvement is necessary, in order to let them know their heritage to love and protect it.

In addition, this action allows to generate job offers, getting not only personal income, but also to achieve greater awareness in the care and maintenance of the assets, in line with the government agencies in Merida and Venezuela to ensure, in this case, the built heritage.

2. Citizen participation

It is important to define what participation is, because its meaning involves being part of something. Rangel²⁹ says (2002) that the term participation refers to active citizens, is based on the existence of boosting involvement activities and integration among members of the community to the meeting, the shared achievement and mutual aid¹. It is in the parish community El Sagrario, the place where a sense of belonging and ownership should be developed to raise awareness to the public about the value of cultural heritage and encourage its understanding. Actions should result in significantly better quality of life of the inhabitants of the historical center, since these heritage assets in the public social space, identify the citizen, encouraging a sense of community and social interaction. Despite knowing the importance and relationship between equity and its inhabitants, there are no theoretical approaches or methodologies to integrate this aspect of participation in the management of heritage projects.

In the case that concerns us, there are no actions involving the community to participate in the care and dissemination of heritage, a heritage which today suffers damage and deterioration in its attractions, since its value is unknown to the community environment.

3. The guide custodians of heritage training

The assets of the parish El Sagrario, beyond its buildings, engage and connect people with their past and their spatiality. Several authors have worked on the community who has rights, and highlight that heritage lies in society that feels its heir, and then it requires that the social willingness to recognize is concentered, to seize and protect it as such. Although this recognition is in municipal declarations of the city, should be broad and pluralistic today, where citizens can learn about its history and values declaration.

At the local level, we can say that in Venezuela has been growing awareness and interest in the protection of cultural heritage, despite the degradation that had been presented, as a result fundamental values have been rescued for the recognition of an identity, giving a response in line with international speech which dictates the recommendations and guidelines that underpin the policies for the protection of the heritage of towns and cities. The ultimate purpose is to recognize in them the peculiar characteristics of artistic value, to identify the history of them, and evaluate not only the monumental, but to identify the symbolic, historical, iconographic and thematic values that enhance the collective memory of a community.

²⁹ M. Rangel is a professor and coordinator of the Research group on Urban Spaces (GISEP), Faculty of Architecture and Design at the University of Los Andes.

4. Overall objective for training

Propose guide custodians of the built heritage training within the parish community El Sagrario, in work between academy, community and heritage sector bodies of cultural heritage, to implement heritage tours in the historical city center; allowing exalt the built heritage, its values (tangible and intangible) in order to ensure their protection and diffusion, contributing to the construction of public relevance, that encourages ownership and identity of the local culture.

In recent years, interest in involving communities in the care of their cultural heritage has been increased. Locally our case, the policies have been aimed towards the customs and traditions therefore becomes necessary to incorporate architectural elements, public spaces and monuments, so that society begins to understand the value of tangible cultural property and intangible, as an important part in strengthening the identity of the community.

Specific objectives and actions:

- Identify and disseminate the built cultural heritage.
- Promote the tangible and intangible values of the built heritage.
- Create a catalog of heritage buildings.
- Develop a program of citizenship training.
- Determine the heritage tours of the buildings of heritage value.
- Implement the heritage tours of the historical center.
- Articulate community involvement in local political heritage.
- Promote cultural heritage as a source of income for the community.

Some of these objectives must be met in full, as is the identification and dissemination of the built cultural heritage, the historical center of the city, as the starter, so that other objectives can be met in partial achievements. While there is documentation from investigations conducted by different specialists on the heritage of the historic center³⁰, but there is not redundancy in projects, aimed to create mechanisms of action with the parish community.

The project aimed at achieving citizen participation as an active engine of care and dissemination of the built cultural heritage (tangible and intangible values) will have a mixed qualitative-quantitative approach as well as holistic, recognizing the need for comprehensive responses; being that the potential of each individual must be seen as the human ecosystem in which all conforming elements interact to achieve the desired objectives. They may establish different stages, to develop a body of ideas to consolidate the actions to follow, between community members and the entities involved. The progressive realization of the results will be satisfactory, to the extent that the actions implemented generate awareness in the identification of the citizens with the local culture, and internalize that show through the heritage tours, traces of a past that remains alive and present, is to highlight the features of our identity as a people.

5. Final Thoughts

Implement heritage tours (figg. 8, 9), led by the custodians of heritage, will highlight the peculiar characteristics of artistic value, to identify the history of them, and evaluate not only the monumental, but to identify the historical, symbolic, iconographic and intangible, which enhance the collective memory of El Sagrario community³¹ (figg. 2-7). Thus, identifying and disseminating this heritage, is an incentive in the training of human resources and the general public, tending to the care of this heritage.

The tools available to strengthen the training of guides custodians, require action between academia and the community and the state to contribute to the dissemination and care of built cultural heritage in

³⁰ Different research papers have shown the built heritage of the historic center of Merida; and publications documenting its history, art and symbolic values, among others. Both from the existing local laws, ordinances as enacted in architecture and civil constructions in Libertador District as well as the resolutions provided for buildings of architectural and urban value of Merida

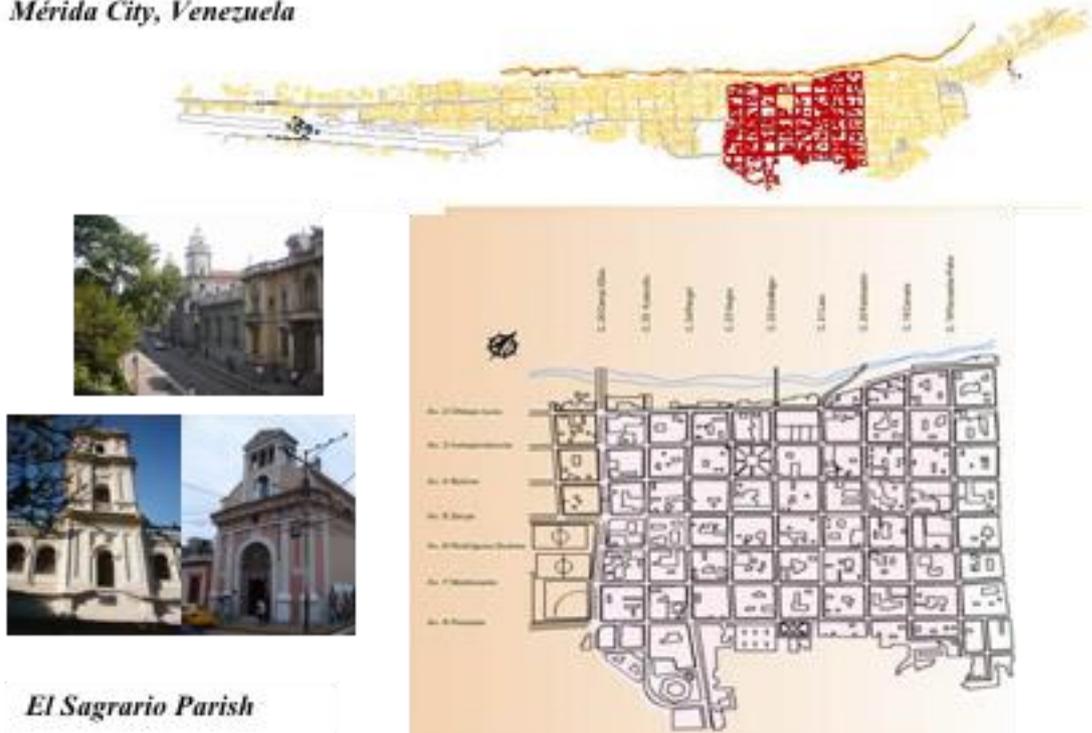
³¹ In the Master degree thesis: The Museum of Architecture of the City (2006), an inventory and catalog of the architectural heritage of the historic center of Merida, El Sagrario parish, based on the real and personal property is made, declared as part of the heritage in any category, whether Monument, Religious Buildings, Educational, Government, Medical, Civil and heritage sites of the city. The images include some examples of buildings of heritage value.

its tangible and intangible values, cultural heritage in a city where know our local history, will allow community members to appropriate the same and transmit it to all visitors. Meet the project objectives, including academics, community and government agencies, could become a model for other communities and generate resources for personal benefit; while greater public participation is achieved in the care and maintenance of these assets in line with the government agencies in Merida and Venezuela, to ensure cultural heritage.

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Mérida City, Venezuela



El Sagrario Parish

Figure 1: Historical Center.



Figure 2: Medical building

Figure 3: Civil building.

Figure 4: Education. building.



Figure 5: Governmental building.



Figure 6: Religious building.



Figure 7: Civil building.

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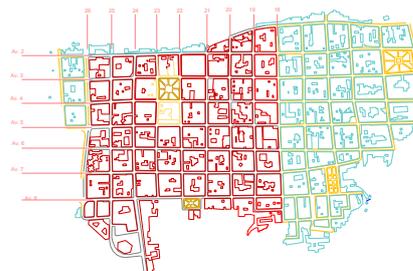


Figure 8: Religious building with heritage declaration.



Figure 9: Example of religious heritage tour implementation.

All photographs are by María Angélica Rivas Carrero.

The Indigenous Cultural Landscape of Plains Aborigine in Taiwan – The Reconstruction from Local People after Natural Disaster

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Abstract

Among all of the Austronesian Aborigines in Taiwan, Plains Aborigine was the group that interacted the earliest and most frequently with other major immigrant ethnic groups and rulers; Siraya was the earliest aborigine group to interact with the Dutch and Han Chinese because of its location on the riverside between Nanzixian River and Laonong River in Kaohsiung. Its geography also helped preserve a good amount of original Siraya “villages”. Images of Siraya in Kaohsiung was also the first Plains Aborigine in Taiwan to be recorded and presented to the world. To people in modern society, it is only part of the history; yet this history is not fading away but struggling to find back their own culture and history while surrounded by the invasion of other ethnic groups and political oppression, and is persistent to preserve their cultural heritage and hopes to be understood and respected by other ethnic groups.

After the central disaster “Typhoon Morak”, many areas where Siraya of Plains Aborigines live were undergoing the adversity. The most seriously stricken area was Siao-Lin Village, the residency area of Taivoran Group of Siraya. From the research of the reconstruction of Siao-Lin Village in Kaohsiung, the connection between old and new environments and the overall consideration to preserve their tribe culture are neglected. After the disaster, local residents contributed their efforts to rebuilding traditional culture and village; and this bottom-up approach did further influence the government’s reconstruction plan. This thesis will discuss the current cultural resource preservation of Plains Aborigines in Taiwan, and how Siraya used their own power to reconstruct their tribe culture after the strike of natural disaster.

Keywords: Plains Aborigine; Culture Landscape; Siraya; Kaohsiung

1. Plains Aborigine in Taiwan

Taiwan’s precious cultural variety is originated from the merge of cultural characters from different ethnic groups. Among the four major ethnic groups in Taiwan, there are not only Chinese Han immigrants in Ming Dynasty and Qing Dynasty (Fulao and Hakka), but also immigrants Mountain Tribes Indigenous and Plains Aborigines are both aborigines and each has different living areas, culture and religions. However because of the policies conducted by the rulers, those two tribes overlap their living areas and culture. As a result, it created a culture of variety and richness throughout history, and became part of the abundant cultural inheritance in Taiwan.

Among all of the Austronesian Aborigines in Taiwan, Plains Aborigine was the group that interacted the earliest and most frequently with other major immigrant ethnic groups and rulers. Siraya was the earliest aborigine group to interact with the Dutch and Han Chinese. Siraya is located in the wide plains in south-western Taiwan, including Tainan, Kaohsiung, Pingdong and some areas in Hualien. The narrower definition of Siraya includes the four major groups in Taijiang coastal area: Xingang Group, Mujialiwan Group, Madou Group and Xiaolong Group. The wider definition of Siraya is referred to the Siraya people in Tainan, Kaohsiung, Pingdong and immigrants to Taidung and Hualien, including Siraya Group, Taivoran Group and Makatao Group¹.

¹ Li, Paul Jen-kuei, Classification of the sinicized tribes in northern Taiwan as based on linguistic evidence, 1991.

Taivoran Group, Xingang Group and Dajiedian Groups are considered Siraya in Kaohsiung. Through visible and invisible cultural resources, all of the groups have presented the undebatable fact that aboriginal tribes do exist. Despite the influence of rulers policies and urbanization, few tribes experienced not only the decline of their own traditional religion and culture, but the frequent interaction with Han Chinese that leads to the diversity of religions and changes of tradition and culture; however many of the tribes still preserve the traditional ceremonies, lifestyle, culture, heritage and places of worship. (figg. 1, 2).

2. Plains Aborigines Stepping up to the World Stage

Kaohsiung is a wide region that has diverse geographic features, with plains, hills and mountains scattered in the area. Throughout history, Plains Aborigines were forced to move from the plains to hilly areas along the mountain. Following the development footprint of No. 3, 20 and 21 highway, the existence of Siraya villages is obvious. Along the riverside areas of Nanzixian River and Laonong River, the geographic character helped preserve many original villages. Siraya in Kaohsiung has never missed out in the history of Taiwan, regardless of historical or geographical perspectives. To be more precise, it has always taken an important role for being the first area to be recorded and presented to the world. In 1871, British photographer John Thomson followed missionary Dr. James L. Maxwell and entered Presbyterian Church's parish in the Plains Aborigines area. The three parishes of Dr. James L. Maxwell are located in the Plains Aborigines area, the Eastern Church in the first parish covers Bama (Zuozheng, Tainan), Gangzilin (Xingshi, Tainan), Mucha (Neimen, Kaohsiung), Jiaxianpu (Jiaxian, Kaohsiung), Jibeishua (Donghe, Tainan), Fanzitian (Longtian, Tainan); all of the above are the residency areas of Siraya. John Thomson photographed Siraya people's faces, clothes, lifestyles, houses and surroundings and published them in the book "Illustrations of China and its people", as shown in figure 3 and figure 4², which helped presented Taiwan aborigines to the world. To people in modern society, it is only part of the history; yet this history is not fading away but struggling to find back their own culture and history while surrounded by the invasion of other ethnic groups and political oppression, and is persistent to preserve their cultural heritage and hopes to be understood and respected by other ethnic groups.

3. Cultural Heritage Preservation and Cultural Landscape

"Operational Guidelines for the Implementation of the World Heritage" divided cultural landscapes into three categories: landscape designed and created intentionally by man, organically evolved landscape and associative cultural landscape. On the other hand, the Cultural Landscape Foundation at National Park Service in the USA considers there are four categories of cultural landscapes: Historic Sites, Historic Designed Landscapes, Historic Vernacular Landscape and Ethnographic Landscape. According to the definitions above, cultural landscapes can be divided to two main categories: conceptional description of the interaction between people and nature, and detailed description of the industry, myths and history of the cultural landscapes. In 2005, Taiwan amended the Cultural Heritage Term and added the category "cultural landscape". It legalized cultural landscape as one of the cultural resources and further connected to the trend to preserve cultural heritage in the world.

4. Natural Disaster and Community Reconstruction

In August, 2009, Typhoon Morak stroke Taiwan and brought in over 1,000 milliliters of rain on a single day, which broke the record of the highest amount of rainfall recorded on a single day in history. Siao-Lin Village in Jiaxian District, Kaohsiung underwent a serious disaster at 6:09 am on August 9. Xiandu Mountain of 1,445.1 m instantly collapsed and masked the 9 to 18 lin neighborhood in Siao-Lin Village. It took 463 lives and caused a lot of debris to block the Nanzixian River channel, and thus formed a large lake which enclosed later on. It was a central disaster that shocked the world.³ The reconstruction work after Typhoon Morak went through twists and turns. From "Wulipu Permanent House" to "Tzu Chi Love Park" and "Wulipu Second Base-Siao-lin Second Village", the reconstruction work was finally completed in August in 2010. There were 276 permanent houses built

2 John Thomson, *Illustration of China and Its People*, 1873-1874.

3 Hung, Shu-Fen and Liu, Yijun, "Post Morak Typhoon Disaster Planning and Reconstruction for Shiao-lin Village", 2010.

in three new communities. Recalling the reconstruction, the support network was built between central government, local government, Siao-Lin Village residents and relevant non-governmental organizations. However, a gap regarding role definition and overall goals occurred in the network. Two years before the reconstruction, the network in Siao-Lin Village stumbled upon people's opinion, resources, policies, power, ethnic groups, culture and industries; yet the reconstruction focused on the positive and generative influence of economic benefits, power of mercy, fairness of policies, social impression.⁴

From the building of permanent houses to execution of policies for the construction work of Siao-Lin Village, there are possibilities and impossibilities, and conflicts and compromises, such as the reconstruction ideology in the community plan and the space arrangement designed by professionals. From Siao-Lin Village resident's point of view on reconstruction, they want to count on themselves to find a new life after the disaster and to rebuild the village they remember by themselves. That power comes from the unique historical background and culture in Siao-Lin Village and the resident's affection for the land, and the group's mutual goal to preserve their culture. It also formed the recognition to reconstruct Siao-Lin Village to its original. The new environment and the group's motivation to preserve their culture come from Siao-Lin villager's true and precious power to reconstruct that worths recognition.

The reconstruction built the original Siao-Lin Village into three new villages, but each one of them only represents one-thirds of its most original. In the village's activities, three villages each formed their own groups, such as the drum and drama performance in the first village, the dance and drum performance in the second village, and the spring plow performance in Siao-Lin Village. Attending the cultural performance, all of the group members not only form their unique culture but also rebuild the original Siao-Lin culture and live with it. Siao-Lin villagers form the bond with the village through culture, and bring back their Plains Aborigines culture through cultural activities. (fig. 5).

5. Conclusion

Siraya's cultural landscape in Kaohsiung evolves around its representing element, public shrines. It is also evidence of the moves in the past due to historical events and political factors. The public shrines usually located independently in the countryside, hills and forests, which formed a unique feature in the space. The public shrines along the riverside of Erren River, Nanzixian River and Laonong River are located in the boarding areas and forests, and became a part of the temples for Han Chinese. They merge with the surrounding environment and landscape, representing the positive interaction between villagers' lifestyle and the ecological environment. The annual night ceremonies for Siraya are how they preserve their traditional culture. They still follow the rituals and ancestor's religion is the invisible cultural treasure when evaluating the value of their cultural landscape. Looking at the landscape from people, events, places and objects, it should be considered the ethnographic landscape category. Besides the intimate interaction between and the mysterious religion of aboriginal and Han Chinese culture, it has the characters of "gradually evolved landscape" and "associative cultural landscape".

After the Typhoon Morak disaster in 2009, many areas where Siraya of Plains Aborigines live were undergoing the adversity. The most seriously stricken area was Siao-Lin Village, the residency area of Taivora Group of Siraya. From the research of the reconstruction of Siao-Lin Village in Kaohsiung, the gap between the execution by governments of all level and the expectation of the villagers is noticeable. The gap mainly comes from the recognition of community reconstruction. The supplier focus on the physical housing construction and building permanent houses, and aims at the amount of houses built, the interior space of the houses, the public facilities in the community but neglected the people's and tribe's culture, the ecological environment or overall consideration on how to avoid invisible conflicts of the culture. It is not a mere physical object that is neglected in reconstruction of a community, but the whole villager's culture, religion, lifestyle, production mode, social relations and ethnic borders should all be taken into consideration. During the five-year period of reconstruction, Siao-Lin villagers devoted their own efforts and participated in physical and virtual reconstruction,

⁴ Hung, Shu-Fen, "Reconstruction of Shiao-lin Village from Social Perspective", 2010.

which helped to bring the focus of reconstruction to combine people and environment. This include preserving the Siao-Lin Village terrain; the hardware construction of the ancestral worship and memorial park for the unfortunate ones who have died during the disaster and the reconstruction of three permanent housing communities, the Siao-Lin Heritage Museum, the Siao-Lin Elementary School, etc.; searching for the remaining agricultural lands and replant the traditional plants such as turmeric, bamboo shoots, and chicken horn (thistle) that are vital to the villagers' lives; the software reconstruction of the Plains Aborigine Night festival music group, the traditional cultural troupes such as the drum performance of the Siao-Lin Village, and the spring plow performance; and reestablishing the life culture of the Plains Aborigines and dance performances so beloved by the clan. Through architecture and ethnic culture reconstructions, an inseparable link has been created between the most important carrier (people), the land, and the environment. It is the only way to preserve and development their culture permanently, and the only way to continue their culture after the strike of the disaster.

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Figure1: The night_ceremony in Siao_Lin Village, 2008 Resource: Author's Photo.



Figure 2: Aliguan Konkai, 2013 Resource: Author's Photo.



Figure 3: Image of Siraya in Kaohsiung Lakuli
Resource: John Thomson, 1873.



Figure 4: Image of Siraya in Kaohsiung Baksa
Resource: John Thomson, 1873.



Figure 5: The Plains Aborigine Night festival of Siao-Lin Village after Tayphoon Morak., 2013
Resource: Author's Photo.

Tree Success Stories & Community Strategies: New South Wales & Victoria

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Abstract

This paper examines examples of South-east Australian community-led or community-involved projects focused on trees in public open spaces, where better results came from consultation. It cites case studies of memorial plantings on The King's Highway bisecting Braidwood, between Canberra to the coast and on the former main highway east of Tamworth on New South Wales' central tablelands. Types of tools for government to engage the community are listed.

This paper examines an example of a South-east Australian community-led or community-involved project focused on trees in public open spaces, where better results came from government consultation.

Keywords: *Community Strategies; Trees; Success Stories*

1. Braidwood and the King's Highway trees

The case study is memorial plantings along *The King's Highway* which bisects Braidwood, an historic Georgian-era grid town on the road from Canberra to the coast. Braidwood is the only historic town listed on the New South Wales State Heritage Register, partly for its intact grid and housing stock, partly for its approach roads and ability to be 'read' and 'seen' in its high, spare tableland landscape.

A number of accidents and deaths led the NSW Roads and Maritime Authority to study hazards on sections either side of the town lined by memorial avenue tree plantings. The '*King George V Memorial Avenue*' was planted through community subscription and affection for the ruling King in 1936. It comprises groups of Lombardy (*Populus nigra* 'Italica'), black (*P.nigra*) and golden poplars (*P. x canadensis* 'Serotina Aurea')(fig.1) and pin oaks (*Quercus palustris*). The plantings are held in high esteem by the community. The pin oaks were added in 1984 to fill in gaps in surviving trees.

Community reaction to the proposed tree removals was strong and this led to a re-think by the proponent, the NSW Roads and Maritime Authority. A more community-consultative approach was taken, using public meetings and workshops, landscape architects and others to help to form options for the avenue's partial replacement in stages, road widening, inform decisions on which tree species to replant with, devices to slow traffic etc.

Regarding the management of the Kings Highway trees, crashes and road fatalities, the community were approached by Roads & Maritime Services staff directly through community workshops and open days, to explain relevant safety issues (speed, trees close to the road, driver behaviour, varying road environment, increased traffic volume), look at road and verge design and treatment options for replacement, canvas the best tree species (for the montane climate, soil, conditions, low ongoing branch drop and maintenance habits), staging of new plantings, best spacing of planting distances, etc.

These formats allowed calmer discussion of issues, explanation of options, a voicing of public attachment and valuing of the trees and their commemoration or other values. It also allowed concentration on the trees' current conditions and their heritage significances.

Options such as wider spacing, further distance of new trees from the road edge, planting inside or in places outside the road corridor (on private land, with owners' agreement) could thus be canvassed

and agreed. Variations where conditions required it to accommodate ditches, culverts and drives were agreed. A tree management plan by Corkery Consulting covered propagation, planting and after-care over a long time period.

Working cooperatively led to better understanding and ownership of options for renewal and replanting, a high take-up and support for the ongoing tree management plan, involving the community in the replanting stages, but also in ongoing tree or verge maintenance and public celebrations.

The community were given chances for input to influence the chosen outcome. Opportunities for involvement in replanting, maintenance, public ceremonies to mark re-plantings were canvassed. These tactics built community trust, ownership, involvement and support for the plantings' future. This inclusive approach seems useful for a wider application.

2. King George V Memorial Avenue, Tamworth

Tamworth's King George V Memorial Avenue of oaks line the Old Nemingha Road (the former New England Highway entrance into town) on its eastern side. Planted with community tribute to a well-loved late King in 1936, it comprises English oak (*Quercus robur*), planted closely to form a tunnel over the road, on a flood plain in good soil. This has resulted in magnificent trees and effect, although the highway was rerouted in recent decades, leaving this as a back country road.

Council was considering approving semi-rural subdivisions of land at the end of the avenue, flanking the town. Their enthusiasm to approve subdivision required (advocates claimed) road widening of the impressive oak avenue to enable two cars and trucks to pass safely.

Given the public's love of this quiet, idyllic rural road for running, walking, horse riding and quiet enjoyment, this proposal raised ire: it seemed to require removal of half of the avenue. Options such as splitting a new road around the trees and planting a third (new) line were rejected. A lack of consideration of alternative access roads (meaning no need for this widening) led to a lively community campaign (fig.2) to force Council to rethink before any approval.

The community used social media tools Facebook, You Tube, WordPress web-blogs, online petitions (www.communityrun.org/petitions/save-king-george-v-avenue) and local (radio and print) media – including local celebrities, to urge Council to review options for retention, alternative access and more. The community, later with Council support, nominated the avenue for NSW State Heritage Register-listing (which has now come to pass). A plan of management has been prepared and the future looks more secure for this avenue and its community of appreciation. Tools used in the campaign reflect the potential power of social media and the internet, which are quick, inexpensive and un-regulated by local government!

3. Government tactics and tools

Tactics and tools that local government (Councils) can use to be pro-active with managing trees in public open spaces and along roads are outlined below. These are presented as generic 'types' of tools, rather than itemising specific ones. They are taken from successful examples of Councils around NSW. Some are more 'expert' or 'top-down' processes, such as conducting a survey of significant trees. Others are more 'community-based' or 'bottom-up' processes outlined below:

- 1) running public **workshops and meetings** or small group discussions to ask people what trees they value, why and what should their local government be doing about it;
- 2) public **exhibitions** with interactive feedback encouraged, as a way of raising awareness of trees in an area, educating about their species, age, significance, asking the community if it values them. Ideally, located in high-use public areas: shops, libraries;
- 3) **website** pages (doing likewise as 1 & 2 above); and
- 4) **posters, brochures, mail outs** to residents (doing likewise as 1 & 2 above).

4. Legal tools for Governments

Legal tools are open to governments to protect and actively manage trees. These include statutory heritage-listing individual or groups of trees, such as (in NSW) the State Heritage Register or Local Environmental Plans.

They include a range of broader, ‘policy tools’ such as Significant Tree Registers covering a list of individual trees, generic ‘Tree Protection Orders’ covering all or the majority of trees in an area. They also include more flexible new tools such as generic or blanket Urban Forest policies covering a whole area. These seek to increase tree canopy over suburbs and districts, lower the urban heat effect, increase amenity and attract wildlife. With increasing infill and density of settlement, these will become more important.

Local Government Councils use the following main tools in NSW:

- 1) **Significant Tree Registers** (individual/group tree listings, usually requiring permit approvals for works such as major pruning/removal);
- 2) **Tree Preservation Orders** (giving blanket cover, e.g. all trees over 5m tall in an area);
- 3) **Urban Forest Policies** (applying to a whole Council area, e.g.: Sydney City; Ryde, Orange);
- 4) **Local Environmental Plan listing**, as local heritage items (individual or groups of trees, or trees as part of a listed item like a garden, park or street tree planting) or conservation area listings (where trees form part of an area’s character and historic fabric);
- 5) **Development Control Plan** – guidelines for designing local development, encouraging the planting of a particular palette of trees, shrubs, in particular locations, to maintain character. These are useful ongoing policies to inform new owners and replanting decisions to ensure character and planting palette are maintained over time.

Most of the above rely on prior studies, usually by an arborist, horticulturist or heritage consultant, surveying the trees of an area. Periodic re-visiting of such studies is important as trees age and die, other plantings mature and take on character or significance (perhaps overlooked in earlier studies). Annual monitoring is often required of all significant trees as good practice management, informing necessary maintenance or public safety (e.g. pruning heavy or ailing branches overhanging high-use public footpaths or places).

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Figure 1: Lombardy and black poplars line the King's Highway, Braidwood. Closeness to the road and other factors causing accidents and deaths has prompted change. (Photo: Leigh Trevitt, reused with permission).



Figure 2: Tamworth community protest at the King George V Memorial Avenue, objecting to road widening proposals requiring removal of one side of its oaks. (Photo: Christine McKinnon, reused with permission).

Conserving the Built Heritage of Shekhawati: a Case for Social Involvement

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Abstract

Heritage can best be preserved if it is connected to the community that shaped it. Shekhawati boasts of a distinct heritage deeply rooted in its culture. Several towns in the region are strewn with beautifully painted buildings. Built heritage is however crumbling. Efforts made by Government to undertake conservation and promote tourism have not achieved much on ground. The biggest challenge in preservation has been bringing together various stake holders on a common platform. A unique campaign *Shekhawati Virasat Abhiyan* has for the first time made an effort to reach out to the local community.

Keywords: *Built Heritage; Conservation; Community Participation*

1. Introduction

The need for conservation arises from the desire to protect and prolong the existence of inherited collective cultural memory and its physical manifestations. This inheritance poses a dual challenge. The challenge lies not just in preserving it but also in ensuring its continuity in the future especially when the culture and communities whose assets they were are no longer in existence or have been drastically transformed. In such extreme scenarios it is not prudent to expect communities to mobilize themselves in order to conserve their cultural assets especially when their linkages both physical and emotional with the assets have been greatly transformed. Conservation and sustenance of such heritage assets by external interventions also seems to be unviable and not feasible in the long run. Stuck in this dead end scenario much of our privately owned heritage assets especially in a progressive country like India, where heritage legislations and laws are still either in their formative stages or have not been adequately implemented and finances being meager, are constantly facing countless threats to their existence. This paper explores the best way forward through a living example of conservation of built heritage of Shekhawati which highlights this dichotomy.

2. Understanding Shekhawati's Heritage

The Shekhawati region in the state of Rajasthan in India is referred to as an 'open air art gallery' in tourism circuits. It is a semi desert region that has a distinct heritage deeply rooted in its culture. Apart from a vibrant living tradition of folk dances, music, cuisine, costumes, fairs and festivals, several towns in the region are strewn with beautiful *havelis* (mansions), temples, shops, *chhatris* (cenotaphs) and water harvesting structures such as wells and tanks (fig. 1). The region boasts of the largest concentration of buildings adorned with murals anywhere in the world. Its heritage is spread not over just a few towns and villages but encompasses an entire region covering three districts with an approximate area of 30,000 sq km. This remarkable architectural wealth of Shekhawati has drawn international attention and over the years the region has achieved the status of an important cultural tourism destination figuring prominently in the itineraries of international visitors (fig. 2). Rolling sand dunes, natural scenery and painted *havelis* set in a rural hinterland captivate the tourists. Beautifully painted buildings especially *havelis* are the *raison d'être* for it being referred to as an 'open air art gallery' (fig. 3).

3. Need for Conservation

Towns and villages in the Shekhawati that once flourished on account of trade today bear a deserted look with most of the main business families, the *marwaris*, who built the magnificent buildings having migrated to major metropolitan cities in the country. Shekhawati *havelis*, mostly built in the time period between 1850s and 1930s have withstood adverse conditions but today in the midst of a greatly transformed environment they face an uncertain future.

In absence of owners *havelis* are in a derelict state. A significant number of *havelis* are locked. Several *havelis* are in possession of caretakers and tenants, who neither have any emotional bonding nor have the requisite technical know how and financial means to take care of them. Also some of the *havelis* have as many as 15-30 owners laying their stake on the property. Divided inheritance has resulted in little interest in the fate of these family mansions, apart from veto power which has accentuated with the influx of foreign tourists. These locked *havelis* languish in the absence of any maintenance and repair work and are in a complete state of disrepair with natural agents of decay causing untold damage.

Insensitive use has further aggravated problems. Modern infrastructure mindlessly inserted in *havelis* has also damaged beautifully painted surfaces (fig. 4). Spaces in several *havelis* have been insensitively converted damaging painted facades. New openings have been mindlessly created (fig. 5). Advertisements ruthlessly painted on the exterior walls of *havelis* and indiscriminate pasting of posters, writing of social and political messages including casual graffiti have damaged some of the beautiful paintings beyond repair. Lack of adequate watch and ward has also lead to several incidences of theft of precious wooden architectural components. In addition lack of regular maintenance and management of *havelis*, technical support, insensitive repair work, use of modern materials, inadequate knowledge of construction techniques and skills, non-availability of traditional building materials and trained craftsmen are other crucial factors that pose a serious threat to the existence of this invaluable traditional housing stock. Issues at the macro level have also adversely impacted heritage buildings. Increased vehicular traffic in the historic core poses a constant threat to *havelis*. Lack of adequate management of water supply, maintenance of roads and solid waste management has impacted quality of life of the residents and visitor experience in the historic areas. Public apathy and insensitivity towards the preservation of *havelis* is another cause for serious concern. Rise in real estate values is threatening existence of *havelis* and complicating matters further. Many *havelis* are now deliberately not being maintained so that they can be declared unsafe and can be easily demolished to make land available for new construction since there exist no regulations to prevent their demolition (fig. 6). The land thus reclaimed is being used to construct new modern commercial complexes using glass and steel. These modern buildings not only wipe out an important link with the past but also are totally out of context marring the visual appeal of the historic area.

Shekhawati in the last decade has witnessed a surge in tourism activity but this phenomena while promoting the heritage assets in the region is also posing several problems. *Havelis* having become new attractions for visitors are increasingly being appropriated by increased tourism activity in the region triggering their conversion into heritage hotels. Quite a few *havelis* have been converted into hotels unfortunately without paying adequate attention to their authentic character, significance and traditional construction technology. New tourism entrepreneurs are oblivious of the damage that they are causing to beautiful *havelis*. Lack of an adequate legislative framework for heritage protection in the Shekhawati region has been a big limitation. *Havelis* constituting bulk of the traditional housing stock are the most vulnerable of all the built heritage assets largely on account of being unprotected. Being privately owned they are out of the purview of direct government intervention as far as their preservation, repair and maintenance is concerned. With each passing day painted buildings are falling apart and frescoes are crumbling to dust erasing some very significant memories of a rich cultural region. The trend is very dangerous and if it continues much of the heritage assets of Shekhawati will soon be lost. In the absence of an enabling framework for safeguarding and conservation of heritage assets, *havelis* in Shekhawati are constantly at risk.

4. Actions for Conservation

With much stake in tourism in Shekhawati, the State Government has time and again taken upon itself the task of planning interventions for infrastructure development and visitor facilitation. In 2007, in one such major exercise a comprehensive heritage mapping of three districts of Jhunjhunu, Sikar and Churu that constitute the Shekhawati region was undertaken. Detailed development plans for five towns in each district covering the sectors of heritage conservation, infrastructure and tourism development were prepared. In all more than 2,800 heritage properties were listed and mapped. Concrete strategies for infrastructure and tourism development were enlisted. However subsequent to the preparation of the plans not much could be achieved on the ground due to lack of synergy among various stake holders. Other than few projects for conservation of public heritage properties such as well and water tanks and providing basic amenities such as paving of roads, construction of public toilets, signage and street lighting that were undertaken none of the major problems with regards visitor facilitation, garbage, solid waste management and traffic management could be addressed. Initiatives totally ignored the core issue of protection and preservation of the privately owned *havelis* and revival and sustenance of traditional building crafts and craftsmanship. Most of the interventions were undertaken in isolation without involving the local community thereby giving rise to a lot of conflict and dissatisfaction amongst stakeholders.

5. Starting a Grassroot Initiative

Preservation of traditional housing is not a priority especially in the context of other critical problems being faced by cities and towns. Painted *havelis* of Shekhawati are no exception. They are an ideal case highlighting the urgent need for safeguarding unprotected heritage assets and the much neglected social dimension of heritage conservation.

Armed with a strong conviction that people are central to heritage conservation and need to be encouraged and empowered to participate in the process of conservation the author for the past several years has been engaged with the conservation of traditional buildings especially *havelis* in Shekhawati both in an individual capacity and as a consultant to the State Government of Rajasthan and UNESCO, New Delhi Office. As a follow up to the Development Plans prepared by the author for the State Government, a pioneering concept note detailing out a comprehensive framework for conservation in Shekhawati titled '*On the Merchants Trail in Shekhawati*' was developed by the author as part of the Indian Heritage Passport Program of UNESCO, New Delhi Office. This document of crucial importance set out the vision and blue print for conservation and tourism development in Shekhawati region. It highlighted the need for preservation of the rich cultural wealth of the region and stressed on the need to promote responsible cultural tourism and heritage based development.

However the biggest challenge in preserving the heritage of Shekhawati has been to bring together various stake holders on a common platform and synergize their efforts. In line with this vision and with the objective to bring together owners and craftsmen the author initiated a grassroot initiative in association with the Department of Science and Technology, Government of India and UNESCO New Delhi Office. A detailed project focusing on *havelis* and revival of their traditional building construction technology and ornamentation techniques was planned and undertaken. As part of the project a unique campaign, *Shekhawati Virasat Abhiyan*, for preserving the *havelis* of Shekhawati was launched. Keeping in mind that people are central to heritage conservation both as patrons as well as custodians of heritage several initiatives were undertaken as part of the campaign to encourage and empower them to participate in heritage conservation. Participation of owners, caretakers and users in the conservation process is of crucial importance for undertaking a lot of preventive conservation activities that can ensure effective utilization of the limited financial resources available for such works.

The campaign *Shekhawati Virasat Abhiyan* for the first time made an effort to reach out to the local community. As part of the campaign a Haveli Owners Awareness Program and a Craftsmen Training Program was initiated to address the problems being faced by *havelis*, extend technical help to haveli owners and upgrade traditional skills of local building craftsmen. Under the Haveli Owners Awareness Program, orientation workshops for *havelis* owners, caretakers and users were organized. Owners, caretakers and users were sensitized towards the urgency for conserving *havelis* and the benefits accruing from it. They were apprised of the need for adaptive reuse, sensitive retrofitting, efficacy of

periodic monitoring, regular repair and maintenance of *havelis*. As part of the program a Haveli Owners Awareness Kit comprising of twelve Conservation Notes was published (figg. 7, 8). Since quite a few owners as a matter of practice undertake repair and repainting works the kit was aimed at reaching out to these owners for raising awareness and developing an understanding of the guiding principles of conservation, repair and maintenance of *havelis* so that repair works could be undertaken sensitively. The kit introduced a scientific understanding of traditional construction techniques and processes amongst the users of *havelis*. It familiarized the owners and occupants with the process of preventive conservation and highlighted the need for regular repair and maintenance of *havelis* instead of one time expensive restoration projects.

The Craftsman Training Program on the other hand was primarily developed for local construction workers and focused on awareness generation, developing scientific understanding of traditional processes, upgrading skills and encouraging them to learn traditional building skills. Building craftsmen were encouraged to learn traditional skills as a strategy for both revival and sustenance of traditional construction technology and for augmenting their opportunities for livelihood generation. The program included reviving traditional technology of lime plastering through awareness workshops and hands-on training in Shekhawati. Training workshops were focused on wall plasters, the most outstanding feature of *havelis*. Also as part of the program a Craftsman Training Kit comprising of a series of five Conservation Notes and a Code of Practice for Traditional Lime Plastering and Ornamentation Works as per Shekhawati Practice was published in the local language (fig. 9). The Conservation Notes written in Hindi language provided technical information about traditional wall plasters, problems, symptoms of decay, causes for deterioration, disadvantages of using cement in repair of traditional buildings and benefits of using lime. The Code of Practice, a very important piece of document, detailed out specifications of materials and step by step processes of application of various types of traditional wall plasters used in Shekhawati *havelis*. The Craftsman Training Kit compiled in Hindi language is the first of its kind in the country aimed at encouraging local construction workers to not only learn execution of traditional lime plastering work but also understand the basic problems affecting *havelis* and correct methodology to undertake repair works (fig. 10). *Shekhawati Virasat Abhiyan* promoted a preventive approach for minimizing deterioration of the rich architectural wealth of the region by closely working together with building craftsmen, owners of heritage buildings and local residents. The Haveli Owners Awareness Program and the Craftsman Training Program initiated as part of the campaign are a first of their kind in Shekhawati. Both the programs aimed at encouraging and empowering the local people of Shekhawati to participate in heritage conservation activity and enable them to take informed decisions before undertaking any interventions.

6. The Way Forward

Government and local authorities have a critical role to play both as a coordinator and facilitator for conservation and promotion of responsible tourism in Shekhawati. It is imperative for the Government to build a network of stake-holding partners, start a dialogue with various stake holders, promote communication and public awareness, develop local institutional capabilities and above all initiate training and traditional skill development of local construction workers in the region. Haveli owners need to be actively involved in tourism development in the region to help promote responsible cultural tourism. They need to be persuaded to sensitively reuse their *havelis* and willing owners need to be facilitated to develop their *havelis* as home stays. Simultaneously people involved in the construction trade also need to be made aware of the necessity for acquiring traditional construction skills which can open up new opportunities of income generation for them. Craftsmen need to be encouraged and supported to hone their traditional skills as knowledge of local building crafts can play a vital role in ensuring authentic repair and maintenance works. Sensitization, capacity building and training workshops need to be conducted for them.

All these interventions however require close collaboration between various stake holders. Shekhawati's heritage can be meaningfully conserved only with the active support, participation and close collaboration of all stakeholders viz. the state and central government, local civic bodies, owners, caretakers, tenants, local craftsmen and visitors. Partnerships between different stakeholders

at all levels of policy and intervention need to be forged. An ecology of new enterprise needs to be developed in the region. Owners and caretakers of *havelis* need to be encouraged to become custodians of heritage rather than being mere onlookers, local authorities need to evolve into managers from being mere administrators, visitors need to act as new responsible patrons rather than just being tourists and craftsmen need to be encouraged to become entrepreneurs for ensuring revival and sustenance of traditional building crafts.

It is hoped that the campaign *Shekhawati Virasat Abhiyan* initiated by the author would act as a pilot and a catalyst to kick start participatory heritage conservation in Shekhawati. When taken up on a large scale by the State Government the campaign can help two most crucial stakeholders, owners and craftsmen to come together and help them acquire requisite technical knowledge to proactively participate and contribute to conservation. In the interim that the State Government takes up the campaign, the author as a personal initiative has taken up the task of setting up a Cultural Resource Centre in Shekhawati to provide continuum to the various programs initiated as part of the campaign. The proposed Cultural Resource Centre intends to fill the gap in communication between various stakeholders by playing the role of a mediating agency and providing them with a common platform for discussion and discourse.

Well informed owners of *havelis*, skilled craftsmen, responsible visitors, proactive residents and most importantly local authorities as managers and facilitators can play the role of agents of change and begin an era of participatory conservation and management of irreplaceable heritage resources in the Shekhawati region. Building successful partnerships with local communities would go a long way in helping preserve the rich cultural legacy of Shekhawati. Social involvement seems to be the only and the most effective and sustainable way of achieving this.

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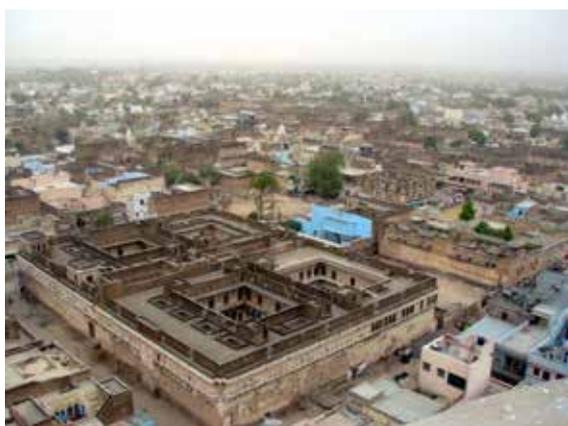


Image 1: Rich built heritage of Shekhawati.



Image 2: Imposing and sprawling havelis.



Image

3: Havelis with intricate frescoes. Image 4: Inadequate insertion of services



Image 5: Insensitive additions and alterations. Image 6: Deliberate demolition of havelis.

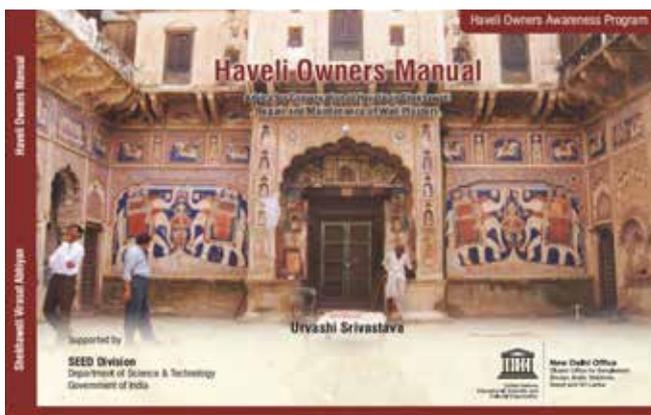


Image 7: Haveli Owners Manual.

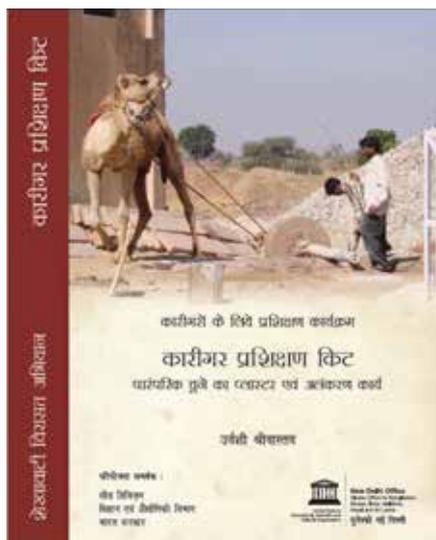
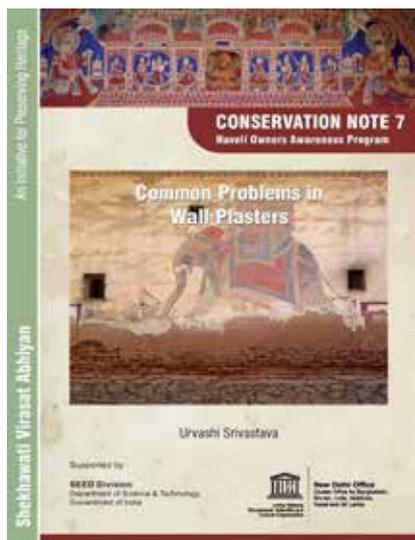


Image 8: Haveli Owners Awareness Kit. Image 9: Craftsman Training Kit.



Image 10: Training Workshop for Craftsmen.

Paleontological Landscape “Breal de Orocuál” a Pleistocene Tar Pit Reservoir (2.500.000-11.784 BP)

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Abstract

Orocuál is an oil field in eastern Venezuela. In 2006 during excavation oil workers founded an important paleontological deposit. Since then, PDVSA La Estancia, cultural and social branch of PDVSA, had been working to create a paleontological park with cooperation of rural communities. Project evaluates scientific and social aspects to develop programs for paleontological, geological and archaeological training based on social organization. Scientifics has revealed that remains from Orocuál date from the Pleistocene (2.500.000-11.784 B.P.) and have found more than thirty vertebrates species.

Keywords: *Paleontology; Geology; Social; Community*

1. Paleontology as an empowering mean

PDVSA La Estancia, the cultural and social branch of PDVSA, the Venezuelan oil company had been working to create a paleontological park with cooperation of Orocuál rural communities a cluster of villages located at Maturín Municipality in Monagas State (fig. 1). The project evaluates the scientific and social potentiality of the region to develop programs for education in paleontology, geology and archaeology, as for ecotourism. Scientifics has revealed that animal remains date from the Pleistocene (2.500.000-11.700 B.P.) and have found more than thirty species as, rodents, giant sloths, glyptodonts, mastodons, saber tooth cats and dire wolves¹.

Experts whom visited Orocuál concluded the site was exceptional for studying biological and landscaping changes in the last 2 million years. PDVSA La Estancia promotes social and economic progress for surrounding communities as inheriting of a landscape were paleontology and geology are a mean for empowering and a way to spread the interest for natural heritage through formal education and recreation.

In June 2006, during exploration works at well ORS-16 in the area known as “Breal de Orocuál”, personnel of Petróleos de Venezuela, PDVSA, reported the outcrop of macrofossils that had been preserved in asphalt. Studies performed have identified 34 different species of vertebrates from the Pleistocene (2.500.000-11.784 BP), such as tapirs, peccaries, horses, camels, opossums, armadillos and giant anteaters, as well as snakes, turtles, water birds, sparrow hawks, vultures, ducks, giant sloths, porcupines, rats, capybaras and remains of saber-toothed cats (*Homotherium venezuelensis*) that have never been reported before^{2,3}.

2. Oil exploitation history and paleontology

Orocuál is an area with a unique significance for the oil industry. In 1912, a group of geologists interested in oil accumulations discovered mud and oil flows in the area and in 1918, Caribbean Petroleum Co. (Shell Group) drilled for the first time in Orocuál wells Molestia and y Molestia 2 (the deepest of that time, 3240 feet). Toward 1958, development works in Orocuál oil field, which occupies an extension of 230 Km²; commenced; the first exploration (well ORS-1) proved the presence of crude oil of 13° API; well ORS-16 was drilled in the place of the paleontological findings, in the area known as Merecure.

Wells ORS-16 and ORS-20 are located at coordinates U.T.M. 20P 463.989 1.088.839 and 20P 464.402 1.088.767, respectively. At both sites, multiple fossils of extinct fauna are found which,

¹ (Rincon, 2006).

² (Holanda & Rincon, 2011).

³ (Rincon, Prevosti & Parra, 2011).

according to research, could belong to the Pleistocene (2.500.000-11,784 BP). These fossils were discovered in June 2006, during the excavation of a trench for the laying of an oil pipeline at ORS-16 and, later, in 2011 in ORS-20. Starting 2006, PDVSA, aware of the importance of this paleontological deposit, stopped oil exploration activities in the area. On the same date, the Institute for Cultural Heritage and the Venezuelan Institute for Scientific Research were informed about the existence of the deposit. As a measure to protect the natural heritage, the route of the oil pipeline was changed.

In 2007-2008, PDVSA Exploración & Producción, entity responsible for the management of oil operations in the area, urged PDVSA La Estancia, as PDVSA's affiliate engaged in activities related to social, cultural and patrimonial areas, to assume a commitment to articulate, promote and coordinate the Plan *Gestión Integral del Breal de Orocual* (Comprehensive Management of El Breal de Orocual). To this end, the competent institutions and the twelve communities in the immediate surroundings of the site were invited to become involved. Since then, PDVSA La Estancia started actions aimed at the preservation, custody and dissemination of this significant finding, which subsequently, in the mid-2007, would be certified by PDVSA, IVIC and IPC, as "the second record of vertebrate fossils preserved in tar in Venezuela," after Mene de Inciarte, in Zulia State.

Once the management of the site was consolidated, the fossil remains that emerged in 2006 as a result of excavations to install an oil pipeline were partially and non-systematically recovered. This activity resulted in a scientific collection of more than 4,500 vertebrate fossils from the Pleistocene, which were provisionally catalogued under the initials OR and are actually under custody by IVIC. In 2008, PDVSA La Estancia collaborated with PDVSA E & P to install a provisional protection to the fossil-bearing trench and promoted the construction of a security booth to safeguard the site (fig. 2).

At the same time, the involvement of the twelve nearby communities was promoted to guarantee stronger knowledge of, dissemination and protection of the place. In November of the same year, the 1st International Meeting on "El Breal de Orocual", coordinated by PDVSA La Estancia, IVIC, IPC, was held. This event was intended to assess the current situation of the deposit, propose proper logistics for its consolidation, digging and study, obtain expert opinions by paleontologists on the relevance of the deposit and reach the communities and promote their protection in the Comprehensive Management of the Site.

The meeting brought together representatives of PDVSA La Estancia, PDVSA E & P, U.S. National Park Services, Universidad and Museo de La Plata, Argentina, National Autonomous University of Mexico, George C. Page Museum of La Brea Tar Pits, Los Angeles, California, Natural Sciences Museum Bernardino Rivadavia, Buenos Aires, Argentina, Universidad Complutense de Madrid, Federal University of Rio Grande do Sul, Venezuelan Institute of Scientific Research, Simón Bolívar University and University of the Andes.

In June 2009, the headquarters of PDVSA La Estancia hosted the first exhibition of "El Breal de Orocual," which was transferred in September of the same year to PDVSA E & P in the city of Maturín. In November 2009, the exhibition was presented in Mateo Manaure Museum also in Maturín and then in the Community of Mangos de Orocual, for the twelve surrounding communities. The exhibition provided the opportunity to talk with the communities, Communal Councils, educational institutions and local administrative entities. Until 2010, five works had been published in arbitrated scientific publications and six presentations have been made in national and international congresses, through institutions like the Institute for Scientific Research (IVIC), IPC and PDVSA La Estancia (fig. 3).

Furthermore, in 2010, PDVSA La Estancia presented at the V International Meeting on Archeological Theory in South America, held in the Central University of Venezuela, the paper "El Breal de Orocual: a paleontological site toward socialization of knowledge." The presentation was accompanied by an exhibition that took place in the Faculty of Economic and Social Sciences of the Central University of Venezuela. In 2012, PDVSA La Estancia opened the second exhibition of El Breal de Orocual, which was based on the results of the scientific research works. This exhibition displayed life-size replicas of the most emblematic species and interactive panels that reproduced their environment and behavior. The exhibition was held at the headquarters of PDVSA La Estancia in Caracas. It was an interactive exhibition that featured the environment of the Paleolithic and audio and video elements for children, all within the framework of the proposal of Oil Education.

In 2013, a joint visit to the deposit (PDVSA-IPC-IVIC) was organized to evaluate joint cooperation activities to be undertaken. Additionally, different meetings took place to coordinate the legal aspects of the Framework Agreement for the activities and evaluate the contents of an academic proposal designed by IPC for voluntaries from the community interested in the study of paleontological topics. The same year, the Declaration of the deposit as an Asset of National Heritage Interest was revised and the information related to the community leaders of the twelve towns of the immediate surroundings was updated. In May 2013, the polygonal protection demarcation of the deposit was carried out and paleontological remains that were discovered during excavations performed in 2008 were partially collected.

Furthermore, workshops intended to strengthen and deepen knowledge on the historical heritage for the nearby communities were organized. Later, in July, maintenance works of the area were developed, including rehabilitation of the provisional visitors' module at the site and the fossil trench. During that event, the provisional walkway network was demarcated so that the place could be visited; conference were given and guided visits were organized for workers, students and residents of neighboring communities, in addition to the first workshop on paleontological education on the site for voluntaries from the 12 nearby communities. This activated ended with the partial collection of fossil remains that were on the surface by the voluntaries who took part in the workshop. As a result of this activity, to date, close to 10,000 samples form part of the fossil collection of Orocuál, belonging to more than 34 species, notably including different types of rodents, giant sloths, armadillos and giant armadillos, saber-toothed cats, mastodons, short-faced bears, wolfs from the Pleistocene, toxodons, tapirs, crocodiles and different bird species, among others (fig. 4).

3. Scientific appraisal

Studies have shown that fossil-bearing deposit in Orocuál presents a high concentration of vertebrate, invertebrate and plant well-preserved fossils. Thirty-four species of vertebrates of the Pleistocene (2.500,000-11,784 BP) have been identified, as well as remains of the environment where these animals lived. It is for this reason that El Breal de Orocuál represents one of the most important paleontological landscapes of the last decades and one of the best places for the study of vertebrate fossils of the Pleistocene. Their finding meant the inclusion of Venezuela in the South American and world's paleo-biological context. Given the significance of this deposit and as part of the scientific appraisal of the site, PDVSA La Estancia, the social and cultural entity of the oil industry, together with the Institute of Cultural Heritage (IPC for its initials in Spanish) and the Venezuelan Institute for Scientific Research (IVIC) have conducted activities intended to promote knowledge of, research and dissemination of these paleontological findings.

In 2008, the "1st International Paleontological Meeting on El Breal de Orocuál" was held in Caracas and Orocuál, which was attended by different experts from Argentina, Brazil, Spain, the U.S., Mexico and Venezuela, and included the participation of state and regional entities as well as communities beneficiary of this Cultural Interest Asset. The experts invited to the Meeting visited the site for its scientific appraisal, and ranked the place positively. Responsible actions by PDVSA by fostering protection, maintenance and promotion of this invaluable paleontological landscape is an unprecedented fact in the history of the Venezuelan oil industry, because, for the first time, a cultural asset which is universal in scope was privileged over the inherent aspect of the energy business.

4. Sociocultural appraisal

Encouraged by the Discovery of this fossil-bearing deposit, PDVSA, aware of its relevance and heritage value, revised the route of the oil pipeline and informed the competent legal and scientific authorities about the existence of this deposit, with the aim of promoting the protection of the paleontological landscape and foster research works and proper actions for the study and rescue of fossils on the surface. This resulted in well ORS-16 commercial exploitation being abandoned. This action was an unprecedented fact in the Venezuelan oil industry, because, for the first time, national interest and heritage sovereignty were privileged over the oil business, aiming at the protection and appraisal of the paleontological heritage of Venezuela and the world.

PDVSA La Estancia, the social and cultural affiliate of Petróleos de Venezuela, through its heritage-related action axis and following the principles of the Oil Sowing Plan, has assumed the commitment to administering the development of El Breal de Orocuál in relation to research and preservation of our heritage. PDVSA La Estancia promotes a Comprehensive Development Plan for the custody and surveillance of the site, which includes scientific, academic, social and economic valuation of the region and promotes the involvement of the different competent entities of the State, as well as the articulation of efforts with nearby communities, in order to guarantee their cooperation with the activities of protection, research, education, management and dissemination, which will lead to the sustainable development of the region and its recognition thanks to the significance of El Breal de Orocuál for the global paleontological community.

5. Management and sociocultural valuation of the paleontological landscape

PDVSA La Estancia, aware of the significance of this paleontological deposit, has proposed, for it to be appraised by current and coming generations from the sociocultural perspective, the establishment of formal studies of paleontology in Venezuela, which would serve as a reference for the protection and study of this deposit by the youngsters in the neighboring communities. For this reason, the management of the site should be coordinated with the involved institutions and nearby communities, so as to favor the comprehensive development of the region and strengthen the sociocultural field.

Thanks to the outstanding preservation condition of the fossil remains and the biodiversity of the site, El Breal de Orocuál represents a unique opportunity for the development of a paleontological project that would study issues related to bio-geographical, ecologic and morphological features of the Pleistocene.

ecosystem of the Neotropical region of South America, which will have a huge impact on the improvement of the standard of living of the communities neighboring the site.

Due to the scientific, educational and social relevance of this paleontological site for Monagas State and Venezuela in general, Petróleos de Venezuela, through PDVSA La Estancia, social and cultural arm of the oil industry, proposed the creation of a paleontological park to promote the cultural development of Monagas State, considering the participation of organization of the People's Power in neighboring communities as direct beneficiaries of this relevant heritage.

6. Development of the Comprehensive Project of the Paleontological Site

As part of the new heritage preservation policies developed by PDVSA, a number of actions leading to the development of this paleontological deposit have been proposed aiming at a social utilization of El Breal de Orocuál and guaranteeing the preservation of the site, through research activities, rescue, preservation, conservation, maintenance, display, custody and surveillance of the place.

Subsequent to the finding, PDVSA La Estancia joined efforts with the Institute for Cultural Heritage to know the guidelines established by the Law of Protection and Defense of the Cultural Heritage (Article 6, number 13). Accordingly, PDVSA La Estancia assumed the commitment to intervene the site to implement a comprehensive development plan of the site intended to include the scientific, academic, social and economic valuation of the region.

For this purpose, a series of facilities is required that will serve as focal point for the generation of subsequent projects derived from research works, such as the Interpretation Center and multiple-use facilities for the training of human talent. Articulation between the social actors from communities adjacent to the paleontological site in the Orocuál Tar Pit and institutions involved in the project has been attained to guarantee their participation in protection, research, education, management and dissemination activities with a view to reaching the sustainable development of the region.

Likewise, exhibitions have been organized at PDVSA headquarters in Maturín and the Bolivarian School Los Mangos de Orocuál, as well as talks with social actors involved in the project, including Communal Councils, educational institutions, the Bolivarian University of Venezuela (UBV-Maturín), Tourism Corporation of Monagas (Cormotur), Tourism Fund of Monagas, PDVSA Exploración & Producción (E & P), IVIC and IPC.

Furthermore, students of the Bolivarian School Los Mangos de Orocuál prepared an exhibition referring to the paleontological site, which comprised replicas of the fossils and craftwork of the region. The activity was broadcast through a radio program to disseminate the information.

Furthermore, IVIC, with the support of PDVSA E&P and P Oriente, developed a project to sensitize and inform the community about the scientific relevance of the paleontological site in El Breal de Orocuál, specifically addressed to Communal Councils, educational and public-sector institutions. Initial actions of the project included delimitation of a polygonal of the deposit, as well as the placement of a protection to safeguard paleontological remains from the environment and also to guarantee the security of the site and the proper conditions to proceed with research works. These actions include the fostering of the people's participation, specifically the members of the community, in actions intended to strengthen knowledge, dissemination, preservation and management of El Breal de Orocuál.

Additionally, a series of framework agreements have been closed between PDVSA La Estancia and institutions involved with the aim of favoring the participation of the beneficiary community. Arguments to declare the paleontological deposit of El Breal de Orocuál as a cultural interest asset, and as paleontological and cultural heritage of the nation and the world, are being developed.

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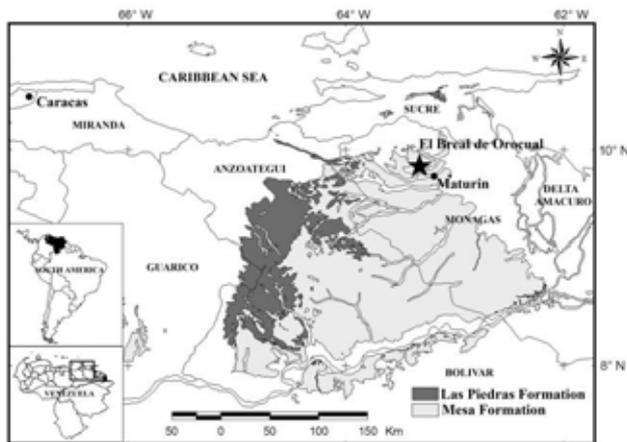


Figure 1. Relative location of El Breal de Orocuai (Segarra, 2007).



Figure 2. Surface collection in the trench dug to install the oil pipeline in El Breal de Orocuai.



Figure 3. Activities intended to promote knowledge of, research and dissemination of these paleontological findings



Figure 4. Paleontological education on the site for voluntaries from the 12 nearby communities

The Impacts of Top-down Protected Site Governance on Conservation and Community Development – What Can Save the Village of Kapikiri and Ancient Heracleia?

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Abstract

The study evaluates the relationships between protected site governance/management, tourism and community wellbeing in a Turkish village. Situated in an archaeological site, in an area rich in biodiversity, community activities are impacted by strict dual protection status. Ethnographic fieldwork and a survey were conducted; conservation officials, NGOs and archaeologists interviewed. A top-down, non-adaptive governance structure combined by weak management led to further illegal activity worsening the integrity of ancient and modern settlement, causing inequality among community groups.

Keywords: *Conservation Governance; Protected Areas; Archaeological Heritage Management; Tourism; Community Development*

1. Introduction

The village of Kapikiri is a traditional village in rural southwest Anatolia located at the shores of a lake called Lake Bafa, and has a population of about 350 people. Villagers make a living by keeping livestock, fishing, farming and participating in tourism. Several local families run bed & breakfasts and restaurants for foreign and domestic visitors. About half of village women contribute to their household incomes by selling traditional crafts and other items. The reason the village is also a touristic attraction is the ancient Greek city Heracleia among which villagers happen to live. The village and its surrounding area also used to be a major settlement area during Roman and Byzantine times, and still displays a wealth of remains belonging to these eras. In the 1990s neolithic rock paintings were discovered in the mountainous parts of the regions increasing the popularity of the place. Therefore, tourism has been very much part of villagers' lives over the last few decades. What makes the village a special case to take a closer look at is the fact that because of its unique nature of settlement in the midst of a wealth of cultural and natural heritage, it was enclosed by both cultural and natural heritage protection statuses in 1989 and 1994 consecutively. These protection statuses, and more so, the nature of protected area governance and management in Turkey impacted the lives of villagers in various ways. This study intended to look into how these protection statuses, and the nature of protected area governance and management impacted the wellbeing of villagers, in particular how these conservation dynamics impacted different social groups such as women, youth, farmers, and business owners. The study also assessed whether strict protected area designation contributed to increased tourism, and whether income generated from tourism compensated for the loss of traditional income as a result of protected area restrictions.

2. History of the site

About two centuries ago, a nomadic Anatolian tribe settled among the ruins of the ancient Greek city of Heracleia (personal communication with villagers). Over time this new settlement grew to become the modern village of Kapikiri. When starting in the 1960s, 70s, and 80s modern housing started to encroach and threaten the integrity of ancient Heracleia, in 1989 the Turkish Ministry of Culture and Tourism designated an area surrounding ancient Heracleia and modern settlement as a 1st grade

archaeological site.⁴ This strictest designation prohibited any intervention on current ancient and modern heritage structures, and new construction within site boundaries. It meant that villagers were banned any form of new housing or small business construction and renovation within site boundaries, including on their own properties. Back then, a clause was added to the official decision indicating an allocation of a specific area in close vicinity to modern settlement for future needs of housing. However this ‘promise’ on behalf of the Ministry was never put into practice, and villagers were left on their own terms to solve their housing needs for their offspring, and accommodation needs for more and more tourists visiting the area.

Over the years, despite complaints to the local government, the villagers were not able to resolve their development problem. In particular those with financial means began to construct and renovate illegally. However, increasingly newer, inconsistent and simple architectural styles were implemented. Also, cheaper and easier-to-handle building materials that did not conform to traditional architectural styles and original building materials were used (Distelrath, 2011). Concrete houses with metal window frames, and non-traditional roof tiles started to flourish. Many villagers did not build proper roofs, leaving top levels unfinished, likely with the intention of building an additional level at a later time. Bed & Breakfasts continued to build more aggressively despite strict restrictions, expanding their accommodation facilities using a variety of (prefabricated) styles, and building additional facilities such as terraces, driveways, and even pools. In 1994, a larger area surrounding Lake Bafa that encircled Kapikiri, Heracleia and other modern village settlements was designated with *Nature Park* status by the then Ministry of the Environment and Forestry (MoEF) (see Figure 1). Lake Bafa bears significance as a bird nesting and migration location, and exceptional geomorphological features. The lake is also surrounded by a unique landscape shaped by rock forms called *tafoni*, orchards of olive, fig and pomegranate trees, and traditional rural settlements dispersed in between them. The MoEF’s *Nature Park* designation corresponds to the International Union for Conservation of Nature (IUCN)’s category V (Protected landscape/seascape) protected areas, defined as “natural areas that display landscape characteristics rich in flora and wildlife, and serve recreational purposes” (Dudley, 2008).⁵ This protected area designation allows the construction of recreational infrastructure only within the framework of a long-term management plan. Activities that would disrupt the ecological balance and value of the ecosystem are strictly prohibited. Although protected area legislation requires the preparation of long-term park management plans for protected areas, such as plan was not prepared until 2008, however by the time of the study, plan strategies were still not implemented. Therefore, park management used to be carried out in a ‘business as usual’ manner, which was primarily about the enforcement of illegal wildlife hunting and illegal construction activities.

3. Protected area/site governance, management and communities

Cases like Kapikiri, where both natural and cultural heritage conservation is at stake, as well as community wellbeing present complicated contexts. While a lot of focus has been on communities’ livelihoods in the contexts of nature-protected areas, cases where the conservation of both natural and cultural heritage and community wellbeing is at stake have been rare. More so have been more holistic approaches to such cases, that also look into the the quality of protected area/conservation governance and management of sites. Global consensus has been on the importance of inclusionary processes in conservation, in particular the inclusion of local communities in decision-making (Berkes, 2007; Brechin, Wilhusen, Fortwangler, & West, 2002; Brockington, Duffy & Igoe, 2008; Lookwood et al.,

⁴ Turkey is also a country tremendously rich in cultural heritage sites. As of June 2014, there are a total of 12,937 culture-protected areas described as archaeological sites, historic urban neighborhoods, historic sites, urban archaeological sites, and sites were different protection statuses overlap. In Turkey it is quite common that the boundaries of different protected area statuses overlap, including overlaps of nature and culture-protected area boundaries. This is because many archaeological sites are located in exceptionally beautiful natural areas.

⁵ Turkey’s nature-protected area system is grounded on the IUCN’s universal protected area framework. As of February 2013, 7.24 per cent (5,647,568 ha) of the country’s terrestrial areas had official protection status (GDPNP, 2013). A total of 377 protected areas have designations that correspond to IUCN categories I, II, III, IV and V. However, based on the current numbers of “strictly” protected areas qualifying for IUCN categories I and II, less than a forth of protected lands are “strictly” protected.

2006; Paavola, 2007; Pimbert & Pretty, 1995). Protected area governance is the main factor in determining the effectiveness and efficiency of management. However, to propose an “ideal” form of protected area governance for all protected areas is not possible. Historically, protected areas and sites have for the most part been state-governed and managed in a top-down manner (Borrini-Feyerabend, Johnston & Pansky, 2006). Today more democratic and pluralist forms of conservation governance are more and more adopted around the world, but still top-down governance persists. Countries are advised to adhere to a set of “good governance” principles, which provide insights about how a specific governance setting will advance or hinder conservation, sustainable livelihoods and the rights and values of the people and country concerned. These principles proposed and discussed in detail in Borrini-Feyerabend *et al.* (2013) are the following: legitimacy and voice; direction; performance; accountability; and fairness and rights.

Over the past decade or so there has been an increased emphasis on more progressive forms of protected area management such as adaptive management, collaborative management, and adaptive co-management (Armitage, Berkes & Doubleday, 2010; Evans, Brown, & Allison, 2011; Heylings & Bravo, 2007; and Mbile *et al.*, 2005). These studies emphasize the potential “messiness” of organizational and institutional processes while transitioning from top-down governance systems to more pluralistic forms of governance (Evans *et al.* 2011). However, they indicate that with the right legal framework and institutional setup, it is possible to establish successful pluralistic forms of protected area governance over time (Heylings & Bravo, 2007). Nkhata and Cool (2012) argue that a broader conceptualization of protected area planning is needed to functionally couple governance with management. This coupling would include community engagement, but would respond to growing needs for processes that are multi-scale and continuous rather than episodic, facilitate information flow between governance and management, and provide for constructing and interpreting public interests in protected areas.

In Turkey, however, matters of quality of conservation governance, management, the inclusion of local communities in decision-making are in urgent need to be debated widely among societal groups. Even though with the implementation of new laws, municipalities have significantly more power and autonomy in using their resources for conservation, rural contexts are still highly centrally governed. Scholars such as Göymen (2010) have been advocating for a wider allocation of power to local levels, however a variety of inefficiencies of local governance levels, such as lack of qualified staff, resources, know-how negatively affecting the management of heritage resources, have yet to be resolved.

4. Methods

A primarily qualitative study was carried out involving participant observation, informal and semi-structured interviews with various groups of villagers, seniors, women, youth, business owners, farmers and tourists (foreign and domestic) visiting the village. The second phase involved semi-structured interviews with conservation governance and protected area management officials at the local level, and officials responsible for cultural and natural heritage conservation at the regional and national levels. In addition, NGO leaders involved in the conservation of cultural and natural heritage assets in the area, and archaeologists who conducted research in the area were also interviewed. The last phase involved the posing of household questionnaire to a sample of 25 households in order to obtain specific quantitative data on villagers' livelihoods.

5. Results

Interviews at the national level of governance revealed a rather limited awareness among officials on the impacts of conservation governance at the local level. At the regional/provincial level, officials had a certain level of knowledge about local socioeconomic dynamics, however offered conservative and top-down solutions to local issues, such as the relocation of the village population, and transforming the village into some form of archaeological park. The local level of governance had an acute awareness on local issues, however lacked power in decision-making. In particular those officials responsible for heritage conservation also had a more pluralistic view regarding the implementation of conservation policies.

Even though the majority of villagers believed in the necessity of strict conservation measures of their heritage, those with financial means built anyway, paying off fines. In particular, bed & breakfast owners continuously expanded their businesses improving their economic situation substantially, which led to a significant income gap between business owners and farmers. On the other hand, poorer farmers were not able to provide housing for their children, or renovate their own houses, and lived in less than desirable conditions. The income gap became a source of envy among some farmers who indicated that business owners were profiting from conservation. Overall there was pessimism regarding the future of the village. A major concern was that without the implementation of a proper long-term management and tourism development plan, over time the village would lose its authenticity with increased outmigration of the younger population, and more foreigners buying property.

An assessment of the archaeological heritage revealed that more recent construction had threatened the integrity of ancient Greek remains, encroaching upon major ruins. In addition, in the absence of clear guidelines for renovations, the traditional architectural fabric of modern settlement was also in danger of losing its integrity because of the use of cheap materials and architectural styles not conforming to traditional materials and techniques of construction.

6. Discussion and recommendations

The findings of this study indicate that it is essential for protected area governance to reconcile conservation with the socioeconomic development needs of residents in places such as Kapıkırı. The goal of any conservation and development strategy for places like Kapıkırı should be maintaining a living village, while preventing any potential harm to surrounding cultural and natural heritage resources that may result from the residents' economic activities and/or new development. This a goal can only be achieved by a more powerful and well-equipped local level of governance that cooperates with resident communities, and involves their input in strategies for conservation.

The case of Kapıkırı also points to the need of long-term conservation and development plans/strategies that are flexible and adapt to changing local socioeconomic circumstances. The villagers of Kapıkırı and their cultural heritage resources would likely have benefitted more, if construction was allowed in a controlled way with the implementation of a zoning strategy that clearly identified areas suitable for new development, and areas in need for strict protection. The current legislative framework of cultural heritage conservation is based on a zoning strategy, but as the case showed, is not flexible enough to allow for proper adjustments that address pressing socioeconomic needs. Furthermore, the case also showed the need for the implementation of development strategies that make it more likely that all community groups benefit from protected area designation and tourism, and that strive to eliminate local communities' vulnerability to external economic factors. Protected area officials were not able to provide an exact number of cases similar to Kapıkırı, but suspected there are likely hundreds of local communities experiencing similar problems as those of the villagers of Kapıkırı. This is an indication that the problems resident communities of protected areas have been facing is a pressing issue, and it is crucial for the social and economic wellbeing of these communities and for success in conservation, that these problems are addressed.

The study also showed that overlapping protected area designations and the dual governance and management by two ministries, had been leading to power conflicts among agencies of ministries, delaying decision-making on the implementation of local strategies. This study suggests that a single conservation organization (ministry) or an umbrella organization be established, overseeing the country's natural and cultural heritage resources.

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Figure 1: Protected Area Boundaries Surrounding the Village of Kapikiri. The park covers an area of approximately 11,842 ha. While there are seven other settlements around Lake Bafa, Kapikiri is the only settlement encircled by two different protected area designations: Culture-protected area designation (dotted line) incorporating the ancient cities Heracleia and nearby Latmos, and Lake Bafa Nature Park designation (dashed line). Adapted from MEF (2008).

The Methods of Participatory Management for the Istanbul Land Walls World Heritage Site

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Abstract

This paper discusses the conservation issues and the problems lead by the lack of participatory approach to planning and conservation in the Istanbul Land Walls WHS. The legislative framework, the approach of the existing Istanbul Historic Peninsula Site Management Plan and the approaches of the NGOs are discussed in order to come up with a general overview of the methodology of participation.

Keywords: *Istanbul Land Walls World Heritage Site; Participation; Site Management; Yedikule Historic Vegetable Gardens; Sulukule Renewal Area*

1. Introduction

UNESCO inscribed Istanbul Land Walls of and its surroundings as a World Heritage Site (WHS) as one of the four Historic Areas of Istanbul in 1985. In the statement of the Outstanding Universal Value (SoOUV), the site was described as “the area along both sides of the Theodosian Land Walls [447 AD] including remains of the former Blachernae Palace”¹.

In October 2011, the Historic Peninsula Site Management Plan (SMP), which includes the guidelines regarding the management of all of the four Historic Areas of Istanbul WHSs, was adopted by Istanbul Metropolitan Municipality. However, the responsible authorities have not implemented or complied with the Historic Peninsula SMP and its conservation measures for the Land Walls WHS. Therefore, the existence of a SMP has not proven to be effective for the conservation of the Land Walls WHS. As stated by Herb Stovel², there is a “need to look beyond the mere presence of formal management instruments or controls as indicators of management effectiveness”.

The participation of the stakeholders to the planning process is not only a concern emphasized by the SMP, but it is also a demand expressed strongly by the inhabitants of Istanbul during the Gezi Protests, which began in May 31st, 2013. Among many other interpretations, it is possible to read the Gezi Resistance as a strong reaction to up-bottom planning approach.

This paper discusses the methodology of participation in the context of the Land Walls WHS in Istanbul.

2. Participation as a means of sustainable site management

Participatory decision-making is considered as one of the necessities of site management³. On the other hand, there are hardly any methodologies proposed for the participation of the stakeholders to decisions concerning the future of the site. Most of the studies refer to “stakeholders’ meetings” as a tool to discuss the plans. Nevertheless, there is little discussion on methods to solve the conflicts among the stakeholders.

“Stakeholder” is a very vague term. Most of the time, the persons or institutions, who are directly affected by the decisions about the site are considered to be the stakeholders. On the other hand, there is a secondary group which is composed of the ‘conscious’ people who are concerned about the conservation of the values of the site. These people are usually scholars and intellectuals, who have studied various characteristics of the site and who want to take part in the decision-making processes.

Participation –or involvement of the stakeholders to the decision making- is a process which needs to be organized. It can be organized during the preparation of a site management plan for a specific site, or during the preparation of a specific project in a site.

¹ (UNESCO World Heritage List, Historic Areas of Istanbul).

² (Stovel, 106).

³ (Wijesuriya, Thompson and Young, 4, 13, 15-18).

Site-based participation: Site-based participation is a part of the establishment of a site management mechanism for a specific site. The time span is not limited. The stakeholders' platform can act as a permanent consultant body to the site management directorate.

Project-based participation: The stakeholders' platform is established in relation to a specific project. If the project takes place at a site managed with a participatory approach, the site-based platform can be a part of the project-based platform.

Another issue about the involvement of the stakeholders to site management is the question of the body organizing the participatory platform. Should it be the institution who determines and invites the stakeholder groups? Or should the civil society be involved in the organization of the meetings and the determination of the invitees?

As a result, the main questions to answer seem to be:

- What should be the method to determine the stakeholders?
- Who should have the responsibility and the authority to form the participatory platform (determining invitees, organizing meetings, producing material to discuss on)?
- What should be the legal framework regulating participation?
- In the case of a conflict, what are the priorities to give way to decisions or further discussions?
- Who should be the organizer of a participatory process, the managing institution, the civil society or a common ground including both?

3. The Historic Peninsula SMP and its approach to participation

In the Historic Peninsula SMP, the importance of approaching the site management issues with a participatory manner is emphasized⁴. The SMP is composed of a detailed analysis section followed by objectives and actions planned to achieve the objectives. It is clearly stated in the SMP that participation is a necessity for the implementation of the plan⁵:

- *Objective VH4: Providing sustainable and efficient participation of stakeholders to conservation, planning and implementation processes in an equal and transparent way.*
- *Objective VH5: Providing efficient participation of all stakeholders related to the Management Area in order to successfully implement the Site Management Plan.*
- *Objective VH6: Establishing a system related to measuring and evaluating the participation.*

These objectives point out the need of searching for a system for participation, without pointing out a proper methodology.

4. Turkey's legislative framework on site management and its approach to participation

In the site management legislation of Turkey⁶, in the definition of 'management area', the importance of providing the coordination between central and local authorities and the civil society organizations. In relation to the preparation of the site management plan, the Law No. 5226⁷ refers to a 'consultant committee' whose members should include the property owners, vocational chambers and NGOs, and the representatives of the universities' related departments.

However, neither the concern about the coordination of the central and local authorities and the NGOs, nor the inclusion of the NGOs in the 'consultant committee' mean that the stakeholders are influential in the decision-making process. More likely is the fact that, with such a legislative framework, the authorities have the possibility to include or exclude the stakeholders' views, according to their own interests. There is no obligation of taking into account what the stakeholders' think.

5. Gentrification vs. participation: Sulukule

In the Land Walls WHS, Sulukule was the first heritage site where the civil society and the intellectuals formed a platform to safeguard the intangible heritage of the Roma culture living in Sulukule. One of the main concerns of the platform was to ask for a participatory decision making process:

⁴ (Istanbul Historic Peninsula Site Management Plan, 170-171).

⁵ *Ibid.*

⁶ Law number 5226, item 1-10.

⁷ Law number 5226, additional item no: 2.

... Sulukule, famous for its distinct Roma musical heritage, as well as for its particular urban fabric and culture, constitutes a good example of intangible heritage that the UNESCO Mission was referring to. Sulukule is at the heart of Roma music and culture in Turkey, however, as the area lies in ruins today, the culture is scattered. It is clear that intangible heritage cannot be protected when the built heritage is destroyed, when the community members are scattered and displaced from their neighbourhood. Sulukule would have been a perfect example of conserving and rehabilitating an urban area with distinctive built and intangible heritage. With the Sulukule issue, the Municipality had the chance to develop a programme of work that addressed the combined issues of built and intangible cultural heritage, and to start a collaborative and participative process between the stakeholders with a clear objective of neighborhood rehabilitation in line with the UNESCO recommendations.

The civil society platform formed to safeguard the “Sulukule Roma Culture” could not achieve to be involved in the decision making process, and one of the most arguable “renewal” projects of the Turkish Republican history was realized. The Roma people lost their neighborhood and their culture (fig.1).

Having been subjected to such a rapid gentrification process, the Sulukule region changed drastically not only in tangible terms but also in intangible terms. Although the civil resistance against gentrification resulted “unsuccessful”, the Sulukule experience fostered the civil organizations and the methods that they used.

6. Before and after “Gezi”: the search for a common ground

Gezi protests, which emerged in June 2013, was a strong resistance against the central authority who insisted on changing a park to a shopping mall. It was a multi-dimensional social phenomenon, however, it is possible to interpret it as a rebellion of a society, whose “instincts” towards safeguarding its values were overlooked by a “real estate speculation focused” government. So, the protest’s first claim was an inclusive approach in urban planning decisions.

Yedikule Gardens vs. A new urban park

In the Land Walls WHS, after Sulukule Case which took place in 2009, the next “urban renewal” work of the central authority was the change of Yedikule historic vegetable gardens to a “standard” urban park.

The project of the Municipality ignored the social-cultural and historical landscape values of the gardens, and they proposed a totally ignoring recreation park project right next to the Land Walls.

The Regional Conservation Council approved the project. However, an initiative formed by mostly intellectuals and academicians who are aware of the values of the gardens rejected the project.

Although all the official steps to implement the project were taken, by the help of various ways to criticize and act against the project, the initiative succeeded in communicating the Istanbul Site Management Directorate and Fatih Municipality, who was the institution proposing the project. Although it seems to be impossible to totally cancel the project, the initiative’s efforts to change the project in a manner that safeguards the gardens continue.

The Report

Together with Asu Aksoy and Alessandra Ricci and with the contribution of many other scholars, the author of this paper prepared a report on the conservation issues of the Land Walls WHS and we submitted it to the Istanbul Site Management Directorate and the Ministry of Culture and Tourism. Many NGOs and institutions have supported the report –including ICOMOS Turkey–, since it not only discusses the conservation problems of the WHS, but also invites the authorities to employ participatory decision making processes for the management and conservation of the site.

According to the Report, the conservation issues within the Land Walls WHS can be listed as:

- a. The Urban Park Project foreseeing the destruction of the Yedikule Historic Vegetable Gardens
- b. Unsuitable restoration and reconstruction of the land walls and Tekfur Saray
- c. The Sulukule urban renewal project
- d. The Ayvansaray urban renewal project
- e. The projects within the buffer zone

Briefly, the Report criticizes the current fragmentary project implementation which is preferred over an integrated conservation approach. Moreover, the Report discusses the new laws such as “the Law

on Preservation by Renovation and Utilization by Revitalization of Deteriorated Historical and Cultural Properties” numbered 5366, which threatens the unity and authenticity of the cultural landscape.

In the Report, the improper restoration and reconstruction works are criticised as another factor leading to the loss of heritage values. Although scientific restoration projects such as the restoration projects by Metin and Zeynep Ahunbay have been implemented, unfortunately, the majority of the restoration works carried out in the Republican period resulted in the loss of the authenticity.

The Report has a special focus on the historic gardens within the Land Walls WHS, since the vegetable gardens near Yedikule have been destroyed recently due to a new urban park project of the municipality. In the Report, the tangible and intangible values of the historic gardens around the Walls are discussed.

With its 15 supporting civil organizations, the report itself not only provided a common ground to discuss the urban transformation of Yedikule, but also it provided a general criticism of what has been done in the Land Walls WHS in the last decades.

7. Conclusion

The significance of participation is accepted in the contemporary approaches to conservation and site management. However, there are hardly any discussions on specific problematic related to participation methodology.

In Turkey, although the legislative framework does not provide a framework for providing a participatory process for site management, the civil societies in big cities resist against central authorities one-sided decisions.

Although this is not a sustainable way which ensures inclusive planning, I believe that the civil resistance help the development of methodologies for participation.

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Figure 1: Sulukule houses on the right and the Land Walls on the left.

COMMUNITY-DRIVEN CONSERVATION AND MANAGEMENT OF CULTURAL HERITAGE: INVESTIGATING SENSE OF PLACE

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Abstract

This paper examines contemporary challenges, in the field of cultural heritage conservation and management, building up integrated development strategies through which the community interacts reinforcing the socioeconomic system and strengthening the active role of cultural heritage. It presents a research project designed to investigate communities' perception of local resources, understanding cultural heritage value and suggesting new tools to manage local heritage within the cultural landscape context.

Keywords: *community, heritage management, local value*

Introduction

The consideration leading the paper is that the heritage management, in recent years, had increasingly innovate to meet the challenges posed by sustainable development and the growing demand of involvement of local communities in the processes of decision making: therefore the paper looks for new tools of analysis and intervention, new scales of work, new territorial approaches.

Nowadays, Community-driven conservation, management and local empowerment represent one of the main discussions of global and local cultural heritage management. Since the end of the 1990s cultural landscape has increasingly been understood not merely as something to be protected (freeze) but also detected as a force to promote identity-based local development⁸. In this perspective, the cultural heritage, given its cross-sectoral nature, has come to configure ideally like the place - conceptual and material one - to pursue a policy of sustainable land management. The territory is now recognized by international conventions and reports as a complex system in which the economic, cultural, social sectors continuously interact and influence each other, defining the territory as a strategic element for the quality of life of the population in all its aspects⁹. The cultural and environmental resources - at different scales - can form the unit (or units) through which developing a strategy for integrated sustainable development¹⁰. Moreover, dealing with the increasingly rapid and radical changes taking place in the territory it is clear that the problem of conservation, management and planning of its resources is the framework of a broader development issue, linked to the active involvement of local communities¹¹. The presented research project investigates models such as community mapping - at the intersection of institutional communication needs, innovative perspectives on cultural planning - able to identify the vocations of a place and its community, as critical tool both in support of the planning processes and the involvement of all stakeholders¹².

This paper summarizes the lessons learned from a 2 years research period activities carried out in Yorkshire, UK. Specifically, it examines cultural heritage's value perceived by community and their right in participating in the conservation-management decision-making process.

The role of local communities in the cultural heritage preservation and promotion and socio-economic development policies was stated by the Lausanne Charter (1990), but strongly declared by the Faro Convention (2005). The Convention stresses the human right to participate in cultural life, recognizing the collective responsibility towards cultural heritage, emphasizing the role of cultural heritage in the development process, aiming at a greater of synergies between all public stakeholders. The paradigm has shifted and cultural heritage is now best seen as cultural practice rather than as merely technical matter, only understandable in a complex system made of economic social and political factors¹³.

Placesdotcoms: evaluating sense of place and local heritage significance

In the face of their variety and heterogeneity, cultural landscapes are influenced by different systems (such as social, economic, and environmental) with different goals and logics of action. Common historical roots, special landscape features, typical products, cultural traditions, and innovative projects are possible initial points for identity-based region-building processes. In connection with governance

⁸ Carta M., 1999 Magnaghi A., 2000

⁹ Council of Europe, 2005; UNECO, 2003

¹⁰ Mollica E., 1998

¹¹ Schofield J., 2011

¹² Clifford S., 1993

¹³ Harvey D., 2001; Smith L., 2006

arrangements, cultural landscapes can be seen as active scenarios for regional development. Hence, for many local people these places, on a tangible level, are important in their own right as beacons that provide a sense of belonging, a link with the past, and a symbol of permanence¹⁴. Cultural resources are valued and perceived by people in different ways, whether they are visitors passing through or they are locals living and working in the area. Writers and artists might also lend significance and shape perceptions of a particular place. Local landscape is the backdrop to peoples' daily lives. We often take it for granted, and it is only when something changes that we realize how much we value it. Asked to describe why landscape means so much to us, we often find it hard to explain. It may be a particular view, or the sense of history we experience as we walk along a hedge-lined track with high banks, or a part of our town or village that has a pleasing combination of buildings and spaces. It is mostly about what makes our local area distinctive and unique, and about how our experience of the area makes us feel. What is the relationship between cultural heritage and communities?

What role is played by cultural heritage in cultural management? Is it possible to fit a community's needs into a cultural management plan?

Responses to the questions posed above have been studied by the Placesdotcoms project, part of European Cultural Landscape: Conservation and Participatory Management of Cultural Landscape, within the Development Control Process - a two year Postdoctoral Fellowship (POR FSE 2011/2013), sponsored by the cooperative effort of the Archaeology Department (University of York, UK) and the PAU Department – Heritage, Architecture and Urban Planning - (Mediterranea University of Reggio Calabria, Italy), in cooperation with "Protect our Place" project – a national campaign in the UK which is funded by English Heritage in partnership with the York Museums Trust and the Parks and Countryside Service of Leeds City Council. Broadly speaking, the overall objective of this research project lies in the examination of the underlying structures through which heritage plays a role in a community's life. It is concerned with the relations between people and their environment, between people and the landscape they inhabit. The PLACESDOTCOMS project, whose title embodies the key words "places" and "communities", was launched in the winter of 2011 by the Department of Archaeology at York University, as a practical tool to answer precisely those research questions raised previously. Several surveys have been conducted in the field to raise awareness of the project, and to enable people to share information and different points of view. Two locations - Museum Gardens (York) and Potternewton Park (Leeds) - have been selected as case studies to reflect different perspectives and involve communities in the development of the sites they use or are affected by. For the purposes of this pilot project 163 open-ended face-to-face interviews were conducted in the Museums Garden area, York and 149 in Potternewton Park area, Leeds.

Integrating cultural heritage management into communities life

The study conducted within the Museum Gardens attempts to map out and identify the values – both tangible and intangible – that are most predominant in the responses of the interviewees. The "historic" value appears to be by far the most widely held amongst the interviewees (44%). It is worth stressing that the "nature" value is considered very important by 21% of the interviewed people, bearing in mind of course that the "cultural value" registers for 13%. A closer look at the information surrounding the afore-mentioned responses reveals that youngsters identified the "leisure" value as being the most important. This value/meaning is followed in popularity, although with a significant margin, by that of "nature". The prevalence of the "historic" value in the responses is equally spread throughout the remaining age groups singled out by the audience survey. Consequently, almost all age groups (25-34, 35-44, 45-54, and 55-64) highlighted this value as being the most dominant in their minds. Respondents from the 35-44 age group, quite interestingly, see in the Museum Gardens a cultural value as well. Finally, the respondents belonging to the 55-64 age group, identify a sort of "convenience" in that place, because of its location in the city centre (fig.1).

In short, the data collected for the Potternewton Park pilot project reveals a diversity of attitudes towards the park, and clearly demonstrates a variety of values and meanings that different groups of

¹⁴ Jokiletho J., 2006.

people attach to that place itself and its surrounding built environment. What is Potternewton Park like? What does the park represent for its users? Potternewton Park has tangible as well as intangible value, and has its strengths and its weaknesses. Respondents are really attached to the playground area, they love the “natural” dimension of the park with its flowers, trees, and boundless grass, but they also really enjoy intangible features such as the possibility to exercise, the sense of community, and the potential for socialising. On the other hand, respondents wished for their complaints to be heard, such as the lack of lights and guardians during the evening/night, or more specifically for a café within the park, improvements to the playground and “open air gym”, and creation of more facilities and activities. At the core of the activity of forming a sense of place are the connections people make with their localities, natural and built landscapes, and communities. Places are given significance through shared memories, expressions of identity, and particular cultural practices, all of which are intangible factors that evolve in response to larger societal forces¹⁵. Taking a holistic view, the results of this research project suggest that the sense of place is embedded in a whole range of interconnected relationships between people and the physical, economic, social, cultural, political, and environmental contexts within which they interact. The employment of qualitative research methodologies can potentially enable decision makers to identify values and dislikes, and find ways to improve interpretation and presentation for the users of a place¹⁶. Exploring both the strength and orientation of an individual's sense of place provides a means to explore the desired nature of community involvement in the management of the parks. It was found that the stronger an individual's sense of place is, the greater is their dependence on that place and their sense of commitment to it, and the greater their desire to be involved in its management. Analysing the strength and orientation of sense of place illustrates that there is a high degree of diversity in how individuals perceive and feel about area, and their desire to be involved in its management. The type of information obtained in this study is important and useful to the management agencies if they are to successfully engage the community in meaningful ways.

The partnership with local managers has thus been brokered out of a desire to further the parks' knowledge of their current audience, to learn more about potential audiences, to allow the research work to make a valuable contribution to the parks programmes of heritage management, and to strengthen the increasingly important ties between places management and academic research. The report of this research project will be adopted in a few months by the management office of Museum Gardens (York) and Leeds City Council, as one of a number of documents intended to support the planning activity, but most importantly it will also form the basis for the parks' future work to safeguard, interpret, and develop the buildings, nature and “spirit” as heritage attractions, and as a place of worship and reflection. Perception is now recognised as the fundamental parameter for ascribing value to area, and it has become the *sine qua non* to determine the effectiveness of the policies in place. Through a holistic view, this research project suggests that senses of place are embedded in a whole range of interconnected relationships between people and the physical, economic, social, cultural, political, and environmental contexts within which they interact. It aims to empower communities to take ownership of their cultural heritage in a holistic manner.

Places are given significance through shared memories, expressions of identity and particular cultural practices are intangible entities that evolve in response to larger societal forces.

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¹⁵ Hummon, D.. 1992.

¹⁶ Boccella N., et alia, 2014.

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Image 1 – Museum Gardens, York. Author’s own photos.



Image 2 – Potternewton Park. Author’s own photos.

Empowering Alberta Treaty Six First Nations in Community Driven Conservation: Museums

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Abstract

In western Canada, Treaty Six communities form a treaty region in both Alberta and Saskatchewan. It is an area of diverse cultural groups, narratives and histories that have had a debated acceptance by the Canadian government in regard to the Cree leaders who signed treaties. The academic literature on the Plains Cree culture in Alberta is non-existence and their history colonially defined. I will examine the Plains Cree in Alberta using the community that I come from, Saddle Lake, to explore the community's unique culture, oral histories, narratives and their relationship to cultural landscape that is reminiscent to the narrative that they were created in southern Alberta.

Keywords: *Community Driven Conservation, Museums, Alberta.*

1. Introduction

Saddle Lake is a Treaty Six community located one hundred and seventy one kilometers northeast of Edmonton Alberta. The community was forced into an amalgamation of five bands from the period of 1876 up until 1902 when members of the Papaschase joined.¹⁷ When they were recognized as bands by land surveyors in 1886, the **total land entitlement for the first four bands was reluctant to a survey area consisting of one hundred and thirty two square miles.**¹⁸ **After the Fort Pitt treaty in 1876,** the final survey had taken place almost fifteen years after its signing. Chief Papaschases' band which makes the fifth band was also displaced from its Edmonton location after 1885 only because the Fort did not want Native bands living in proximity to it; therefore, they joined Saddle Lake band, while other members joined nearby bands in Maskwacis, Enoch or migrated north to become displaced or enfranchised. The present population of Saddle Lake is nearing ten thousand and its growth plays havoc to land occupancy and harvesting practices. Yet, after WWI and WWII, it diminished to seventeen square miles **by way of providing non-native soldiers settlement reward. While, the First Nations veterans lost their status, identity and lands to script upon return to their Cree communities.**

Saddle Lake bands, like many other communities were located along major rivers and lakes. The water systems offered resources, sustenance, home, ceremony and was place to reunite Cree bands to recite narratives of the legends', such as that of the *Wisahkecâhk*.¹⁹ Neal McLeod states, as a part of understanding Cree narrative memory, the notion of "spiritual history" which challenges the western notion of the construction of linear time" (2007, p. 17), juxtaposes the notion of time immemorial in Canada Court decisions for First Peoples. The Cree understanding of this space is when the ancient four legged animals were allowed to communicate in a sacred ancient language to First Peoples in space and location rather than linear time. Therefore, many Cree "*Nehiyaw*" words that I use are transcendent of the ideologies used in ancient time which reflect the Cree peoples understanding of the

¹⁷ The Saddle Lake first Nations is made of Four Bands: Chief Blue Quills, Chief *Onchaminahos* (Little Hunter), Chief *Wasahthenow* (Bear Ears) and James Seenum's Band (which is Goodfish Lake). However, Goodfish Lake is registered as his own Band. The two distinct bands, Saddle Lake and Goodfish Lake were bands that combined of both Cree and Assiniboine that lived on the north side of the North Saskatchewan River as far west as Lac St. Anne and as far east ad Fort Pitt. http://www.saddlelake.ca/noflash/?page_id=223.

¹⁸ Wonders, William C. Far Corner Of The Strange Empire Central Alberta, On The Eve Of Homestead Settlement. (University of Nebraska, 1983). *Great Plains Quarterly*, Paper 1709. (p.96)

¹⁹ <http://www.galileo.org/initiatives/moka-meyo/english/learning-wesak4.org>. *Wisahkecâhk* is spelled numerous ways. I will use the spelling *Wisahkecâhk* as it is used by Winona Wheeler, "Cree Intellectual Traditions in History", *The West and Beyond*, New Perspectives on an imaged region.

embedded meaning in the landscape in Alberta. Consequently, both water bodies are deeply entwined with Creation stories to the landscape and to the “Thunder and Serpent” which are legends of the narratives that occur in spiritual history. These go through a process of understanding spatial practices using yet another Cree notion that the land owns us through the concept of “*Wahkohtowin*”.²⁰ These spiritual helpers, “*atayohkanak*”²¹ are the ones in which *Wisahkecâhk* is associated to when the land was becoming formed or created, and they are ones that existed with other prehistoric narratives witnessed by Cree people who transmitted knowledge about those experiences through generations of initiating narrative memory. These legends are then sanctified today by the Cree women’s water ceremonial practices or men’s lodge ceremonies. This sanctification reflects safeguarding water stories, narratives and legends that have occurred over thousands of kilometers that Cree women and men attest as stories in relationship to the landscape in which they utilized.²² Cree calendar months were once based on a thirteen moon cycle that they used to observe activities with all living entities in spatiality which create inherent memory; the idea of thirteen moons was based on the animal’s livelihood and participation in the ecosystem under the concept of *Wahkohtowin*.

Land areas labelled as the prairies and grasslands acted in accord with important Cree land marks, stone areas (rib stones and sacred rocks), trails, spirit trails, vision quest sites, burials, buffalo pounds, harvesting sites, ceremonial sites and lodges (Sweat lodge, Sun Dance, Ghost Dance or Horse dance) used by the Cree. The landscape, Mother Earth, was the foundation of law in which the Cree acted in accord to respecting the sacred animal’s sites and ceremonial sites. In the European perspective, the Saskatchewan River is a route for trade that provided the mechanism as the main east-west route in the plains for commercial trade therefore, Edmonton became an important outlet on the North Saskatchewan River in Alberta (which eventually became the Provinces capital region) for creating trade and interrupting culture. In most Native American cases, due to political, social, economic and spiritual autonomy, bands migrated as means of cultural survival and integrity. Many bands like the Cree, the Kootenays, Assiniboine’s, the Crows and Sioux followed the animal’s patterns of migration. In fact, after contact, written accounts illustrate bands fought hardy and almost all attacked the Blackfoot who were overkilling the buffalo with modern buffalo jumps during the time of treaties in North America, while the Cree and Assiniboine employed the more sacred, spiritual and selective pound method to harvest buffalo.²³

The Cree relationship to the land and people is an ideology of mutuality, respect, spatiality and accordance to the laws of the land in conjunction to the concept of “*Wahkohtowin*”.²⁴ Before the coming of the Europeans into North American, the concept to build alliances or incorporate adoption with other bands, to share the lands’ plants and animals, and to maintain the laws that protect the landscape and animals is still based on use of pipe, sharing, mutually and respect.²⁵ It stems from the fact, that in southern Alberta in so far as Montana, it is the landscape in which creation began for the Cree, and in deep spiritual history this relationship reflects cosmology, the order in which weaponry was manufactured (gift and patent given by the Great Spirit), and gift of the animal for human cultural integrity use is a sacred narrative: and based on the description of the landscape through different periods in Cree culture, it can be contested that Cree oral histories reflect paleontological descriptiveness of the landscape to confer with Cree description of their accessed landscapes in spiritual history.²⁶

²⁰ Neal McLeod refers to the Cree narrative memory as large, intergenerational, collective memory (2007: p. 8) that is embedded in spatiality rather than time.

²¹ Ibid.

²² 2014, Judy Half. Observation and field notes.

²³ IH-220, Office of the Specific Claims and Research. February 13, 1975 Richard Lightning interviewed men from Saddle Lake Reserve. That including Richard Cardinal (who is now deceased) who stated that in a “legend” that took place when animals could speak to humans, that his uncle shared with him about the invention of the Cree buffalo pound in Alberta, in which men were asked to place a buffalo dung in line forming a circle (we to the buffalo was imaginary fence) later on to become fenced with logs and hides.

²⁴ DVD, the Sacred Relationship. Healing the Water, Healing Ourselves. The Native Counselling Services. www.sacredrealationship.ca

²⁵ In Cree culture we are taught not to overtake, over use or claim the area as our territory because apart of the concept of *Wahkohtowin* is that the land owns us.

²⁶ Half, 2014: Field notes.

Charles E. Reason and Dennis Pavelich states in their article “The Legal and Social Alienation of Peoples on Canada”, has led to the loss of the indigenous people’s connection and ownership to their lands, their culture and their self-worth²⁷. In the case of Saskatchewan’s cultural Cree complexity, First Nations are complex cultures in Treaty Six, as they are composed of ambiguous genealogies and narrative irony.²⁸ The process of marginalization of Cree communities and the lack empathy toward the Cree cultural life and lack of understanding of the cultural distinctiveness²⁹, I believe will lead to genocide that is still occurring in institutions as bias and racial discrimination. This is a result of the non-aboriginal interpretations of First Nations peoples in Canada which are still dominated by colonial perspective that portray history as romanticized, hegemonic or colonial. For most Cree communities, what is happening to them is that their identities, cultural worth, stories, ideologies, patents and inventions get stolen, and in many cases in state heritage, the stories that are collected from Cree communities are often misused or plagiarized and put in another cultural context to enhance the cultural portrait created and adorned by anthropologists in western Canada.³⁰ In this sense, Cree artifacts do not get displayed because of marginalization, and the lack of respect and accord to the Cree voices who try to aid museum to establish their identities is non-existence where heritage matters.³¹ Therefore, non-indigenous scholarship constructs a historical understanding and learning that develops stereotypes of false histories of which the Cree people are disobedient, trouble makers and murderers and should be treated invisibly in western Canada. I am caution us and criticize academic literature that breathes an ounce voice that illustrate the Cree people as migrating recently to western Canada, but I admire the new age of pro-native scholars and First Nations academics who can apply interpretation without using works from hegemonic anthropology that place Cree culture in a negative perspectives. This pro-active research, along with Neal McLeod’s research reflects the ways in which oral histories and narratives untangle the rich Cree past³², while challenging academic assumptions or colonial interpretations that do no justice to Cree identity and history.

The purpose to examine treaty histories explains the demise of a Cree cultural practice that is encompassed in Cree spiritual history. For example, prior to the signing of Treaty Six, the establishment of Treaty Four acted as vehicle for the western Cree chiefs to understand First Nations experiences in negotiating treaty with the Crown. Cree treaty is based on mutuality and respect, and if there is ever such a group of people that places the significance in accord to that of the “sacred peace pipe”, that would be those of Cree men (and today elderly women) who have the right to hold a pipe.³³ This was reflected in the roles that Cree chiefs would have in regards to the signing of Treaty Six in the two western provinces.³⁴ The relationship between Cree and the government is reflected as the subjugation of the Cree people which John L. Tobias states was “Canada’s lack of respectful relationship with the Plains Cree and based on the control that they would have over them once acquiring their lands”.³⁵ Prior to the signing at Fort Carlton and Fort Pitt, the Plains Cree relationship was based on their antitrust toward the government, which revealed itself in what they witnessed at treaty four: that of the protest against the geological survey, prevention of telegraph lines in 1877 (Wonders, 1983: p. 96), and the settler expansion through their traditional territories. This antitrust

²⁷ Charles E. Reason and Dennis Pavlich. The Legal and Social Alienation of Aboriginal People in Canada. *International Journal of Canadian Studies*, 12 (Autumn) 1995.

²⁸ McLeod, p. 438.

²⁹ Russel Barsh, “The Worlds Indigenous Peoples”, a Paper submitted to the Calvert Group by First nations Development Institute, First people World Wide.

³⁰ In Alberta the notion of Cultural theft and intellectual knowledge is not perceived well and does not support Cree communities. The stories and intellectual property of the Cree are used to enhance the romanticized culture area.

³¹ In the last number of years that I have worked with museums, I found that Cree communities in some regard meet with ethnology, but their stories are never told. In my own experience of generating and interpreting Cree stories, I find that its gets taken and placed in another cultural context. (Half, 2014).

³² Neal McLeod, Cree Narratives: From Treaties to Contemporary Times.

³³ The peace pipe in my collaboration with Cree communities is like the testament in which Cree men, the ceremonialist will sit closest to the ground when conducting the pipe. The conduct of relationship and language in the presence of the pipe is mutual understanding as well as truth: no lying can take place.

³⁴ The Treaty Six Bundle is held by Alberta Treaty Six community, the value and the sacredness of bundles such as these reflect the way in which Cree communities honor and maintain it; therefore, that in which the bundle rarely is opened.

³⁵ Tobias, John L. Canada’s Subjugation of the Cree, 1879-1885. *Canadian Historical Review*, LXIV, 4, 1983. (University of Toronto Press), 1983.

was also stipulated in the outcome that the Cree would have when they rationale the impact that the transcontinental railway and the fur trade forts led to the demise of the buffalo, which would be sold to the American and European markets by Metis and Blackfoot groups on the plains. Also the antitrust of not being allowed to practice culture or Cree spirituality or to connect to relatives.³⁶

The Government on the other hand would use the continued devastation of the buffalo for greater control and demise of the Cree political powers which led to *Indian Acts*³⁷ that outlined the reserve system. To be displaced and hounded by the Canadian military was long process for the Cree to even get granted established reserve lands. It also reflected the political agendas that Canada did by displacing, monitoring and controlling Cree traditional territories in what is now Treaty Six, which displaced them in the parkland, while many bands of Cree lived in areas with Assiniboine's in which is now southern Alberta and Saskatchewan.³⁸ In part of the surveying of prairie lands, the Homestead Settlement Act (Dominion Land Act) was created in 1872 and up until 1918 it encouraged settlement for both American and European settlers, while it denounced anything favourable for the Cree people. In regard to establishing reserve the Cree were left in limbo and the delay of surveyed reserved and allocation for Cree people³⁹, which for some groups led the Bear Hills Indians of Treaty Six to wait till 1885 to be assigned to a reserve land while the Blackfoot who signed treaty in 1877 had their reserve lands secured in 1879.⁴⁰ This secured access to lands also meant most of the southern Alberta archaeological sites in western Canada archaeology as Blackfoot territory. This administration at the time of treaties, reflect how government labelled the obedient Indians and therefore the obedient Indian would be favoured amongst the federal government by having ownership over archaeological sites and unlimited pass on the Canadian Railway. Big Bear was an important Cree chief in both Alberta and Saskatchewan, he was like an emperor.⁴¹ Viewed as disobedient Indians leaders who contested to the Indian policies in the prairies created the rationale for the governments' negative treatment by marginalization Cree people in heritage and tourism.

For over one hundred years from the time of Treaty Six to the present, the government of Canada and its provinces have used the coercive policies on Plains Cree and Treaty Six First Nations (Tobias, p. 537) to control their identity and their relationship to the land. This present control is conducted in the form of the *Natural Transfer Agreement Act* (transfer of power from the Crown to the Provinces in 1932). This Act allows the province the right to access and extraction of resources on traditional Cree landscapes. This is also reflected in the *First Nations Sacred Ceremonial Repatriation Act* of 2000 which paved the way for *Blackfoot Repatriation Act of 2004*. As a part allowing the repatriation of ceremonial artifacts to the Blackfoot communities, the *BFA* allows for the Blackfoot a secured interest to the archaeological sites in half of Alberta and to a special place in the heart of heritage tourism and museum transparency⁴². As a result, these bands claim south eastern British Columbia, central and southern Alberta, and most southern half of the province of Saskatchewan, and northern Montana as their own territories only because archaeology and ethnology studies classify it as historically theirs. As result, exclusion to heritage matters in western Canada leaves Cree and other tribal people out of the dialogue in heritage matters, and in the case of communities like Saddle Lake, find themselves struggling to find a place to harvest berries, nuts, plants and animals and access to heritage sites by colonial institutions who control the land.

As a treaty six member of Saddle Lake, I have been working to community engagement for five years, previous to that as land use researcher in consultations. As a part of my commitment to striving excellence in museums, I have been building the provenance of the museum's Cree collections revitalizing their Cree voice, and by engaging and collaborating that voice with many Treaty six

³⁶ It is hard for many First Nations to practice culture across the American and Canadian border, without being subject to interrogation.

³⁷ Aboriginal History, Aboriginal People: History of Discriminatory Laws. November 1987, Revised November 1991. A list of laws that discriminate Aboriginal peoples in Canada.

³⁸ Tobias, pp. 528-529.

³⁹ Tobias, pp. 530-531.

⁴⁰ Wonders, pp. 99-100.

⁴¹ In discussion in September 2014, one of the first organizers of the Confederacy of Treaty Six First Nations in Alberta described Big Bear as an Emperor, one who dictated bands that functioned under tribal leadership.

⁴² This is reflected in the fact that The Buffalo jump sites are associated to overlapping pound sites in southern Alberta and awarded to Blackfoot.

communities. As part of achieving and accessing these voices, I ensure the authenticity of the voice by ensuring they are truly Cree voices. I engage communities by involving members who would like to become more knowledgeable about museums and their heritage, only because they are poorly represented, understood and accepted within western Canada. I go over the borders to find common Cree narratives who can speak of a shared narrative memory. The obstacle for many is that they are labeled and conditioned to believe they are recent immigrants to Alberta. If it has taken one hundred and fifty years, slightly over four generations of family, to subjugate the Cree people of a dominate colonial history than imagine how long it will take to decolonize and deconstruct the past colonial interpretations of Cree history? By making this assumption and by writing history in a manner that affects the Cree identity, gives more power to academics that write about our histories as dictated by colonial institutions. Many parts of addressing this come in the form of contesting and decolonizing what historical literature affects our existence and identities and sovereignty as Cree people in western Canada.

2. Conclusion

If cultural policies are derivative still of the colonial genocide, which make way for settler expansion, immigration and access to resources or Acts that effect Cree autonomy, than Canada has to take a serious look at instilling a cultural heritage inclusive to Cree people across the landscape. Empowering the Treaty Six First Nations in Alberta with community driven conservation supports the Alberta Cree First Nations the beginning of decontextualizing the colonial history that interprets them. It mean revitalizing and safeguarding much of the living history and cultural practices that are still used today and by honoring their ownership of their spiritual and collective narrative memory, in and off the reserves. Consequently, the Cree people have had a long relationship to the landscape in which is established under their ideology of “*Wahkohtowin*” in which is expressed through spiritual history and collective narrative memory. It involves an inclusive approach to understanding and establishing who the Cree are and how complex these nations are. Untangling the past happens in communities, and decontesting the literature require strength for communities to bring out a first voice that is challenging. Transparency through a community museum which can be shared via the web is the start of self-transparency, accountable and viable Cree nations in Alberta that incorporates Cree conservation methods.

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Heritage Conservation and Management Models in Lonjsko Polje Nature Park (Croatia)

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Abstract

Based upon the case study of the living landscape of Lonjsko Polje Nature Park, selected models of cultural heritage management according to holistic principles, with a view to creating local development conditions, have been elaborated. The cultural heritage protection process is focused on the rehabilitation of river system settlements and traditional architecture, especially the traditional wooden house. The implementation of conservation measures directed towards a sustainable tourism development, heritage interpretation, and fieldwork have resulted in the empowerment of the cultural identity of the local community.⁴³

Keywords: *Lonjsko Polje Nature Park; Protected Area; Cultural Heritage; Traditional Wooden Architecture; Conservation Models*

1. Introduction

The paradigm of the integrated and participatory management of natural and cultural components of the landscape places man in the central position of the conservation process. In Lonjsko Polje Nature Park (LPNP) the developmental processes, based on the use of the heritage were initiated by designating the protection of the area in 1990, and the activities of the Lonjsko Polje Nature Park Public Service. The purpose and the functions of the area have opened possibilities for the application of new models of protection and enhancement of the cultural heritage.

2. Heritage background - natural and cultural heritage significance

The highly valued LPNP landscape⁴⁴ is situated in the alluvial plain of the Central Sava River basin region, with a total surface of 506 km², between a few medium-sized cities (fig. 1). The territory characterisation is a swamp and flood relief area with a land use surfaces consisting of riparian forests, grassland, and the rural area, divided into 9 administrative units, including 13 minor rural settlements with a total population of 4,324 inhabitants. From the point of view of natural sciences, history, culture, architecture, and ethnology, the landscape has exceptional scientific significance, whose assets are composed of specific natural conditions and the adjustment to the dynamics of periodic flooding associated with all the aspects of human interaction with the environment.⁴⁵ The populated area is

⁴³ This research is a part of the scientific project Heritage Urbanism - Urban and Spatial Planning Models for Revival and Enhancement of Cultural Heritage (2032) financed by Croatian Science Foundation, which is being carried out at the Faculty of Architecture, University of Zagreb, under the project leadership of prof.dr.sc. Mladen Obad Šćitaroci.

⁴⁴ Lonjsko Polje Nature Park has been proclaimed on the national level in the category of *nature park* (Nature Park Protection Act, NN 11/1990) – IUCN category V, has international protected status (Ramsar site 1993., NATURA 2000, IBA), thereby representing a highly evaluated landscape on the national level (UNESCO WHC- Tentative List Croatia-2005.- mixed site category). A public institution for the Park management was established in 1998.

⁴⁵ Lonjsko Polje Nature Park represents a unique landscape and ecological systems of flooded river plain and is one of the largest wetland areas in the entire Danubian basin, belonging to the category of *organically evolved landscape – continuing landscape closely associated with the traditional way of life and exhibits significant material evidence of its evolution over time*. <http://whc.unesco.org/en/tentativelists/2012/>

characterised by a system of traditional river settlements of undisturbed pattern, historical size, and identifiable typology. In the villages authentic traditional architecture (dated to the 18th and the 19th centuries), built of oak from the flooded forests, has been preserved. The type of wooden house of Lonjsko polje is evaluated as paradigmatic architecture characteristic of a wide area of central Croatia, due to the preserved continuity of traditional architectural, and spatial elements. The rows of wooden house façades, with their gables facing the road, make a characteristic street scape.

The assessment of the area has identified the greatest risk in the human resource equally reflecting upon the natural and cultural values of the landscape. Exceptional depopulation, a majority of older age inhabitants, existential insecurity due to a decline of rural economy, and the low living standard have resulted in the neglect of the landscape, settlements, and architecture. The state of the area has also been influenced by armed conflict, as well as its location close to the border of Bosnia and Herzegovina.

Changes in the way of life have resulted in the decline of traditional practices, cultural identity, and pride of the community, as well as a loss of use of traditional architecture.

The area has been given the status of Special National Concern particular state care, along with the benefits in the implementation of projects of rural development and social programmes. The area is not at risk from urbanisation and land use changes caused by the development of new infrastructure. The positive aspects lie in accessibility and favourable distance from the capital Zagreb (80-120 km).

The heritage assessment has shown the traditional architecture to be destroyed, modified, or neglected. In some of the villages new construction incompatible with the ambience, as well as poor quality reconstructions and neglected public spaces have been found. Administrative procedures and legal protection of the settlements and individual buildings were entirely missing. The practice has also shown a scarcity of experts educated in project management, particularly architects and craftsmen specialised in restoration of wooden architecture.

3. Conservation strategy

The conservation strategy is based upon the evaluation of human activity to whose interaction with natural landscape qualities are attributed, placing the local population at the heart of development objectives.⁴⁶ The proposed conservation discourse presupposes a methodological approach of comprehensive landscape observation: *Landscape has been seen as a meeting ground between nature and culture, between the past and the present and between tangible and intangible values.*⁴⁷ This implies an understanding of the historical and socio-cultural setting of the rural ambience.

The ultimate goal has been established – to create an area conducive to immigration.

4. Conservation practice

The protection is nowadays carried out by managing the landscape as a developmental heritage resource for which an agreement has been reached at the level of national institutions and administration of the Republic of Croatia. In accordance with the use and function of the protected area, the measures are aimed at a sustainable development of tourism, heritage interpretation, and education, where cultural and natural heritage conservation sectors, the rural development and tourism sectors, as well as local and regional administration, are involved. The cultural heritage conservation practice is based on participatory methodology and active involvement of the local community, with the application of models of strengthening of the local community identity in tangible and intangible landscape components. Numerous associations of the local community are engaged in the presentation, continuation, and transmission of traditional knowledge in the activities such as pasture, fishing, traditional crafts, handicrafts, and folklore.

The conservation sector comprises the heritage inventory, the legal protection, monitoring, field activities, elaboration of projects, studies, planning documents, issuing the conservation instructions, supervision and control. The process has been accompanied by the publication of, stakeholders'

⁴⁶ (Schneider-Jacoby, Ern, 1993; Gugić, 2009). The paradigm of landscape management approach has been established by German nature explorers, Dr Martin Schneider-Jacoby, ornithologist, and Hatmund Ern, dedicating it to the inhabitants of Lonjsko Polje, without whom this unique landscape cannot be protected.

⁴⁷ (Brown, Mitchell, Beresford, 2005)

education, training in heritage skills, and interpretation. Fieldwork has contributed towards reducing the gap between institutions and the local population.

The area protection and zoning have been ensured by spatial planning (2010). Within the Lonjsko Polje Nature Park Management Plan (2008) action plans related to all kinds of cultural heritage have been elaborated, as well as those dedicated to the natural heritage and landscape.

5. Selected management models - traditional wooden architecture

The involvement of the local community in the protection process is exceptionally well developed, as will be illustrated on two selected models for protection of settlement and traditional architecture.⁴⁸

Branding natural and cultural values - Model 1

Branding the villages⁴⁹ as an empowerment model of heritage identity has been applied to the natural values of the village of Čigoć, proclaimed as the European Stork Village, whereas the village of Krapje has been listed as a site of the cultural heritage values by designating it the Built Heritage Village. In 1994 the village of Čigoć was the first village in Europe to be awarded the title of European Stork Village by the Euronatur Foundation (*Stiftung Europäisches Naturerbe*)⁵⁰.

Due to a large number of stork nests located on the roofs of traditional houses, the vernacular architecture, and the attraction of this natural phenomenon the village has become internationally known and is the venue for a number of visitors, particularly school excursions. With its 120 inhabitants and 300 storks, the village of Čigoć is famed for having more storks than people, thereby drawing attention to the Nature Park and the region. Since then, annual meetings known as *Dani sela Čigoć* (the Days of the village of Čigoć) have been regularly held in June, with active participation of the local community presenting material and intangible values related to tradition (fig. 2).⁵¹ The event has been regularly covered by the media.

The natural particularity has resulted in the pride of the local community, and has given impetus to the preservation of both storks and traditional village ambience. Branding of the natural phenomenon has directly enhanced the preservation of traditional architecture. After 1995, the first wooden house in the village was restored and became the Park information centre (fig. 3). The population have been allocated financial support from the state budget for maintaining the roofs containing stork nests. Due to the increased tourist influx, accompanied with setting up of the west Park entrance with the information centre, the adaptation of wooden houses and accommodation capacity in the village of Čigoć has substantially grown.

In 1995 the village of Krapje was proclaimed by the National Council for the preservation of cultural heritage of the Croatian Ministry of Culture, the Built Heritage Village. The crucial factor for the selection of this name was the state of preservation of the traditional ambience, along with a large number of traditional wooden houses (86). Within the activities related to the European Heritage Day in 1994 the Ministry of Culture chose the village of Krapje for marking such an event at the national level.⁵² The European Heritage Day in Krapje came to be recognised by the local population as a traditional fair involving the population in all the events and work of the heritage preservation (fig. 4-5)

The settlement branding has influenced the strengthening of the economic aspect of the wooden houses conservation.

Revival of traditional wooden architecture - Model 2

⁴⁸ The research of management models is in progress.

⁴⁹ In this case, branding consists of allocating an identifiable name to the heritage site, designating its dominant quality and/or particularity, creating its permanent identity, summarising its individuality and its essence, while promoting memory and recognition, and is determined by experts in the process of evaluation. The brand determined in this way represents a basis for marketing activities and development of economic benefit of the heritage resource.

⁵⁰ The initiative "European Stork Villages" launched by EuroNatur in 1994, was a milestone in the protection of the Sava water meadows. Since then, the title has been awarded to other 11 villages in Europe, which represent their respective countries, and are connected into a common network. The people visit each other, exchanging experience in the protection of storks. To be recognised as a stork village, the local authorities and population must take active stork protection measures. <http://www.euronatur.org/European-Stork-Villages.1475.0.html>.

⁵¹ (Petrić, Mlinar, 1994).

⁵² Krapje is the only village in Croatia where the Days of European Heritage, organised under the auspices of the Ministry of Culture, LPNP Public Service, the County, and the local community, have been regularly held in September.

Traditional architecture is privately owned. It is out of use for the most part caused by depopulation. The entire area is characterised by an exceptionally large number of traditional houses – the Lonjsko Polje area has 700, while the wider area boasts as many as 1,200.⁵³ The architectural conservation is aimed at the preserving the authentic ambience, revival of traditional architecture by its original design or appropriate reuse, as well as ensuring a continuity of traditional construction material (fig. 6). The disused traditional architecture has been placed within the context of its economic and use value especially because there was no pressure for new construction.

The programme, initiated in 1994 and conducted until today by the Ministry of Culture, is based on expert guidance and financial grants designated to the reconstruction and adaptation of traditional wooden houses and farm buildings. A great incentive and the positive example has been set by LPNP Public Service by purchasing four traditional houses with agricultural buildings in the village of Krapje and adapting them to accommodate administration services, heritage interpretation issues, and information centre (fig. 7).

The local communities view the heritage as an extremely great potential for a development based on tourism. Reconstruction of the traditional wooden houses has been given a central place in the course of adaptive reuse for tourist accommodation. Due to the Ministry of Tourism programme, aimed at investing in the tourism development in rural areas, the several rural wooden houses have been restored in the period of 2002-20012. Architectural projects have demonstrated a high level of adaptability of the building capacities to a new purpose.

Strengthening of the community identity has manifested itself on a private collecting of ethnographic objects, where several wooden houses have been adapted for the presentation of ethnographic collections included in the park tourist visits system. The transmission of traditional wooden architecture has been supported on several levels: workshops for children in LPNP visitors centres, publication of manuals for restoration of traditional wooden houses,⁵⁴ and training of the local craftsmen specialising in adapting wooden architecture. Conservation work has systematised a continuous programme of revival of traditional wooden architecture.

The applied management models have changed the attitude of the local population towards local traditional built heritage jeopardised by devastation and destruction.

6. Conclusion

In Lonjsko Polje Nature Park, an exceptionally valuable alluvial landscape of the central river course. By applying the landscape approach, models of heritage management have been developed, with a view to revive the areas, based on cultural and natural values, placing the participation of the local population at the core of creating a sustainable environment. Tourism, traditionally associated with protected areas, has manifested itself as a new tool for heritage protection, as well as cultural, social, and economic growth of the local communities. Traditional architecture that has lost its original function is thereby integrated into a contemporary context in the function of tourist accommodation and new uses associated with visits to the Nature Park. Administrative measures and match funding of restoration, the loss of heritage has been prevented. The applied model and conservation processes monitoring demonstrate the extent to which the experts' engagement effected a change in the local population's attitude, making them aware of the development opportunities stemming from the heritage.

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⁵³ The assessment of the traditional wooden architecture was carried out in 2000 by the Ministry of Culture.

⁵⁴ (Salopek, Petrić, Mlinar 2006).

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Figure 1: Lonjsko polje Nature Park - Location Plan.



Figure 2: Čigoć - The Day of the village of Čigoć with with activ participation of local community.



Figure 3: Čigoć – The first restored wooden house with stork nest.



Figure 4: Krapje: Local school children performing folk dances creating a new tradition for The European Heritage Day celebration.



Figure 5: Krapje: transmission of traditonal construction knowledge – workshop for children.



Figure 6: Krapje - The characteristic streetscape reconstruction with wooden house gable, interpolation matching the existing buildings.



Figure 7: Krapje – Visitor centre in the traditional farm buildings, arranged by LPNP Public Service, includes interpretation of built and natural heritage values.

Tangible and Intangible Heritage Conservation Involving Local Community Focused on Rituals in Sungryeoljeon and Hyeonjeolsa Shrines of World Heritage Namhansanseong, Republic of Korea

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Abstract

Namhansanseong was an Emergency Capital and is a mountain fortress city where about 4,000 residents lived for 300 years during the Joseon dynasty (1392-1910) including abundant Intangible Heritages such as Rituals in Sungryeoljeon and Hyeonjeolsa Shrines conducted by *Sungryeoljeon Bonghyanghoe* - and *Hyeonjeolsa sadan* Preservation Community. Those are meaningful to discuss the comprehensive approach to tangible and intangible heritages of communities. It is to think about the ideal role of communities in the protection, preservation and promotion of intangible heritage.

Keywords: *Namhansanseong; Sungryeoljeon; Hyeonjeolsa; Ritual*

1. Historical Background of Namhansanseong

Within ten years, intangible cultural heritage has been more widely recognized at the international level as a “valuable and integral part of people’s cultural heritage”, integrating sociological and anthropological aspects into its approach.⁵⁵ Recently, the definition of cultural heritages has become wider by gradually embracing the value of intangible heritages as well. It is meaningful to discuss the comprehensive approach to tangible and intangible heritages of a community with the help of the following two cases in Namhansanseong.

Namhansanseong was planned as an emergency capital as well as a representative mountain fortress during the Joseon dynasty (1392-1910), in a mountainous site 25 km south-east of present capital Seoul. Its earliest remains date from the 7th century, but it was rebuilt several times, notably in anticipation of an attack by the second Manchu Invasion of Korea in 1636. (fig. 1, 2) Built and defended by Buddhist soldier-monks as well as regular soldiers from *Sueocheong* army corps headquarter, it embodies a synthesis of the defensive military engineering concepts of the period, drawing on Chinese and Japanese influences, and changes in the art of fortification following the introduction of firearms from the West. A permanently inhabited city that was the emergency capital over a long period, it includes inside its fortified walls evidence of various types of military, civil and religious buildings. It has become a symbol of Korean sovereignty.⁵⁶ In this regard Namhansanseong is inscribed on the UNESCO World Heritage list in 2014.

Namhansanseong boasts not only tangible cultural heritage such as its fortress and Emergency Palace but also abundant intangible heritages including **rituals in Sungryeoljeon** (fig. 4) **and Hyeonjeolsa Shrines** (fig. 6) contributed to better understanding of intangible cultural heritage in cultural influenced area inside as well as outside of Namhansanseong. According to *Gukjo Oryeui* (The Five Rites of the State) of the Joseon Dynasty, rituals are divided into large-scale, medium-scale and small-scale ones. For example, in **Sungryeoljeon shrine**, medium-scale rituals were held to honor ancestors and in **Hyeonjeolsa shrine**, small-scale rituals took place to pray for everyday needs. The rituals held in these two shrines were not only different in their scales but also in their characteristics.

2. Sungryeoljeon Shrine

55 Doc ITM/13/8.COM/INF.5.c.

56 WHC-14/38.COM/8B, Nominations to the World Heritage List p. 30.

Sungryeoljeon Shrine is a shrine to house the spiritual tablets of King *Onjo*, the first king of *Baekje* Kingdom and General *Yi Seo* who died during the Second Manchu Invasion of Korea. The shrine was planned to be the royal tomb of King *Onjo* of *Baekje*, and King *Injo* had established the spiritual tablet and the shrine dedicated to King *Onjo* in 1638 (fig. 3). King *Jeongjo* sent officials to the royal tomb and Hyeonjeolsa Shrine to hold a memorial service in 1779 and renamed the tomb to Sungryeoljeon Shrine in 1795. King *Cheoljong* (1862) and King *Gojong* (1867 and 1888) sent officials to hold rituals. Sungryeoljeon Shrine has been designated as Gyeonggi-do Province Tangible Cultural Property No. 2 in 1972, and the auditorium hall was repaired based on historical research in 1998. The rituals held at the shrine at 11 a.m on September 5th of the lunar calendar every year is also protected as Gwangju City Local Intangible Cultural Property No. 1.⁵⁷

According to the founding fables of Sungryeoljeon Shrine, King *Onjo* appeared in King *Injo*'s dream during the second Manchu Invasion to notify the invasion of the enemy, and helped King *Injo* drive out the Qing soldiers. After the end of the war, King *Injo* established the shrine to commemorate King *Onjo* and held rituals in spring and fall. Later on, King *Onjo* appeared in the king's dream once again, asking the king to send one of his subjects. King *Injo* therefore ordered the spiritual tablets of *Yi Seo* to be housed together with King *Onjo*, who was the General who constructed Namhansanseong and died during the Second Manchu Invasion.⁵⁸ Even though it is a sort of legend, but it made a shrine be meaningful to understand in reality.

Sungryeoljeon Shrine consists of the main shrine building, subordinate building, Jeonsacheong, auditorium hall, the outer palace-gate with three doorways and a narrow gate.⁵⁹ (fig.)

2.1. Ritual at Sungryeoljeon Shrine

Sungryeoljeon Shrine houses the spiritual tablet of King *Onjo*, the first king of the *Baekje* Kingdom. It is designated as Gyeonggi-do Province Tangible Cultural Property No. 2, and the ritual held in the shrine is also designated as Gwangju City Local Intangible Cultural Property. King *Jeongjo* of Joseon named the shrine in person while writing memorial in 1779. The ritual for King *Onjo* at Sungryeoljeon was initiated in 1429, and a ritual to commemorate *Yi Seo* who died in war in Namhansanseong was held since 1637. The rite was originally held between spring and fall, but it has been held on September 5 of the lunar calendar after the Japanese colonial rule. In the past, the rituals were held by local officials in Gwangju. Today, Confucian scholars hold rituals and Gwangju Mayor acts as *Choheongwan* (Official offering the first glass of liquor). They have adopted a format of ritual based on the *Gukjo Oryeui* (The Five Rites of the State) of the Joseon Dynasty.

What is important in the procedure of the ritual held at Sungryeoljeon is *Holgi*. It is the set of rules describing the ritual procedure that the ritual officials have to follow. It is implemented in the following order (*Jeonpyerye* → *Choheonrye* → *Aheonrye* → *Jongheonrye* → *Eumbokrye* → *Cheolbyeondu* → *Mangryorye*) (tab. 2). Eight types of specially manufactured utensils are used in ancestral rites, and 18 ritual officials are needed to hold a ritual. For official attires, a golden headwear and court attire worn by officials in the Joseon Dynasty were used together with an official dress and Confucian scholars' attire. *Chambong* refers to a person who takes charge of holding the ritual and he is appointed by the governor of Gyeonggi-do Province among those who have inherited the ritual based on expert knowledge of Chinese characters and good personality.⁶⁰ Recently the ritual was performed by **Sungryeoljeon Bonghyanghoe Preservation Community** was established on September 15, 2010.

Table 2: Procedure for Sacrificial Rite at Shrine Sungryeoljeon.⁶¹

Duration	Name of Procedure	Photos	Description
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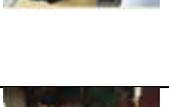
⁵⁷ Namhansanseong Culture & Tourism Initiatives, The Guidebook of Namhansanseong's Historic documents for standard Interpretation of Heritage, 2012, p.154.

⁵⁸ *ibid*, p.171.

⁵⁹ *ibid*, pp.157-158

⁶⁰ Namhansanseong Culture & Tourism Initiatives, The Guidebook of Namhansanseong's Historic documents for standard Interpretation of Heritage, 2012, p. 172.

⁶¹ Yun Yeo-bin, "Research on the liturgies held in shrine Sungryeoljeon and Shrine Hyeonjeolsa", The Namhansanseong Studies Series Vol. 2, 2011, pp. 43-44.

09:00~10:00	<i>Jinseol</i>		A procedure for <i>Chambong</i> of Sungryeoljeon to arrange sacrificial foods on the sacrificial table
10:00~10:30	<i>Hwanbok</i>		A procedure for <i>Heongwan</i> and <i>JeJipsa</i> to wear the ceremonial dress
10:30~10:40	<i>Jeonhyangchuk</i>		A procedure for <i>Choheongwan</i> to hand over incense and a written prayer to Daechuk
10:40~10:50	<i>Bunjeong</i>		A procedure for <i>Jiprye</i> to call <i>Jegwan</i> and <i>JeJipsa</i> to confirm their position
10:50~10:55	<i>Geomsi</i>		A procedure for <i>Choheongwan</i> to check out Jinseol, status of sacrificial foods, as guided by <i>Chambong</i> of Sungryeoljeon
10:55~11:00	<i>Ipchuiwi</i>		<i>Jiprye</i> and <i>Alja</i> come to <i>Baeui</i> and bow four times before washing their hands, and <i>Chukgwan</i> and <i>JeJipsa</i> line up in <i>Baeui</i> and bow four times before washing their hands. <i>JeJipsa</i> enters inside to open the case of the spiritual tablet. At that time, <i>Alja</i> leads <i>Heongwan</i> and <i>Bunheongwan</i> to stand facing west.
11:00~11:01	<i>Cheonghaengsa</i> → <i>Sabae</i> (four times bows)		A procedure for <i>Alja</i> to come forward to the left side of <i>Choheongwan</i> and bow to request initiation of a ritual before <i>Heongwan</i> and participants bow four times.
11:01~11:10	<i>Gwanse</i>		A procedure for <i>Heongwan</i> to come forward to <i>Gwanse</i> to wash hands and purify the body and mind.
	<i>Jeonpyerye</i> <i>Samsanghyang</i> → <i>Heonpye</i>		A procedure for <i>Choheongwan</i> to kneel down before a spiritual tablet and burn incense three times before offering <i>Pyebaek</i>
11:10~11:20	<i>Choheonrye</i> <i>Heonjak</i> <i>Dokchuk</i>		A procedure for <i>Choheongwan</i> to overlook <i>Junso</i> and kneel down in front of a spiritual tablet before receiving the first glass of liquor for <i>Heonjak</i> and offering it to <i>Sinwijeon</i> to kneel down once again. <i>Chukgwan</i> sits down facing the east before reading the written prayer.
11:20~11:25	<i>Aheonrye</i>		A procedure for <i>Aheongwan</i> to come to <i>Gwanse</i> and wash hands before looking over <i>Junso</i> and receiving the second glass of liquor for <i>Heonjak</i> before a spiritual tablet.
11:25~11:30	<i>Jongheonrye</i>		A procedure for <i>Jongheongwan</i> to come to <i>Gwanse</i> and wash hands before checking out <i>Junso</i> and receiving the third glass of liquor for <i>Heonjak</i> before a spiritual tablet.
	<i>Bunheonrye</i>		A procedure for <i>Bunheongwan</i> to come to <i>Gwanse</i> and wash hands before looking over <i>Baeui Junso</i> and receiving a glass of liquor for <i>Heonjak</i> before a spiritual tablet for <i>Wanpung Buweongun</i> .
11:30~11:40	<i>Eumbokrye</i>		A procedure for <i>Choheongwan</i> to come to <i>Eumbokwi</i> , kneel down facing the west and receive a glass of liquor from <i>Chukgwan</i> in addition to sacrificial food.

11:40~11:48	<i>Cheolbyeondu Sabae</i>		A procedure for <i>Chukgwan</i> to move <i>Byeon</i> and <i>Du</i> sideways and for <i>Heongwan</i> and all participants to bow four times.
11:48~12:00	<i>Mangryorye Yepil</i>		A procedure for <i>Choheongwan</i> to come to <i>Mangryo</i> and face the north to burn down <i>Pyebaek</i> and a written prayer brought by <i>Chukgwan</i> . <i>Jipsa</i> enters inside to cover the case of the spiritual tablet and <i>Alja</i> comes forward to stand on the left side of <i>Choheongwan</i> to inform <i>Yepil</i> . (<i>Chukgwan</i> and <i>JeJipsa</i> bow four times, and <i>Jiprye</i> and <i>Chanin</i> go to <i>Baeui</i> before bowing four times)

3. Hyeonjeolsa Shrine

Hyeonjeolsa Shrine was constructed to commemorate *Hong Ik-han*, *Yun Jip* and *O Dal-je* who were taken to Shenyang, China, before being executed for resisting against the Qing Dynasty during the Second Manchu Invasion of Korea in 1636. Spiritual tablets for *Kim Sangheon* and *Jeong On* were additionally enshrined later on. Hyeonjeolsa Shrine was constructed under the leadership of *Yusu Yi Se-baek* in 1688, and it was commemorated by the King in 1693. From the eras of King *Yeongjo* to King *Gojong*, rituals were held by the state. Hyeonjeolsa Shrine is designated as Gyeonggi-do Province Tangible Cultural Property No. 4, and the Rites of Hyeonjeolsa Shrine are designated as Gwangju City Local Intangible Cultural Property No. 2. Hyeonjeolsa consists of the main shrine, a *Dongjae* and a *Seojae*. The main shrine is comprised of three structures including the main building and auxiliary buildings on either side. As they were constructed on a ridge, the main building and the auxiliary buildings are placed on different ground levels. They are surrounded by a wall and the front gate is placed at the center. There are two narrow gates for entry and exit and a main entrance composed of two hinged doors (fig. 5).⁶²

3.1. Sacrificial Rite at Hyeonjeolsa Shrine

The shrine focused on educating the people while observing the principles of Confucianism. The sacrificial rite at Hyeonjeolsa Shrine was financed by the government in an effort to encourage fidelity and integrity. Hyeonjeolsa Shrine is designated as Gyeonggi-do Province Tangible Cultural Property No. 4, and the sacrificial rite at Hyeonjeolsa is designated as Gwangju City Local Intangible Cultural Property No. 2. The construction of the shrine was completed in 1688, and since then a ritual has been held on September 10 of the lunar calendar at 11 a.m. A ritual to commemorate *Kim Sang-heon* is held first, followed by rituals for *Jeong On*, *Hong Ik-han*, *Yun Jip* and *O Dal-je* based on the order of spiritual tablets placed from west to east. Currently, Gwangju Mayor acts as *Choheongwan* (The official to offer the first glass of liquor) and Confucian scholars in Gwangju City serve as ritual officials. The format of the ritual is preserved according to the *Gukjo Oryeui* (Five Rites of State) of the Joseon Dynasty. The sacrificial rite at Hyeonjeolsa Shrine has been held on a continuous basis even during the Japanese colonial times and the Korean War with the *Doyusa*, the head of Confucianism, performing the rites.⁶³

When a local official is inaugurated in Gwangju, *goyuje* is performed. *Goyuje* consists of less than 15 persons whose **community named *Hyeonjeolsa sadan***, including **Hyeonjeolsa Yusa**, *Yudohoe* Gwangju Branch Head, Deputy Head and *Hyanggyo Jeongyo*. Land contributed by Confucian scholars and community leaders are being preserved and managed.

The order of the ritual is as follows: *Bunjeong* (procedure to call *Jegwan* and *Jipsa* to give assignments) *Jeonpyerye* (procedure for *Choheongwan* to burn incense before a spiritual tablet in order and offer *Pyebaek*) *Choheonrye* (procedure for *Choheongwan* to offer the first glass of liquor before a spiritual tablet in order and for *Daechuk* to read a written prayer) *Aheonrye* (procedure for *Aheongwan* to present the second glass of liquor before a spiritual tablet in order) *Jongheonrye* (procedure for *Jongheongwan* to offer the third glass of liquor before a spiritual tablet in order) *Eumbokrye* (procedure for *Choheongwan* to drink from Eumbok Glass at *Eumbokwi*) *Mangryorye*

⁶² Namhansanseong Culture & Tourism Initiatives, The Guidebook of Namhansanseong's Historic documents for standard Interpretation of Heritage, 2012, pp. 190-193.

⁶³ *ibid*, p. 218.

(procedure for *Choheongwan* to burn down a written prayer and *Pyebaek* on Mangryo) (tab. 4). As a result of exploitation by the Japanese during the colonial times, utensils used in ancestral rites in the past disappeared. Later, six pieces of utensils for ancestral rites were newly manufactured according to the original form in 2004. Ritual officials consist of 15 to 18 persons, and the officials cleanse their body and mind for three days before a ritual. For the ritual dress, a golden headwear and court attire worn by officials from Joseon Dynasty are used along with a robe worn by Confucian scholars.⁶⁴

Table 4: The Order of a Ritual at Hyeonjeolsa Shrine.⁶⁵

Duration	Name of procedure	Photos	Description
09:00~10:00	<i>Jinseol</i>		A procedure for Doyusa of Hyeonjeolsa to arrange sacrificial foods on the sacrificial table.
10:00~10:30	<i>Hwanbok</i>		A procedure for <i>Heongwan</i> and <i>Jipsa</i> to wear the ceremonial
10:30~10:40	<i>Bunjeong</i>		A procedure to call <i>Jegwan</i> and <i>Jipsa</i> to confirm their places.
10:40~10:50	<i>Geomsi</i>		A procedure for <i>Choheongwan</i> to check the arrangement of sacrificial food as guided by the Doyusa of Hyeonjeolsa.
11:50~11:00	<i>Ipchuiwi</i>		A procedure for <i>Jiprye</i> , <i>Alja</i> , <i>Daechuk</i> and <i>JeJipsa</i> to bow twice first and wash their hands at <i>Gwanse</i> before lining up at <i>Baeui</i> and bowing twice to enter inside. The case of the spiritual tablet is opened, and the officials are allocated to their places.
11:00~11:01	<i>Cheonghaengsa</i>		A procedure for <i>Alja</i> to stand on the left side of <i>Choheongwan</i> before bowing and notifying the initiation of a ritual.
11:01~11:04	<i>Heongwan Jabae</i>		A procedure for <i>Heongwan</i> to bow
11:04~11:15	<i>Jeonpyerye Gwanse</i>		A procedure for <i>Choheongwan</i> to come to <i>Gwanse</i> to wash hands to cleanse the body and mind.
	<i>Bunhyang (Incense burning)</i>		A procedure for <i>Choheongwan</i> to kneel down before a spiritual tablet and put incense in an incense burner 3 times.
	<i>Heonpye</i>		A procedure to lift a basket with <i>Pyebaek</i> for <i>Heonpye</i> and offer it to a spiritual tablet before bowing. It is implemented in the following order: Munjeonggong (Kim Sang-heon) Mungangong (Jeong On) Chungjeonggong (Hong Ik-han) Chungjeonggong (Yun Jip) Chungryeolgong (O Dal-je).

⁶⁴ Namhansanseong Culture & Tourism Initiatives, The Guidebook of Namhansanseong's Historic documents for standard Interpretation of Heritage, 2012, p. 218.

⁶⁵ Yun Yeo-bin, "Research on the liturgies held in shrine Sungryeoljeon and Shrine Hyeonjeolsa", The Namhansanseong Studies Series Vol. 2, 2011, pp. 53-55.

11:15~11:25	<i>Choheonrye Heonjak</i>		A procedure for <i>Choheongwan</i> to check out and kneel down before an ancestral tablet before receiving a glass of liquor for Heonjak, offering it to a spiritual tablet and kneeling down again.
	<i>Dokchuk</i>		A procedure for <i>Chukgwan</i> to read a written prayer facing the east from the left side of <i>Choheongwan</i> . A glass of liquor is offered in the same order as before.
11:25~11:33	<i>Aheonrye</i>		A procedure for <i>Aheongwan</i> to come to <i>Gwanse</i> and wash hands before overlooking <i>Junso</i> and kneeling down in front of a spiritual tablet to receive the second glass of liquor for Heonjak and offer it to an ancestral tablet. It is performed in the same order as before.
11:33~11:41	<i>Jongheonrye</i>		A procedure for <i>Jongheongwan</i> to come to <i>Gwanse</i> and wash hands before looking over <i>Junso</i> and kneeling down before an ancestral tablet to receive the third glass of liquor for Heonja and offer it to a spiritual tablet. A glass of liquor is offered in the same order as before.
11:41~11:46	<i>Eumbokrye</i>		A procedure for <i>Choheongwan</i> to come to <i>Eumbokwi</i> and kneel down facing the west to drink from Eumbok Glass.
11:46~11:52	<i>Cheolbyeondu Ildongjaebae</i>		A procedure for <i>Chukgwan</i> to lift and move <i>Byeon</i> and <i>Du</i> one after another and before <i>Heongwan</i> and all participants bow twice.
11:52~11:59	<i>Mangryorhe</i>		A procedure for <i>Choheongwan</i> to come to <i>Mangryo</i> as guided by <i>Alja</i> and stand in the north to burn down <i>Pyebaek</i> and a written prayer before covering it up with earth.
11:59~12:00	<i>Yepil</i>		A procedure for <i>Alja</i> to notify the conclusion of a ritual to <i>Choheongwan</i> when <i>Jipsas</i> closes the case of the spiritual tablet. <i>Chukgwan</i> and <i>JeJipsas</i> bow twice, and <i>Jiprye</i> goes to <i>Baeui</i> before bowing twice.

4. Conclusion

In cultural influenced area of Namhansanseong there are a number of communities, each of which unique in their lifestyle, religion, ceremonies and customs, forming an abundant and diverse source of intangible cultural heritage including **Sungryeoljeon Bonghyanghoe Preservation Community and Hyeonjeolsa sadan Community**. Therefore, communities in this area need to play a more active role in the protection and advocacy of the intangible heritage of isolated communities. Their own ceremonial rites are to document. However in reality there are numerous obstacles, and financial and technical difficulties that make it difficult to enhance the various activities of communities. Intangible cultural heritage is a living heritage, evolving and recreated by the communities as it is transmitted from generations to generations.(fig. 7, 8) Communities are the actual bearers of the heritage and hence they should define their intangible cultural heritage and actively participate in the safeguarding measures.

In conclusion, this article has been focused on creating a much-needed opportunity to examine the activities of communities, and think about the ideal role of communities in the protection, preservation and promotion of intangible heritage, as well as ways to make their activities more effective.

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Fig. 1 Satellite View of Namhansanseong

1. Fortress Wall, 2. Namhansanseong Emergency Palace, 3. Sungryeoljeon Shrine, 4. Hyeonjeolsa Shrine



Fig. 2 Aerial View of Namhansanseong



Fig. 3 Sungryeoljeon Shrine Fig. 4 Ritual of Sungryeoljeon Shrine



Fig. 5 Hyeonjeolsa Shrine Fig. 6 Ritual of Hyeonjeolsa Shrine



Fig. 7 Education and Experience program on ritual of Hyeonjeolsa Shrine for young generation
Fig. 8 Education and Experience program on ritual of Hyeonjeolsa Shrine for young generation

Involvement of Local Stakeholders in Inhabited Archaeological Sites: Problems illustrated by the Han Chang'an City and the Daming Palace sites of Xi'an, P.R. China

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Abstract

The choice of approach on how to interpret and present the continuity of history in an inhabited historic site, sets the framework for involving local stakeholders and is heavily influencing the future for the people living there. The article is based on a three years study of the conservation and development of two archaeological sites in Xi'an, China: The Daming Palace site and the Han Chang'an City site. Setting the Tang dynasty, respectively the Han Dynasty in focus and leaving later traces of the history out, have evident consequences.

Keyword: *Local Stakeholders, Inhabited Archaeological Sites*

1. Introduction

The conservation and development of the Han Chang'an City Archaeological site in Xi'an, China, demonstrate an evident link between the principal approach of implementation, the consequences for the people living on the site and their involvement in the on-going processes. This palace site of the Western Han Dynasty (206 BC-9AD) covers an area of 36,5 square kilometre and is inhabited by approx. 50.000 people in 55 villages. Two important historical sites in Xi'an have undergone similar processes: The Han Chang'an City, which is the main case in this paper, and The Daming Palace City of the Tang Dynasty (618-907 AD), covering an area of 3,2 square kilometre, also inhabited by approx.50.000 people¹.

The principles that have been in opposition through the history of conservation are as follows: Either – principle 1 - the building, the site, the landscape should be restored back to its original form, being interpreted and presented by removal of “disturbing” additions of later time, or – principle 2 - everything that has been added over time should be considered to have historic value of importance and thus deserves to be recognised, documented or restored. This contradiction might be settled case by case through thorough discussions and compromises, or by being handled according to a policy based on one or the other approach as an unalterable principle. We will not make a statement on that, just by describing the cases show that acting according to the first of the two approaches as a principle strictly to be followed, had consequences for the understanding of what was operative in the conservation and development of the site, and for the will to involve local stakeholders. Subsequently it resulted in substantial changes of basic importance for the local stakeholders; in their daily life conditions and their understanding of the value of their own culture and links to the past.

Conservation and development of important, inhabited historic sites will always involve complex and difficult considerations within fields of mutually entangled problems; some aspects more basic than others, some of a more subordinate character. This paper does not

¹ To give an idea of the size of the sites: The Daming Palace site is of the same size as Central Park in New York, while the Han Chang'an City site is ten times larger.

intend to give a complete picture of a process, rather focusing on what has been a research for three years (2011-2013), carried out by The Xi'an University of Architecture and Technology – School of Architecture (XAUAT), and The Norwegian University of Science and Technology – Faculty of Architecture and Fine Art (NTNU), dealing with the involvement of local stakeholders in the case of Han Chang'an City historic site.

2. Background – the Daming Palace site

In 2007 and 2008 an international competition asking for principles, planning and design of the Daming Palace site was arranged by Xi'an municipal authorities. One project, named “Transitions”², introduced the principle of considering the existing urban tissue as valuable historic footprints, worth taking time to interview local residents and documenting the building compounds before deciding what should be removed and what should be preserved. The jury rewarded the project as “Project of Excellence”, but its principle was not taken into consideration when the Daming National Archaeological Park was realised. All buildings were demolished and the local residents were relocated to give space for the park. The park opened for the public in 2010. (See figg. 1, 2)

This experience coupled with the fact that the Chinese regulations by and large follow the international, doctrinal texts and charters - with one basic exception, namely the lack of paragraphs dealing with involvement of local stakeholders, triggered our interest for the development of the Han Chang'an site to study how this problem was handled, a few years after the Daming Palace site processes were concluded. Would the Han Chang'an City development process follow similar or different paths?

3. The research on the Han Chang'an site

The research project entitled *Involvement of local stakeholders in a development and conservation process of a historic site. Case Han Chang'an city* was funded by The Royal Norwegian Embassy of Norway in China, ICOMOS Norway and the participating universities, (XAUAT and NTNU), and was accomplished during three years from 2011 to 2013. A reference group was established with actors of high level positions, representing central units engaged in the realisation of the project.

Besides personal observation newspaper, internet and TV programs were scanned for pertinent information. Interviews of local residents and tradesmen as well as professionals and decision-makers dealing with the project on all levels, from the master planners in Beijing to the village leaders, were carried out with regular intervals during the research period.

The increasing interest and emphasis on involvement of local stakeholders in the international, doctrinal texts and charters mirror the importance of engaging common people in conservation and development of historic sites³. There are arguments for that: Involvement means an enforced public understanding and appreciation of the cultural values of the site, as well as a contribution to increase the common responsibility for its protection, maintenance and surveillance. A profit for the cultural heritage, and for the sociocultural life of the inhabitants, in other words. This project defines the term “stakeholders” as people directly involved in and/or directly affected by the transformations. “Local” is understood on different levels: Xi'an referred to the national level, the Han Chang'an site referred to the municipal level, villages referred to the Han Chang'an level.

² Team 3+, manned by BARK architects, AGRAFF architects and NTNU staff members – All from Trondheim, Norway.

³ See for example: The World Heritage Convention Operational Guidelines, World Heritage Committee, July 2012; ICOMOS Charter on the Interpretation and Presentation of Cultural Heritage Sites – 2008; Charter for the Conservation of Historic Towns and Urban Areas, (The Washington Charter) . 1987; The Valletta Principles for the Safeguarding and Management of Historic Sites, Towns and Urban Areas - 2011.

A premise for involvement is dialogue, and a premise for dialogue is information given in due time before decisions are taken. The studies have been focused on the flow of information; who gets information from whom, to what time and in which form?

4. The Han Chang'an city site

Located at the Guanzhong plain, watered by eight rivers and streams, Xi'an has been the capital of 13 dynasties, among them the Qin dynasty (221-206 BC), the Han dynasty (206BC-220 AD), and the Tang dynasty (618-907), thus playing a central role in the Chinese identity formation.⁴ Xi'an is today a fast growing metropolis of 8 million inhabitants, planned to grow to 10 million during this decennium. Being the capital of Shaanxi Province and the tourist city only second to Beijing, Xi'an has an important position in the North-West of China. It is given that the development of the Han Chang'an City site is of great local, national and international interest under high pressure of various and often contradicting interests.

The 36,5 square kilometre site, (ten times the size of Central Park, as remarked before), is located just outside the Second Ring Road, to the Northwest of the city centre. (See fig. 3), while the Daming Palace is to be found inside the Second Ring Road, just to the north of the Railway station. The central location in the expanding city requires thorough considerations; discussions on the future of the site have been a continuous process since 1956 the Provincial government proclaimed the site to be listed on the first batch of important cultural relics of Shaanxi Province; and since the site was promulgated to be on the first batch of national key relic protection units by the State Council in 1961. The level of importance reached a new height by the decision of promoting the Silk Road for nomination for the World Heritage List of UNESCO, where the Chang'an City site is the terminal station in that nomination; thus getting an international eye on the Han Chang'an City development.

A life on the surface of an archaeological field has caused many problems for the residents, basically farmer families. Digging in the ground has been a restricted activity, which introduced limitations for cultivating the fields and problems for repair and modernisation of pipeline infrastructure. Water, sewage, electricity and gas supply installations as well as road construction have lagged behind the development of the municipal systems. Restrictions on expanding building volumes have been introduced to avoid compression of the cultural layers, destroying cultural relics underground. Renting out rooms for migrant workers has been a good supplementary income. Limited building height means limited expansion potential, which in turn means less extra income for many families. All together the consequence has been that the GDP within the site area has been the half of the average for Xi'an city, considered to be unjust by most residents and a problem for the politicians.

Breaking the regulations mentioned above⁵ has been punished by fining the owners, or by removing the illegal constructions, or both. Episodes have regularly been reported in the media since the 1990s, and residents have been well informed on the regulations, though in many cases disobeying the laws without being confronted by the authorities. Especially during the last years many illegal constructions took place, due to the rumours of relocation.⁶

The main Palace of the site was Wei Yang Palace. When it was decided to join the Silk Road WHL application, the area around the Wei Yang Palace site was appointed to be the core area of the whole archaeological site, amounting to 8,6 of the total 36,5 square kilometre. Here were 9 villages with approx. 15.000 inhabitants. (See figg. 4, 5). Master-planning started,

⁴ During the Han and Tang dynasties, Xi'an was named Chang'an.

⁵ Formally announced by the Shaanxi Provincial People's Government in 1992. Doc. No 35. ("The Protection and Management of Han Chang'an City Site").

⁶ According to Chinese law families whose homes are expropriated should as compensation get new housing at least as big as the dwelling they left.

aiming at developing the area to be The Wei Yang Han Chang'an City National Archaeological Park.

5. The development of the Wei Yang Han Chang'an City National Archaeological Park

In the Wei Yang area, the interpretation and presentation of relics of the Han Dynasty period are given a clear dominance by totally wiping out traces of the history thereafter. (Referring to principle 1 mentioned in the introduction).

Possible basic reasons for this choice have been

- First and foremost: This principle of conservation and development was supposed to solve the difficult contradictions of the site and its situation by a unified treatment of the local villagers – relocating 15.000 persons and demolishing nine villages. It was considered to be the most efficient and time-saving procedure for managing the dead-line of the WHL application and the impatience among leaders in the political system.
- There was a national interest in underlining the importance of the Han dynasty, the cradle of the Han Chinese identity
- To serve the trademarking of Xi'an on the tourism market by concentrating on an easily recognizable commodity, the Han dynasty – together with the Tang Dynasty myths, which are materialised in monuments and building style all over the city (where the Daming Palace plays an important role).

To demonstrate the efficiency and speed of the implementation, some stages and milestones should be mentioned: (See figg. 6-9)

- Master Conservation Plan approved in January 2009
- Work with Master Plan for Wei Yang Archaeological Park started in 2010
- The WHL application was handed in in January 2013
- Moving out 15.000 persons and demolition of the nine villages December 2012 – February 2013
- Preparing the 8,6 square kilometre park in 45 days by 3000 workers in May-June 2013
- Visit by ICOMOS for assessment in October 2013
- The Silk Road nomination - The Routes Network of Chang'an-Tianshan Corridor (Kyrgyzstan, China and Kazakhstan), approved by the UNESCO World Heritage Committee – June 2014

6. Involvement of stakeholders – the information flow

There are two parallel, hierarchical structures involved, both with the national level at top and the local level at the bottom: a political-administrative and a professional-scientific one.

Lower level in a structure will be instructed by a higher level within the same structure. The lowest level, the village leaders, probably got information one step ahead operative actions, not before, and in time for preparing the necessary measures for carrying out the operations vis-à-vis the residents of the villages. In general have village leaders - with some exceptions - no access to the relevant documents.

Direct involvement in the development processes was reserved for the political and professional actors on all levels. Except of taking part in the flow of information, the role of the local residents and tradesmen of the villages more or less has been to obey the decisions taken by the leaders.

Information has been communicated in different ways and on different levels among the actors:

- By official introduction at an early stage, found in newspaper articles and TV programs, strictly controlled by the government. For common people it usually was too general to make possible a good understanding of the consequences of subsequent phases.

- By formal announcement in the newspapers; trusted by everyone. During the research period, 2011-2013, this kind of announcements was very scarce, leaving space for skepticism, paralysis, feeling of insecurity and inability to act and prepare for coming days.
- As rumors – which were unofficial and trustworthy only to a limited extent, but prevailing when official information was absent.
- By chats and unofficial information found on Internet. Not considered to be very trustworthy by the villagers, but had – together with the rumors - a considerable impact on the general interpretation of what was going on. (Most of the families had a PC in their home).
- As information on definitive decisions on actions given directly to the villagers. This job was given to the village leaders and to the central relocation office established in the ruins of Daliu Village, (one of the nine demolished villages in the Wei Yang area). The information had the character of instructions and commands and was given short time before actions were actuated.

7. Consequences for the villagers

There were different attitudes to the relocation. - Compensation was considered to be good, and many villagers looked forward to change their situation by a re-location after a long period of uncertainty. The majority of our interviewees, however, showed signs of resignation, even apathy. Many villagers would have preferred to stay in their village – by different reasons:

- Being part of a social network, they were afraid of losing it when moving into the new high-rise housing district where the relocation should take place, even if the whole village should be housed in the same buildings
- Many had invested in modernisation and improvement of their present homes quite recently, and would lose money when their homes were demolished
- Many families had a strong feeling of continuity – residents could trace a family history of many generations in the village, in a few cases several centuries back to the Ming dynasty, enforcing their attachment to the place.
- Many expressed a fear of living in high-rise houses– even if they knew that the material standard in new housing would be better than what they have today
- Many villagers had an occupation closely linked to staying in the village. They have to find new occupation and did not know how to do that in their new homes in a high-rise district outside the Third Ring-road.

8. Conclusion/summary

- The Chinese legislation on conservation is by and large in line with the international doctrinal texts, except when it comes to involvement of local stakeholders. This lack of support from the legislation and general praxis leads to neglecting the demand and recommendation of involvement found in international, doctrinal texts. The approach of conservation and development in the Daming Palace case is repeated in the Han Chang'an case, thus losing the potential of a process where local stakeholders are considered to be a resource and not a problem. As mentioned earlier in the text: Involvement means an enforced public understanding and appreciation of the cultural values of the site, as well as increasing the common responsibility for its protection, maintenance and surveillance.
- The understanding of what it means to be listed on the WHL, preparing for a *tabula rasa* approach, sets the premise for time schedules and efficiency in the planning and implementation process.

- The choice of a biased focus on the Han Dynasty in the interpretation and the presentation of the site, totally letting later traces of the history out, has given incentives to maximise efficiency by relocating all villagers and clearing the site for the existing village structures in one homogeneous framework of implementation, and avoiding involvement of local stakeholders that could disturb the pace and the speed of the process.

The change from living in the low-rise village to living in 30 stories high-rise outside the Third Ring-road is affecting the living conditions in substantial ways. For many to the better, for many to the worse. Time will show the cultural and social consequences of this process.

Epilogue

In 2010 many villagers had hopes for staying in their homes, facing a bright future within the future, archaeological park. As an example we could quote an eleven-year-old school-girl of Daliu village, representing villagers who had optimistic expectations:

I like running in the fields and playing together with my friends. In the fields there are a lot of mounds, we are usually crawling on top of them happily. Then suddenly one day, a mound in the west of our village was covered with wood. My mother told me that the mounds around the village are all part of the Han Chang'an city. Though they are ruins now, they are still a treasure. So amazing! Several of our good friends at once went to see the protected mounds. It looks beautiful, we were lying on the wood and felt very good. I hope all the ruins here can be protected. And then our village will be more beautiful - ah!



Figure 1: Model of the Daming Palace area Before the development process started (Ref.: Daming Palace information center). Figure 2: The Daming Palace Park 2010 (Photo by author).



Figure 3: Location of the Han Chang'an City and Daming Palace - map of 2004. (Ref.: Detailed plan of Xi'an. Cartographic Edition of Xi'an, 2004.1).

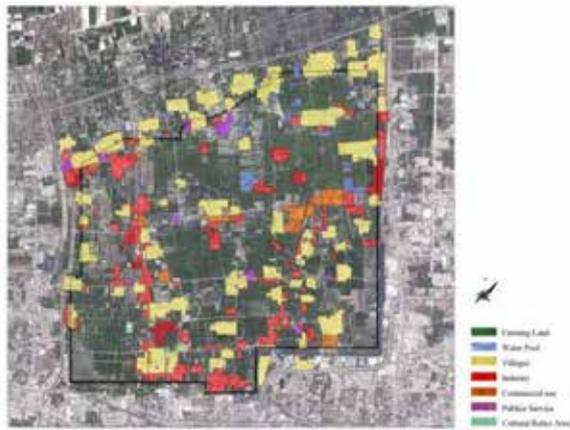


Figure 4: Land-use map of Han Chang'an City before development process started (Ref.: Research report, Xi'an University of Architecture and Technology, 2014).

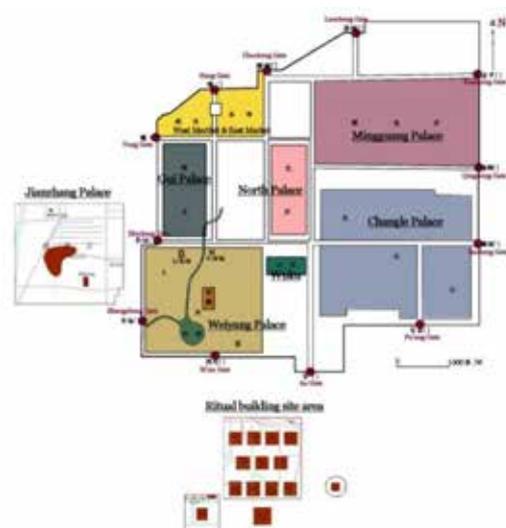


Figure 5: The Han Chang'an City site. Historic map. Location of Wei Yang Palace area. (Ref.: Research report, Xi'an University of Architecture and Technology, 2014).



Figure 6: Wei yang area. October 2010 (Photo by author).



Figure 7: Wei yang area. December 2012 (Photo by author).



Figure 8: Weiyang area. February 2013 (Photo by author).
Figure 9: Weiyang area. October 2013 (Photo by author).

Graffiti as Cultural Landscape: Protecting a Practice

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Abstract

Graffiti has demonstrated potential to play a significant role in placemaking. When communities find and instill value in graffiti sites, challenges arise from the prospect of conserving the tangible products of an art form that is inherently ephemeral, and which occupies gray areas of legality and property ownership. As heritage practitioners develop new tools to conserve cultural landscapes, the social role of graffiti should be examined within this framework. Graffiti is a place-based cultural practice; accordingly, conservation efforts should focus not only on the tangible paintings but, more importantly, on the ritualized and evolving act of their creation, and on communities' determination of their legitimacy and cultural value.

Keywords: *Graffiti; Intangible Heritage; Ritual; Community Value; Cultural Landscape*

1. Introduction

The drive to draw on public walls has been called a “primal intuition” and can be traced back through history to the early Roman Empire.¹ Broad in its span, graffiti as an art form ranges from wall writings found amidst the remains of Pompeii, to tagging on New York City subway cars, to elaborate street murals in Brazil. For better or for worse, graffiti has demonstrated potential to play a significant role in placemaking. When communities find and instill value in graffiti sites, challenges arise from the prospect of conserving the tangible products of an art form that is inherently ephemeral, and which occupies gray areas of legality and property ownership. These challenges were recently demonstrated in the case of 5Pointz, the “mecca of graffiti” in Long Island City, New York, where community-initiated efforts to prevent demolition could not be supported by existing regulatory tools for protecting heritage resources. International heritage discourse is shifting towards a new paradigm that acknowledges the dynamic intersection of intangible value and tangible sites, producing cultural landscapes in which community members spatially assert their identity.² As heritage practitioners develop new tools to conserve cultural landscapes, the social role of graffiti should be examined within this framework. Graffiti is a place-based cultural practice; accordingly, conservation efforts should focus not only on the tangible paintings but, more importantly, on the ritualized and evolving act of their creation, and on communities' determination of their legitimacy and cultural value.³

2. Development of Graffiti as a Cultural Practice (and Asset)

The particular origins of the contemporary “street art” movement lie in the graffiti of New York in the 1970s that, intertwined with the hip hop movement in music, arose as a response to renewal schemes and industrial development that threatened urban communities. Henry Chalfant, a well-known documenter of New York graffiti, explained that “urban renewal,” including the building of highways, suburbs, and expanded real estate, “is often justified as the desire to improve the lives of others, but it is mostly just a pretext for the real motive: making money.” Urban youth's reaction to this perceived corruption of their communities was symbolically to reclaim their neighborhoods by tagging buildings

¹ Richard Lacayo, “Takin’ it to the Streets,” *Time Magazine*, October 2005.

² Gustavo Araoz, “Protecting Heritage Places Under the New heritage Paradigm & Defining Its Tolerance for Change: A Leadership Challenge for ICOMOS,” unpublished position paper for the ICOMOS Executive Council, October 2009.

³ Certain information and ideas in this paper derive from and are further explored in the following: Tatum Taylor, “The Art of Criticism: Legality and Legitimacy, Banksy and Buskers,” unpublished manuscript for B.A. program, June 2008; and in Tatum Taylor and Mekhala Chaubal, “5Pointz: How heritage and copyright law failed to protect a *Gesamtkunstwerk*,” under consideration for publication, Spring 2015.

with stylized signatures. Street art is thus “rooted in the creativity of the dislocated and alienated urban communities of America”⁴ and their “deep need to express themselves, to own the walls that surround them.”⁵ Graffiti in the United States prior to 1970 had largely been defined by gang-related activity; as soon as it developed into a more positive form of expression, it evolved rapidly into a cultural phenomenon. Tacit rules of conduct among graffiti practitioners, known as writers, included an ethical code that deemed painting over another person’s work as an act of disrespect.⁶ A sense of competition encouraged them to heighten the complexity of their designs, and the increasing prevalence of graffiti generated public interest. Graffiti’s role as a “major factor in the iconography of hip hop” contributed significantly to its mainstream popularity around the world.⁷ As the graffiti movement spread, certain writers gained notoriety, and certain styles became associated with localities. Brazilian writers, for instance, developed a vernacular style notable for its use of acrylic paint, as spray paint was not readily available in Brazil in the 1980s.⁸ Paris came to be a center of graffiti created with stencils, a style pioneered there by such artists as Ernest Pignon-Ernest and Blek le Rat.⁹ Stencil graffiti is the choice form of Banksy, whose work in England, concentrated in London and his hometown of Bristol, and elsewhere, has generated a great deal of attention. Public and media interest in graffiti has reached a frenetic height in the last decade, accompanying the anonymous Banksy’s ascent to celebrity status. His work, usually political in nature and often using images of police, children, and rats to comment on war, capitalism, and government control, has become recognizable around the world and is considered by many to be not mere vandalism but art.¹⁰

3. Approaches to Protection

As public acceptance of graffiti as an art form has increased in the last few decades, its legitimacy, legality, and desirability have gradually blurred. Related policies tend not to reflect the nuances of graffiti as the result of placemaking activities. Instead, various authorities categorize graffiti as a quality-of-life crime, an environmental crime, and an antisocial behavior. It is blamed for reducing property values, causing community members, tourists, and retail customers to feel unsafe, reducing the enjoyment of public spaces, and, if not quickly removed from an area, encouraging more graffiti to be added there.¹¹ At the same time, the institutionalized art world has offered increasing acceptance of graffiti as a legitimate genre, even, with unintentional irony, inviting and curating exhibitions of this art form that is by nature anti-establishment. The Tate Modern, for example, invited several renowned international street artists to paint on the museum’s brick façade.¹² A number of municipalities, such as Canberra, Los Angeles, and Ottawa, have used similar tactics to authorize legitimate outlets for graffiti artists, providing legal walls on public property for graffiti writers to display their work. This occurrence tends to be related to cities’ graffiti management strategies, aiming to discourage undesirable graffiti on private property by providing alternative canvases. In some cases, property owners acquiesce to, allow, or even commission graffiti on their buildings. For example, the developer of a luxury condominium building in Brooklyn that opened in April 2014 commissioned six storeys’

⁴ Cedar Lewisohn, *Street Art: The Graffiti Revolution* (London: Tate, 2008) 7-8.

⁵ Lewisohn, *id.*

⁶ Susan Farrell, “Graffiti Q & A,” *Art Crimes*, 1994, available at: http://www.graffiti.org/faq/graffiti_questions.html.

⁷ Lewisohn 31.

⁸ Lewisohn 65.

⁹ Lewisohn 69-70.

¹⁰ Numerous sources, such as: Will Ellsworth-Jones, “The Story Behind Banksy,” *Smithsonian Magazine*, February 2013, available at: <http://www.smithsonianmag.com/arts-culture/the-story-behind-banksy-4310304/?no-ist>.

¹¹ Numerous sources, such as: “Guidance on Graffiti Removal: Antisocial Behavior etc. (Scotland) Act 2004, The Scottish Government, available at: <http://www.scotland.gov.uk/Publications/2004/10/20149/45695>.

“Environmental Crime: Graffiti,” Cheltenham Borough Council, available at:

http://www.cheltenham.gov.uk/info/200040/environmental_health/926/environmental_crime/4

“Graffiti vandalism,” New South Wales Government available at:

<http://www.crimeprevention.nsw.gov.au/cpd/protectcommunity/graffitivandalism.html>

¹² “Street Art: Tate Modern,” Tate Modern, 2008, available at: <http://www.tate.org.uk/whats-on/tate-modern/exhibition/street-art>

worth of graffiti across an entire façade. The work was painted by graffiti writer Mr. Brainwash, a protégé of Banksy, and has raised the building's profile within the real estate market.¹³ Challenges involved with both the theory and practice of graffiti conservation have been increasingly discussed among scholars, planners, community members, and in the media, largely prompted by the popular stature and monetary value of works such as Banksy's. Building owners and neighbourhood activists have attempted to protect works *in situ* (fig. 1) or even to remove the portions of wall that bear Banksy's mark, with the result of physically severing the artwork from its intended context. Preservation campaigns have spawned from communities in Cheltenham and New Orleans, aiming to remove and restore works by Banksy that were painted over by graffiti taggers.¹⁴ The potential for preservation was avidly discussed after Banksy's series of works in New York City in 2013, with some community members calling for new planning laws to protect such work, and others opining that Banksy's paintings are vandalism and should be treated as such.¹⁵ In Leipzig, Germany, a piece by Blek le Rat received listed status through a community initiative in 2012, and an acclaimed graffiti piece in Zurich was protected and restored by the buildings department.¹⁶ Beyond grassroots campaigns to save beloved paintings, Banksy's hometown of Bristol broke ground by putting preservation policy directly into the community's hands. In 2006, Bristol City Council established an online poll for the public to vote on whether particular works of street art by Banksy should be retained or removed from a clinic building; in the initial case, 93% of votes supported preservation. By giving the public curatorial power, Bristol showed an admirable acknowledgement of the role of community value in evaluating cultural resources. However, when Bristol unsuccessfully attempted to go a step further and list Banksy's works as official heritage assets, the conclusion was not as clear-cut. In the words of one local planning lawyer, "existing legislation on graffiti 'is aimed entirely at prevention and removal' and the Listed Planning System 'is not designed for the purpose of preserving graffiti.'" ¹⁷

In Brazil, public perception of graffiti relates more to the style, intention, and act of graffiti than to the renown of individual pieces. The flourishing Brazilian graffiti scene includes a general differentiation between tagging, which the community perceives as vandalism, and street art, which in recent years has become a culturally accepted initiative for urban revitalization. Cities like Rio de Janeiro and São Paulo have begun to codify these patterns into their laws and urban planning strategies, and recognition of graffiti's potential for public benefit has proven influential on a national level. In 2009, Brazil amended federal law to decriminalize graffiti on urban structures where the owner gave consent, heightening the distinction between unfavorable and favorable graffiti.¹⁸ The mayor of Rio de Janeiro issued a decree in March 2014 that openly permitted graffiti on city-owned property with the exception of structures deemed historic (fig. 2). Authorities and citizens alike have acknowledged the role of graffiti in city beautification, engagement of under-privileged youth through street art programs, and establishment of a dialogue about self-expression and communities' relationship with the urban fabric.¹⁹ In contrast with examples of graffiti permission and preservation on a case-by-case

¹³ Natalie Shutler, "Graffiti the Owner Asked for," *The New York Times*, 30 July 2014.

¹⁴ Doug MacCash, "Blotted graffiti mural by Banksy to be preserved," *The Times-Picayune*, 29 January 2014, available at: http://www.nola.com/arts/index.ssf/2014/01/blotted_graffiti_mural_by_bank.html, and Aled Thomas, "Banksy artwork in Cheltenham needs protection, say neighbours," *Gloucestershire Echo*, 1 May 2014, available at: <http://www.gloucestershireecho.co.uk/Banksy-artwork-Cheltenham-needs-protection-say/story-21036228-detail/story.html>.

¹⁵ <http://www.theguardian.com/artanddesign/2013/oct/06/banksy-new-york-murals-law>

¹⁶ Jan Schilling, "Preserving art that was never meant to last," *DW*, 7 May 2012, available at: <http://www.dw.de/preserving-art-that-was-never-meant-to-last/a-15933463>.

¹⁷ "Banksy graffiti 'should be listed' argues university," *BBC News Bristol*, 22 August 2011, available at: <http://www.bbc.com/news/uk-england-bristol-14613906>.

¹⁸ Michelle Young, "The Legalization of Street Art in Rio de Janeiro, Brazil," *Untapped Cities*, 13 February 2012, available at: <http://untappedcities.com/2012/02/13/the-legalization-of-street-art-in-rio-de-janeiro-brazil/>.

¹⁹ Lu Olivero, "Graffiti is a Public Good, Even as it Challenges the Law," *The New York Times*, 11 July 2014, available at: <http://www.nytimes.com/roomfordebate/2014/07/11/when-does-graffiti-become-art/graffiti-is-a-public-good-even-as-it-challenges-the-law>.

basis, the approaches taken in Brazil begin to offer a degree of blanket acceptance to graffiti as a cultural practice, emphasizing not the material paintings but rather their production and their cultural effects within society.

4. A New Values Framework

As these new approaches signify, it is time for heritage practitioners and policymakers to reconsider the regulatory treatment of graffiti within a new values framework. Discourse on graffiti conservation must expand to consider not only the tangible products of select celebrated writers, but also the cultural practice of graffiti as a community-specific act of placemaking. The insufficiencies of current heritage policy in addressing cultural practices were demonstrated by the recent failure of 5Pointz in Long Island City, New York, to achieve protection as a heritage site. 5Pointz refers to an outdoor exhibit space for graffiti at a historic warehouse building, which was established in 1993 as a place for artists to legally showcase their work. The site began as an effort to counter vandalism within a New York neighbourhood, but 5Pointz quickly grew to become a major destination for international graffiti artists and tourists alike (fig. 3). Jonathan Cohen, a writer known as Meres One, became the curator of the site's graffiti in 2002 and developed site-specific rules regarding where each piece of graffiti would be placed on the building and how long it would remain. Under Cohen's guidance, graffiti artists participated in the ongoing creation and renewal of 5Pointz as a ritualized performance of placemaking. The owners supported this use of their building until last year, when they received approval from the city's Planning Commission to demolish 5Pointz and construct two luxury condominiums, taking advantage of the area's gentrification.²⁰ In August 2013, New York's Landmarks Preservation Commission rejected a community-initiated application to designate 5Pointz, on the grounds that the historic building itself was not of heritage value, and the artwork was less than 30 years old, the threshold of eligibility for designation under the city's Landmarks Law. Three months later, the building owners whitewashed this cultural landscape overnight, despite highly publicized community outcry (fig. 4).²¹

Existing heritage policy was unequipped to acknowledge the site's intangible value to the 5Pointz community, consisting primarily of Jonathan Cohen as curator and the hundreds of participating artists, but more broadly including the international graffiti, hip-hop, and artistic communities, local residents, and tourists. According to Marie Cecile Flaguel, a spokeswoman for the 5Pointz artists, "5Pointz was, and grew in, a building, but 5Pointz became a community of people."²² *The New York Times* quoted one street artist as observing, "This is not just about graffiti – it's about the unity of people who met here from all over the world...That's what really hurts."²³ The New York City Landmarks Law focuses on the age value, historical value, and aesthetic value of a tangible "improvement" within the built environment. In contrast, only recently have certain international heritage policies shifted to acknowledge the values of a site's social meanings and associations. For instance, the ICOMOS New Zealand Charter, influenced by the recognition of indigenous peoples' traditions, defines intangible value as, "the abstract cultural heritage value of the meanings or associations of a place, including commemorative, historical, social, spiritual, symbolic, or traditional values."²⁴ The Landmarks Law and many other heritage regulations do not yet offer protections on the basis of community associations and social value.

²⁰ Elizabeth Greenspan, "The New Must-Have for Luxury Buildings: Graffiti," *The New Yorker*, 2 May 2014, available at: <http://www.newyorker.com/business/currency/the-new-must-have-for-luxury-buildings-graffiti>.

²¹ Cara Buckley and Mark Santora, "Night Falls, and 5Pointz, a Graffiti Mecca, Is Whited Out in Queens," *The New York Times*, 19 November 2013, available at: <http://www.nytimes.com/2013/11/20/nyregion/5pointz-a-graffiti-mecca-in-queens-is-wiped-clean-overnight.html>.

²² Steven McElroy, "Work by Graffiti Artists From 5Pointz on Display," *The New York Times*, 7 February 2014, available at: <http://www.nytimes.com/2014/02/09/nyregion/work-by-graffiti-artists-from-5pointz-on-display.html>.

²³ Buckley and Santora.

²⁴ "ICOMOS New Zealand Charter for the Conservation of Places of Cultural Heritage Value," rev. 2010, available at: http://www.icomos.org/charters/ICOMOS_NZ_Charter_2010_FINAL_11_Oct_2010.pdf.

To help address the community value of sites like 5Pointz, heritage policy should increasingly demonstrate consideration for cultural landscapes, a concept that encompasses the intersection of tangible and intangible heritage. Gustavo Araoz, current president of ICOMOS, issued a watershed challenge on this subject to the heritage community in 2009. With his finger on the pulse of heritage discourse, he identified a “new heritage paradigm” that arises from such occurrences as “the requirement to manage social processes that are deemed integral to the significance of the place,” and that includes dynamic sites “whose values rest... on an assortment of intangible concepts and tangible elements.”²⁵ Such sites have come to be described as cultural landscapes. Lisa Prosper, director of the Willowbank Centre for Cultural Landscape, defines the term as follows: “A cultural landscape, in the broadest sense of the term, is an inextricable relationship or fusion between culture and place that grounds cultural identity and continuity. This relationship is expressed in a wide range of often intersecting tangible and intangible elements. A cultural landscape implies the co-creation of a new form, at once cultural and physical, real and imagined, that is greater than the sum of its parts.”²⁶ 5Pointz epitomized this definition of a cultural landscape, and new protective tools are needed to safeguard this complex type of site.

5. Conclusion

More than an art form, graffiti is a place-based cultural practice through which expressions of social identity are integrated into the urban fabric. Within the new heritage paradigm, conservation tools should be developed that empower communities to determine the legitimacy and cultural value of graffiti sites. Heritage practitioners and policymakers should evaluate and protect not only the tangible products of graffiti but, more significantly, the placemaking rituals that create these dynamic spaces—the active practice of graffiti.

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²⁵ Araoz.

²⁶ Lisa Prosper, “Re: PG18.2 Official Plan Five Year Review: Official Plan Amendment to Adopt New Heritage and Public Realm Policies,” letter to the City of Toronto Planning and Growth Management Committee, 11 October 2013, available at: [https://www.willowbank.ca/asset/1582/City of Toronto Submission - Oct. 12.pdf](https://www.willowbank.ca/asset/1582/City%20of%20Toronto%20Submission%20-%20Oct.%2012.pdf).

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Image 1: A Banksy piece in Westminster, which City Council planned to remove, received a sheet of protective acrylic from an anonymous community member. Photo by Angela Lovely (published in: Lovely).



Image 2: A boy walks past graffiti in Rio de Janeiro in March 2014, the month that Rio's mayor declared graffiti to be fully legal on any city property that is not historical. Photo by Mario Tama for Getty Images.



Image 3 - 5Pointz was a "graffiti mecca" and significant cultural landscape in Long Island City, New York. Photo by Nigel Morris (published in: Velsey).



Image 4 - Members of the 5Pointz community mourned the site after it was whitewashed in November 2013. Photo by Robert Stolarik for T

Montevideo and Its Hidden Wall

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Abstract

In 2004 nobody in Montevideo talked about the colonial wall that surrendered the peninsula in the SXVIII century to protect the Spanish territory from the Portuguese.

Since a cultural space “Al pie de la muralla” was created, the community was involved to protect and recover all the remains of the wall. Public and private actors took part of this process that ended up in a declaration of historical monument by the Commission of Cultural Heritage of the Nation. This social construction of the concept of heritage valued by the community allowed developing educational and cultural activities to enhance identity and citizenship.

Keywords: *Heritage Consciousness; Involvement of Communities; Sustainable Local Development*

1. The fortified past

Montevideo, the actual capital of Uruguay in South America has no precise date of settlement. It was the latest town that the Spanish founded because the territory had no gold and silver that allured the European empires in the XVI century. So the founding process of this military village occurred from 1724 to 1730. Montevideo, just miles away from Buenos Aires, was planned as a fortified defense from the Portuguese that pretended to reach the “natural frontiers” of the River Plate.

Actually it integrated a fortified system that included other villages in the south of the territory along the shores of the River Plate. (Colonia, Maldonado, Rocha) (fig. 1)

The original town of Montevideo, now the historic center, had diverse fortifications that surrounded the peninsula and particularly an extension of approximately eight blocks that closed the entrance called the “front ground”.

But, these walls had a short duration since they were demolished in the beginning of the independence period in 1830 in order to extend the old city. What remained is located in the subsoil. According to a survey conducted in the 1990s, these remains are more than 400 meters of the colonial wall, mostly unseen because there are in the basements of the modern properties, private and public. Nevertheless, there are still some parts of the wall on the surface, on the street level. For many years these walls meant nothing to the community and they were in most of the places abandoned.

2. The community engagement

A cultural space called “Al pie de la muralla” (At the foot of the wall) was created in 2004 that holds 13 meters of the wall. For almost a decade this private place has been dedicated to enhance the colonial military heritage interacting with different stakeholders. The key question was ¿how we can help to improve the city we live in?

In 2006 it conducted a process of collecting signatures from the citizens to declare all the extension of the wall historical heritage. This process ended in a short period of time with 1,000 signatures that were given to the Commission of the Cultural Heritage of the Nation which after a series of studies declared the archaeological caution of the remains, previous step of the declaration of historical site of the whole extension of the wall.

From its beginnings this cultural space turned into a pressure group or a “lobbyist” in order to enhance the value of the remains of the colonial wall. In 2008, it was called by a state bank to give some advice for the cultural activities to be held on Heritage Day that takes part every year in October where all the heritage places private and non private ones remain open to the public. This bank had for many years an empty lot in the old city that holds the longest part of the wall, 70 meters. Recently in 2011 this

public lot was given on loan to the municipality for 30 years. It turned to be a public cultural space that also holds the Museum of Migration and the future Museum of the City.

Another social actor emerged in 2010: a nongovernmental organization, NGO, called “Friends of the fortifications” with the mission of research, study, education and release of the different fortifications in Uruguay. This NGO meets at the cultural space and from there interrelates with different associations within and outside the country. As a matter of fact its president, its secretary and two members of the board integrate the International Council of Fortifications (ICOFORT). This enabled to build a national network around the fortifications as well as international bounds.

3. The stones speak

Besides this, since 2004 “Al pie de la muralla” carried out several seminars regarding the fortifications with foreign experts. These seminars were held during five years in Uruguay and three years in Brazil. They allowed enlarging the perspective of the Spanish and Portuguese fortifications and their importance to the region as well as to be part of a network with permanent academic exchanges.

In fact, in Uruguay colonial history does not seem attractive to common people, especially to students. That is why two types of actions serve two purposes according to the public: i) education and heritage for the young generations in a non-formal educational environment and ii) a cultural touristic product for the general public.

Education and heritage is a very important issue since more than 10,000 primary school children attended the program “Dialogues with history” that consists mainly of theater plays, narrative tales, didactic visits along the fortifications in the historic center, among others. (fig. 2) This program takes into account the teachers view and the student needs. All the activities are based on what is called “extended visit”. The concept of “extended visit” has three different moments that implies a previous work with the teachers to improve the learning experience that is: i) sending materials to the students to anticipate the visit ii) the visit itself iii) evaluation post visit.²⁷

When the young visitor leave the cultural space there is a big board where they are free to write their impressions about the visit and the learning experience. The phrases “Thank You” and “I enjoyed it” and “ I learned a lot” appear every day on the board on the way out that they are daily post it on the institutional web. (figg. 3, 4)

These perceptions and feelings serve to the educational purposes, both cognitive and affective. Besides that, every young visitor gets a “diploma” with his name printed on it with a legend that says “I touch the Montevideo colonial wall”. This object makes the visit to be remembered and it shows clear when on holidays the children bring along their parents because they recalled with pleasure how they felt on their previous visit to the cultural space.

A continuous assessment is carried out taking into account the teachers perceptions as well as the students’ which are triangulated with the staff opinions. The main concern of the educational program is to strengthen identity and citizenship to enhance the knowledge of the past to understand the present time in order to build a strong future, *with* them not just *for* them.

During a decade of experience we realize how the schoolchildren and high school students can get involved and emotionally engaged in front of a wall made of stones that represents their past.

4. Education and tourism...? Yes! But how?

Following the same concept a cultural–touristic product was created for the general public which consists in a walking tour along the remains of the wall during two hours with actors that narrated the principal facts and music that was played in the colonial times such as “Candombe” which in 2009 has been declared Intangible Cultural Heritage by UNESCO. (fig. 4) This walking tour called “De cubo a cubo” (From Cube to Cube) takes place every first Saturday of the month and has become a “classic” cultural attraction in the old city. (figg. 5, 6)

This cultural-touristic product does not seek what is called “edutainment” a sort of shallow level of education experience but a more challenging one that allows a significant longtime learning on the

²⁷ (Alderoqui, 1996).

visitors.²⁸ The proposal takes into account what ICOMOS observed that “*cultural tourism as a name means many things to many people and herein lies its strength and its weakness*”.²⁹

The cultural tourism is based on tangibles elements such as the museums or the heritage but also intangibles ones for example the way of living. On the visit “From Cube to Cube” the public experiences according to Vidal (2002) an “itinerary joy” because the visitor through participatory activities enriches its self-esteem as long as discovers or re discover stones that are on different parts of the city that are not daily seen. The fortifications a decade ago were studied and “seen” only for a small group of academics or “high culture” Nevertheless today it has broadens and is for everybody even for people with decreased hearing abilities. The international scenario of “culturalisation” of the society enables that.³⁰ (fig. 7)

The notion of “situated tourism” may help to understand the complexity of the activity and the use of the leisure time. The “situated tourism” is a concept that finds its relevance in the theory of symbolic sites of belonging which states that every person lives in a multidimensional identity space. According to this theory an integrated approach is needed.³¹

ICOMOS stated that all the programs of promotion of tourism must protect and exalt the characteristics of natural and cultural heritage.³²

Step by step, the colonial wall has been unveiled. All these different actions carried on articulating private efforts with public concerns shows the importance and put on the agenda forgotten matters that the community values.

5. The long and winding road

Nowadays the Commission of the Cultural Heritage of the Nation is currently declaring historical site the first part of the wall, finishing the process in a near future. This complex process started in 2006 has revealed the importance and the involvement of the community since many of the landlords and apartments buildings want to have part of the wall in order to be included in this “historical movement”. As Hayden³³ says: *The power of place- the power of ordinary urban landscapes to nurture citizens public memory, to encompass shared time in the form of shared territory-remains untapped for most working people’s neighborhoods in most American cities, and for most ethnic history and most women’s history”*

Concepts such as “universal value” and world heritage” are themselves amorphous, products of negotiation and constantly re-framing themselves.³⁴

Not everybody is pleased with the declaration of historic monument of the colonial wall. Why? Because in some cases directly affects their properties since they have some obligations and cores to accomplish. For instance to show their places at Heritage Day. Every city by definition is a conflict scenario, hence to build social processes is a continuous challenge.

The debate around the concept of identity had a theoretical shift since the rise of nationalisms and globalization and deterritorialization of the contemporary world.³⁵

Active participation is essential in cultural heritage. Who decides what to be preserved? That is the main issue. But how the community self-funded and conservation is also crucial. Make synergies is the key to a sustainable and better cultural environment to enhance citizenship.

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²⁸ (Mc.kercher and Du cros, 2002).

²⁹ (USICOMOS, 1996).

³⁰ (Richards, 2001).

³¹ (Zaoual, 2012).

³² (ICOMOS, 1999).

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Figure 1: Uruguay and its main cities.



Figure 2: The storytellers at the cultural space “Al pie de la muralla”.

Figure 3: Schoolchildren touching the wall at the cultural space “Al pie de la muralla”.



Figure 4: Leaving their impressions on the board .

Figure 5: Dancing Candombe at the South Cube in the old city of Montevideo.



Figure 6: The route of the walking tour “From Cube to Cube”.

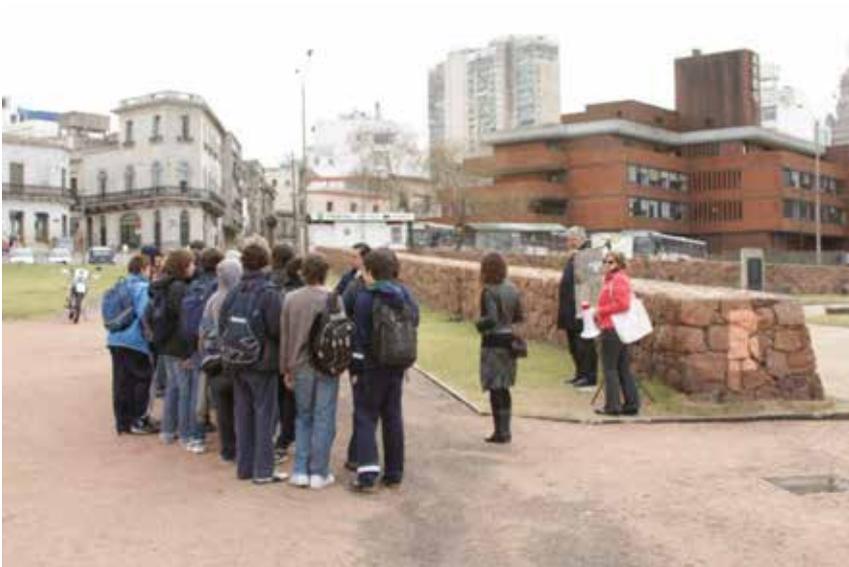


Figure 7: Teenagers at the south wall .

Embracing a Bittersweet Inheritance: Coffee and Cocoa Shared Built Heritage as a Driver for Local Development, São Tomé and Príncipe as Case Study

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Abstract

Shared built heritage faces demanding challenges, struggling with identity definition and often with a postcolonial legacy with high deprivation occurrence. The African archipelago of São Tomé and Príncipe is one such cases: having been one of the world's leaders in cocoa exportation at the outbreak of the XXth century, it now faces extensive poverty incidence, retaining remarkable but rapidly decaying built heritage and inadequate living conditions. Thus, this paper aims at addressing both the challenges faced by shared built heritage and its potential as driver for local development.

Keywords: *Shared Built Heritage; Postcolonial; Developing Country; Identity; Local Development*

1. Introduction

If heritage experiences the struggle for recognition and conservation, shared built heritage faces additional challenges, confronted with the definition of its identity and often with its location in postcolonial contexts that struggle with severe poverty issues.

The small African archipelago of São Tomé and Príncipe, located in the Gulf of Guinea just over the Equator line, is a paradigmatic example of that situation: though it was one of the world's leaders in cocoa exportation at the outbreak of the XXth century, it is nowadays included in the group of the Least Developed Countries, retaining remarkable but rapidly decaying built heritage.

Having been a former Portuguese territory for more than five centuries, its colonisation focused mainly in two aspects: as an important trading port for the African and Atlantic commercial routes, and as a plantation colony due to favourable conditions for extensive agriculture. The cultivated products were mainly sugar-cane in the XVIth century, and coffee and cocoa throughout the XIXth and XXth centuries, all of which relied heavily on extensive workforce - provided initially through slavery and later by contracted labour - which induced profound socioeconomic and spatial impact. The territory thus experienced intense manipulation, through radical changes in land use, and the construction of infrastructures and production estates (*roças*), becoming a perfect laboratory for technological and architectonic experimentation and innovation.

The independence brought great socioeconomic and territorial changes, with the nationalisation of land, an agrarian reform and the appropriation of inherited structures. Nevertheless, nowadays poverty affects more than half of the total population of the country, and basic housing units have grown within the remainders of the colonial buildings, most of which lacking even the minimum living conditions.

Thus, as this context faces extensive challenges - related to poverty, property and limitations in public investment -, built heritage may also represent potential as catalyser for local development and for reframing national and local identities. Indeed, though these built structures embody a bittersweet testimony of the past - of profit and luxury commodities to some, while exploitation to others - in any case they symbolize a cross-cultural and hybrid testimony, one that takes part in the identity of the communities that nowadays live within it.

Hence, as tourism is already an important source of national income, the strengthening of its cultural component and of the community-driven engagement may work as an opportunity to encourage

knowledge on existing heritage, to promote the conservation of physical and immaterial heritage, to encourage intercultural dialogue as well as to induce local empowerment and economic development.

2. A bittersweet inheritance: legacy and mutations in the ‘roças’ of São Tomé and Príncipe

As the colonization of the territory of São Tomé and Príncipe relied economically in extensive crop plantations - with coffee and cocoa as central, but also including products such as coconut, quinine, palm kernel or palm oil -, they occupied vast areas of cultivation and required intensive hand-labor. Thus, the intention of maximizing their production necessarily reflected those requirements: the domain of land successively conquered to the forest, its work structure, as well as the configuration of the estates and built structures for the preparation of raw products for exportation.

The production estates - ‘roças’ - thus included the agricultural cropland and the built structures to support that production. Although varying in scale and throughout time¹, these built facilities would often be designed almost as ‘company towns’, gathering different structures for functions such as the processing of raw products (dryers, warehouses), maintenance spaces (workshops, sawmills, stables, corrals), housing (separately for the owner, for colonial technicians and for workers), as well as, later, social support (hospital, infirmary, school, nursery, kitchen, toilets). Many of these structures operated in a network, thus establishing a hierarchy of operation and internal management amongst different sets of built structures, sometimes corresponding to a “specialization” in specific crops (according to altitude of the land, for example) or function (such as a coastal location for product exportation).

Thus, these structures varied widely not only due to the coexistence of estates of relevant scale and technological sophistication along with smaller and more basic structures, but also throughout time, following the sale or purchase of land (extending or contracting the planting areas and their built areas, alienating or adding new lots and buildings), as well as responding to new crop requirements or technological and scientific innovations in the production and processing of various products, leading to successive initiatives of remodeling, adjustment and modernization. Consequently, most of the existing buildings on the plantations of São Tomé and Príncipe date mostly from the last years of the XIXth century and the first decades of the XXth century, though there are more recent buildings, showing a dynamic and ongoing process of investment.

With the independence of this territory in 1975, there were radical changes in its use, socioeconomic organization and land tenure. The new State undertook a process of nationalization of the agricultural estates of foreign management, which was later followed by an agrarian reform that granted the right of use of this land to small and medium enterprises, as well as the distribution of about 10,000 hectares of land to small and medium farmers².

The intent of this reform - in these two scopes - would be to boost the economy through private entrepreneurship, as well as to reduce rural exodus, trying to provide mechanisms of subsistence to small farmers and thus reduce social disparities. Nevertheless, this shift had some structural fragilities related with the distribution and concession of these lands and built structures. Thus, on the one hand, the granting of exploration to companies was negotiated case by case, according to variable criteria, which were sometimes deeply influenced by political and personal affiliations³. On the other hand, the process of distribution of land to small farmers - including former employees of companies - was not only poorly controlled⁴ but might also have been a mechanism of disengagement of the State in addressing social problems⁵. In fact, apparently throughout the drought of 1983-84, and following an abandonment of land by its former owners, there had been "*the precarious occupation of tracts of land*

¹ Francisco Tenreiro wrote that "*It is possible to group the various ‘roças’ of São Tomé in many types, depending on location, territorial extension, the number of laborers, the main products or the overall performance*"(Tenreiro, 1961).

² (UNDP, 2008).

³ (Menezes, 2002).

⁴ (Barbosa, 2001).

⁵ (Nascimento, 2008).

by workers forced to provide for their needs"⁶, showing that this measure of the State would only legitimize an already existing situation.

Therefore, the complex process of property management of these vast territorial areas and their settlements appears as a succession of incomplete and profound structural changes, allowing the creation of disparate criteria in the exploration of the land, and therefore differences in the opportunities that might be available to different population sectors.

This is an important aspect for the development of these settlements over time and the challenges they face, as the perverse effects of policies also contributed to disparities and existing difficulties amongst two different realities. Thus, on the one hand, there is the concession of land and built structures to companies with private capital or economic investment which, due to the expectation of touristic turnover, international investments and real estate speculation, often await increased profits, and in that hold, produce indeterminately expectant spaces and the degradation of the built environment. On the other hand, there is the micro-scale local reality, often struggling for subsistence within very precarious conditions.

3. Current living conditions: the appropriation and use of inherited spaces

Therefore, the legacy of an agricultural structure, and the loss of its relevance and its fragmentation in subsistence farming, as well as changes in the labor and social stratification, produced mismatches at the level of use of existing structures, their adaptation to contemporary needs and expectations related to them, resulting in the rapid physical deterioration of building structures, with a relevant loss of qualities and available resources, exacerbating the precarious situations.

This means, on the one hand, a loss of previously existing functions, which while in some cases might be understandable for being obsolete and unsuitable to contemporary needs and uses, on the other hand this loss also reached very basic infrastructures and functions (such as water and energy provision, or sanitation facilities), meaning a severe impact in losing even the minimum living conditions for local residents.

Although it is difficult to accurately determine the causes of a recurrent lack of maintenance, abandonment and degradation of these inherited structures, several factors contribute to this situation: the difficulty in determining legal property and therefore the responsibility of maintaining these facilities, the limited resources of local residents that constrain the capacity for initiative to undertake such action, repulsion for historical and symbolic connotations, the subtraction of parts for use or sale (for providing short-term subsistence) thus compromising the functioning of the entire system, or the total absence or incapacity of the State, or other entities, to ensure proper management. These may thus be some of the reasons that, in varying proportions, contribute to this degradation.

Furthermore, one should pay attention not only to the severity of deterioration of existing colonial structures *per se*, but essentially that most of them remain in use - though some with changes and additions - representing an imminent danger to the safety of its users and justifying the disturbing difficulties observed in their living conditions and daily tasks.

A graphic diagram of the conditions of use of these buildings (fig. 1)⁷ shows an alarming overview of the overall panorama: the reddish buildings (which reach the major part of the built structures) are being used without sufficient conditions, while the grey correspond to vacant ones, and only the green buildings present a good condition for use. Given this panorama, one realizes not only the advanced state of degradation of inherited structures and their rapid deterioration (fig. 2), but also the disturbing conditions of precariousness under which they are recurrently still used and lived (fig. 3).

For this aggravation of the degradation process also contribute the physical characteristics of these structures. In fact, these buildings are at this moment in the critical phase of their life cycle: the old buildings having more than a century of life and the concrete ones around half century, they have

⁶ (Nascimento, 2008).

⁷ The buildings of each complex were separated into three groups: residential structures (houses of the owner, technicians or workers), social structures (hospital, nursery, kitchens) and production structures (dryers, warehouses, workshops). Each square is therefore a function, though it may consist of more than one building.

largely surpassed the expectations of life taken as a reference on their construction⁸. Given that during this period most of the required maintenance was not conducted, it is expectable that this shared heritage becomes at risk of unrecoverable loss.

Additionally, the rehabilitation of these building structures presents special requirements, related not only with the techniques and specific construction systems, but also with the new needs in terms of current use and maintenance capabilities and intervention of its users. In fact, residents⁹ highlighted their technical difficulty in undertaking the maintenance of most of the inherited built structures, due to the scale of building elements and systems adopted, the required knowledge and the tools that they could not afford or obtain locally.

It is also necessary to take into account the specificity of these colonial structures and, therefore, their adaptation and appropriation. The previous agrarian reform included not only the allocation of plots of land plantation areas, but also of the housing units of former workers, which were of very small dimensions. The subsequent distribution of one module per household would thus dictate the perpetuation of a high density and juxtaposition of these units. In fact, even if some of the units remain unoccupied, this does not invalidate the bond the right to use to whom they were assigned, and thus hinders the expansion of modules or an internal reorganization of the use of building structures.

Therefore, within the various settlements that were studied¹⁰ - and although they vary in configuration, scale and process - it was observed that their inhabitants produced changes and additions to the former colonial buildings, often expanding the private space towards the exterior common areas, through different mechanisms and relations. These changes were apparently induced both by the lack of available area in the original buildings - with extremely small and often overcrowded spaces -, and by the recurrent expansion of the families, thus accentuating the housing needs.

Additionally, with the abandonment of uses and functions previously carried out in common areas - such as common kitchens, laundry, or other services - and their transposition to the private space, the domestic needs have increased, and thus demand more space to be available within the family dwelling areas. These new needs, naturally, contribute to further pressures on the existing spaces and to the densification of buildings.

Adding to these new demands, the subsistence of the household has also often demanded further areas to be available to provide economic income, such as spaces for keeping livestock, for supporting small trade or services provided to the community.

4. Challenges: shared built heritage as a driver of local development

Therefore, discussing the legacy, role and potential of shared built heritage demands analyzing all of these issues of past inheritance, present uses and challenges, as well as future significance. Built structures cannot be discussed without taking into account their socioeconomic background and their users and inhabitants.

In this specific case of São Tomé and Príncipe, as in many other developing contexts, the urgency of intervention results not only from the severe degradation of the built heritage, but mostly from the alarming conditions in which they are lived and used. Therefore, in this case and in similar ones, the involvement of the local inhabitants becomes not only a good practice, but especially an absolute need for improving living conditions. Furthermore, shared built heritage is indeed part of the collective identity and affiliations of the people that inherited it, detaining the potential to act as a driver of local development, through becoming cultural and symbolic landmarks, as well as income providers.

Thus, various efforts are needed to overcome the challenges that these contexts face. On the one hand, an awareness and political will to engage in real efforts to improve the built environment and the dynamics associated with it, implying not only the recognition of the importance of maintaining and

⁸ (Appleton, 2003).

⁹ In Roça Bombaim, in 2010, while in conversation.

¹⁰ Around sixty 'roças' were surveyed throughout this research (each including a set of buildings), in a task jointly undertaken by the first author of this paper, with Hugo Machado da Silva, a Ph.D. student of the same institution, who studies the origins and mutations of these typologies of buildings from an historical point of view (Silva, 2012; Fernandes, 2012).

promoting these spaces and their use, but also the minimization of the expectant situations, regulating more firmly the situations of concession to private exploration, outlining guidelines for the common good, negotiating gains from the exploration of land and building structures and controlling the progress and adequacy of their implementation. Additionally, these would need to take into account the small farmers and lower income populations who use these spaces, by creating means of technical and economic support that might allow adequate conditions of use, cultural offer and identity bonds.

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Figure 1: Diagram of the conditions of use within sixty ‘roças’ in 2011 (based on the survey of the first author and Silva).



Figure 2: Degradation of the hospital building of Roça Agostinho Neto between 2011 and 2014, with the collapse of one of its wings (Silva, 2011, 2014).



Figure 3: Severe living conditions within the inherited shared built heritage: Roça Boa Entrada and Roça Monserrate (Fernandes, 2010; Silva, 2011).

Community-based Ecotourism Planning towards Sustainable Natural Heritage in Anambas Islands Regency, Indonesia

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Abstract

One of the cause for the deterioration of local natural heritages in Indonesia is the failure of many local governments in carrying out their autonomy in regional development under decentralisation era. Through a case in a site namely Temburun waterfall in Anambas Islands Regency, we show that community-based ecotourism planning can be a solution over those failures. In doing so, community needs adequate authority for a meaningful participation. At the planning process, a mixture between participatory and rational planning need to be taken while both treated as part of the empowerment process.

Keywords: *Temburun waterfall, community-based ecotourism planning, Anambas Islands Regency, participatory, rational planning.*

1. Introduction

Indonesia embarked the decentralisation era precisely in 1999, marked by the enactment of Law Number 22/1999 on Regional Autonomy which then revised by Law Number 32/2004. This legislation brings greater authority to the local government to manage their own development. Entering the era of regional autonomy, Indonesia has moved from 32 years New Order regime with centralized administration.

Regions, both at the provincial and regency level, of course, enthusiastically welcomed this era. It can be seen from the rise of new regions formed. Noted that since 1999 until October 2012, there has been 220 new autonomous regions created covering eight provinces, 34 cities, and 178 districts or increase nearly 70%¹. One of the new district is Anambas Islands, which is officially formed on July 21, 2008. The main lure for regional autonomy, beside a larger authority, is fiscal incentive, which manifested in financial transfers from the central government to local governments. In 2013, this financial transfer reached Rp 433 trillion (approx € 28,7 billion), which contributed an average of 75.47% of the regencies income¹¹.

On the other hand, Indonesia is a country with abundant natural resources, including natural heritage therein. Indonesia is one of the 10 megadiversity countries¹², with the longest coastline in the world after Canada. In the era of regional autonomy, the management and sustainability of the natural heritage is determined largely by local governments policies.

Unfortunately, there are some challenges faced by this decentralisation era to manage the natural heritage sustainably. The first challenge, which is crucial, is the lack of human resource capabilities of local government officials¹³. The second one is the expectations for accelerated development that can bring direct impact for the people, so the developments are constructed in a short-term view which has more physical nuanced. The combination of these two factors can lead to neglectful conservation of natural heritage.

¹¹ (Ministry of Home Affairs, 2013).

¹² (Primack et al. 1998, cited in BAPPENAS 2003).

¹³ (Seymour and Turner, 2002).

2. Natural Heritage in Anambas Islands Regency and Its Unsustainable Development

Anambas Islands is part of the Riau Islands Province, Indonesia. As the nation's borders, its north and western parts are bordering directly with the South China Sea. And as the nation's borders, this regency has a geographical proximity to Singapore which is about 300 km distance (see Fig. 1).

The exoticism of Anambas has been recognized in the regional level. One of the sites in this regency, a small island named Pulau Bawah, picked by CNN as one of Asia's Top Five Tropical Island paradises in 2012¹⁴. Another site that has not been known to the outside world, yet close enough to this island (located about 45 nautical miles), is a waterfall named Temburun (see Fig. 2), which is named the same as the name of the village where it is located. It is no less exotic natural heritage with it falls directly into the ocean. Wikipedia has recorded that there are only 19 similar waterfalls around the world, and Temburun waterfall, however, has not been recorded yet¹⁵.

The paper highlights the case of Temburun waterfall where local authorities has failed to manage this natural heritage. This failure can be seen from the incompatible development that has been done in the waterfall area, even threatens its existence both in terms of functional and aesthetic (see Fig. 3). *First*, the government built roads with foundations such as dikes within just a few feet away from and surrounding the waterfall crash site into the sea, so it separates the crash site from the sea, makes the waterfall does not fall directly into the sea again, but more similarly falls into an artificial pond. This "artificial pond" area used to be an estuary ecosystem where the fresh water that comes from the waterfall meet and mix with the salt water from the sea. It claimed that building a road is a necessity to connecting the village, but still those needs can be covered without destroying the ecosystem quality as well as its beauty. *Secondly*, there is a failure in combating deforestation in the top of the waterfall so that, at certain times, significantly reduces the water flow of waterfall. *Thirdly*, from other aesthetics view, local government uses the waterfall as a source for microhydro, but the placement of pipes and various fittings power plant reduces the overall beauty of the waterfall.

3. Community-based ecotourism planning as a countermeasure to government failure

We propose that community-based ecotourism planning can encounter this government failure in conserving the waterfall. The principal premise is that the very concept of decentralisation works towards greater participation of local communities. Regional autonomy does mark the introduction of an era that could facilitate greater participation in local level governance and development in the long run¹⁶. We even argues that decentralisation essentially is the same as participatory approach since they both has "redistribution of power" as the essence.

The other reason is the challenges of governance in a world of complexity and uncertainty¹⁷. These are kind of environment that makes our rationality become bounded. Through a participatory approach, we can minimize the problem of bounded rationality by involving all of interested subjects, so that the information that was originally spread can be put together, verified, and resulted in decision made through equal and dialectics process. Only, decentralisation that currently practiced in Indonesia is more focused on the autonomy of the local government, but has not reached the participation of local communities much yet. A classic trap in decentralisation is the scene of the fulfillment of the interests of local elites⁸. Included in this case is the site management of Temburun waterfall, where the village and its people have never been involved in its planning.

3.1 Creating space for community to participate

Participation should not be understood with a single meaning, because it contains a hierarchy therein. Many scholars describe hierarchy in community participation, such as Arnstein (1969) with levels that ranged from the bottom step namely manipulation to the highest level namely citizen control. This implies that there is a pseudo-participation as an opposite to meaningful participation.

¹⁴ (<http://edition.cnn.com/2012/04/13/sport/south-east-asia-sailing/index.html>, accessed October 17, 2013).

¹⁵ (http://en.wikipedia.org/wiki/List_of_waterfalls_that_empty_into_an_ocean, accessed October 17, 2013).

¹⁶ (Seymour and Turner, 2002).

¹⁷ (Berkes, 2010 cited in Larson and Lewis-Mendoza, 2012).

Toward meaningful participation, it needs adequate authority for the local people to participate which then requires willingness from the power holder to redistribute the power. Such kind of condition needs to be created, and willingness to redistribute the power needs to be encouraged. Academics can enact themselves for creating this prerequisite by their network strength. What we meant by “network strength” is that academics can have a good relation, be heard, and acceptable for both parties, either government or the local community. The government sees academics as source of knowledge and can provide them with valuable inputs. Local communities sees academics as partner that can accompany them to build relation with other stakeholders in a more equal manner.

Through this power of networking, activities on community-based ecotourism planning can be conducted with financial support from the central and local governments. And when we do it in a community-based scheme, at the same time we gain supports from the locals so this power of networks can be turn into bridging activities between parties.

3.2 Participatory Planning

The quality of planning, moreover in participatory planning, can not be assessed only from the product of the planning itself but also need to consider the process side. We divided this participatory planning process into two phases based on the methods used namely Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA). RRA and PRA are tools of participatory methods used for data collection.

The data collected through RRA is the data that is relevant, timely, accurate and usable by ignoring inappropriate professional standards¹⁸. The types of data collected are primarily about the availability of resources (divided into natural, human, man-made, social capital, and financial access) and problems identification regarding to ecotourism development.

Equally as data collection methods, PRA differs from RRA in terms of who does the appraisal and analysis - outsiders with RRA, PRA with local people. RRA had semi-structured interviewing at its core¹⁹, meanwhile PRA involves intense interactions among local people, often in small groups²⁰.

These two methods complement each other in term of outputs. Through RRA we will build and acquire an outsider’s point of view, while PRA enable us to get consensus with the locals through dialectic processes. Outsider’s point of view can be treated just like filter and comparison so the dialectic process becomes more constructive. This built-consensus forms in ecotourism planning. The planning itself constitutes of vision, mission statement, goals, programs, and stakeholder mapping.

The word "participatory" certainly has its own implications on the set of this methodology, both RRA and PRA. Even though these are tools for data collecting in a participatory manner, but a set of data collection is not the final aim but rather as part of a process to empower. As Sofield observes that '... the concept of empowerment by and of communities is at once a process and an outcome'²¹. It is also aligned with the “5 Cs” Strategic Objectives of the World Heritage Committee, with one of the Cs is “Capacity-building”²².

In this sense, RRA and PRA have additional outputs to the data collection. RRA has a goal to build the trust of the locals to outsiders. As we may know, empowerment is a long process and requires intense collaboration between locals and outsiders. Such kind of process needs trust between parties start from the beginning. Trust building is an enabling condition that facilitate cooperation between parties done in a more efficient way. PRA expresses the values of equality and respect for local knowledge, where those values underlies the consensus building process. PRA also should be a “hand over the stick” phase where local involvement is higher both in terms of analysis and decision-making.

3.3. Fill in the Gap with a Complementary Rational Planning

¹⁸ (Ribot et al., 2006 cited in Larson and Lewis-Mendoza, 2012).

¹⁹ (Chambers, 2008).

²⁰ (Grandstaff and Grandstaff, 1987a cited in Chambers, 2008).

²¹ (Sofield, 2003 cited in Beeton, 2006).

²² (UNESCO et al., 2012).

Question maybe asked about the quality of the planning product itself, since it seems that we care more for the participatory and empowerment process. For instance, how can be an ecotourism planning without zoning regulation as part of the plan? Meanwhile, zoning regulation is rather technical and requires skills such as spatial data processing.

We see that a mix approach need to be taken to answer the dilemma, which is combining between participatory and conventional²³ approach. Conventional approach is done through variables weighting and scoring that came from three factors which are biophysics, objects and tourism attractions, and socio-economic condition. The process of weighting and scoring are done by expert observation and judgment. The output resulted from these methods are potential level of ecotourism development and regional zoning plan. This zoning divides the region into intensive, extensive and conservation area that represent which area that could be highly developed, semi developed and non-developed.

This conventional approach, or rational planning, should not be seen in opposition to participatory planning, but rather can be complement to each other. In order to do so, the rational planning should not be done in an exclusive and separate process with the participatory ones. Involvement of locals in the rational planning process should be keep up, even though we do not pursue transfer of knowledge as the end result. Still, locals can provide valuable insight on that phase, especially in helping the experts to characterize the region as part of zoning planning.

4. Results and Discussion

Ecotourism development plan has been produced, through a consensus among us acted as facilitators and local communities. Temburun people confirmed their village as an area which has been classified according to its function as ecotourism destination. Temburun village has been divided become three zone are namely intensive area (wide-ranging activities), extensive area (limited activities) and conservation area (very limited activities) which are subsequently reserved for adventures and ecoculture tourism, agro-eco tourism and edutourism, and culinary and homestay.

This plan document is packaged in form of a book and audio-visual media, a separate documentation beside the formal report, making it more attractive for the readers, a necessity when locals have to sell their ideas and gaining supports from stakeholders. The main issues in the management of Temburun waterfalls, and the village as a whole, have been included and become a shared commitment.

Among the charges in the plan are the key programs include (as written on the planning document): reforming the concrete road in front of the waterfall to enhance the beauty and ecological sustainability, planting the trees or greening program (at the surrounding attractions, around rivers, and springs water), work together with the land owner (considering that greening of land around the falls which has been a private land), the establishment of tourist board, and the development of objects and attractions of waterfalls and other complementary objects. The whole program is aimed at the vision of village formulated as follows "Making Temburun village leader in natural tourism in Asia region and contribute to the development of Anambas Islands".

Awareness and commitment of local communities to conserve their natural heritage grew and strengthened through participatory processes. As stated above, a real impact from the document plan needs stakeholders support, especially from local government through plan adoption into government development agenda. And once again, academics needs to optimize their network strength so we can bring together community representatives with government officials in a forum. As a part of the empowerment process, the locals themselves who presented the results of their planning. In our case, almost all of government executives attended this meeting, and for the community representatives, this was their first time to face and convey ideas directly in front of government executives.

This event was fruitful proven with the adoption of several programs into government development plan in 2015, along with budgeting. Although we can not have stated yet that the conservation of natural heritage has become mainstream in the local government's development agenda, but one thing we believe is that the local community has taken a firm position on this issue and be ready to voice and escort the principles. Finally, the empowered locals will then give more guarantee on sustainable natural heritage management.

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5. Conclusion

Community-based planning can offer solution in the era of regional autonomy, especially when there is a lack of human resource capabilities of local government officials, and when conservation of natural heritage became neglected issue in the development. In doing so, a collaborative action need to be taken by actors outside the community, especially local government and academics. Academics can optimize their network strength to encourage the local government as the power holder to redistribute the power to the community, so they will have meaningful participation, not just a pseudo ones. This power redistribution is basically the core idea of decentralisation.

Delivering community-based planning needs a mixture between participatory and rational planning. Both kind of approaches has to be understood as part of empowerment process, so the involvement of the locals in appropriate degrees is a key factor.

Adoption of multi-level governance is a potential for the next phase of community-based planning. Multi-level governance, which defines as “horizontal and vertical connections between communities and other levels of organization such as government agencies and civil society groups”¹⁴ can strengthen the involvement of local communities, while at the same time solving complex issues such as sustainable natural heritage management in a more collaborative way.

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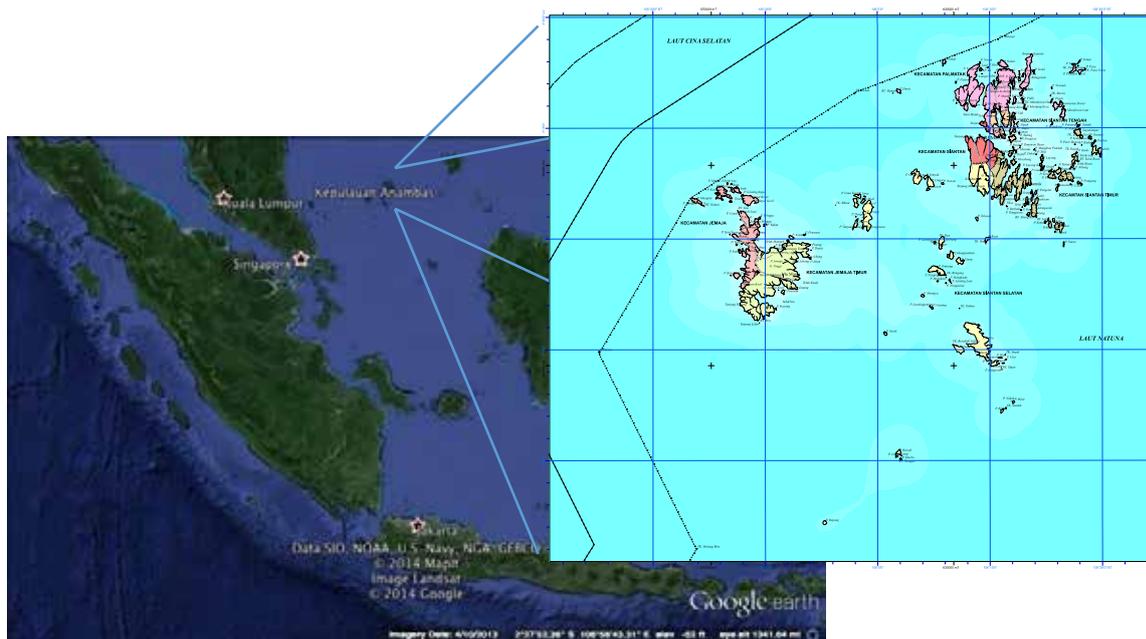
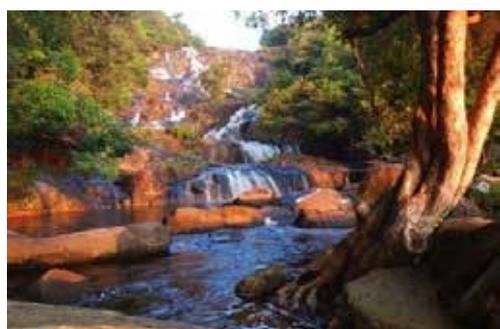


Figure 1: Map of Anambas Island Regency.



(a)



(b)



(c)



(d)

Figure 2: Temburun waterfall (a) on first stage of cascade, (b) point where it falls to the sea, (c) view from the top of waterfall, and (d) waterfall with 250 m high from distance.



Figure 3: The development that threatened the existence of functional and aesthetic of the environment (a) road construction which led to water inundation in base of waterfall, (b) water inundation which clog the water flow into the sea, (c) deforestation takes place in surrounding waterfall.

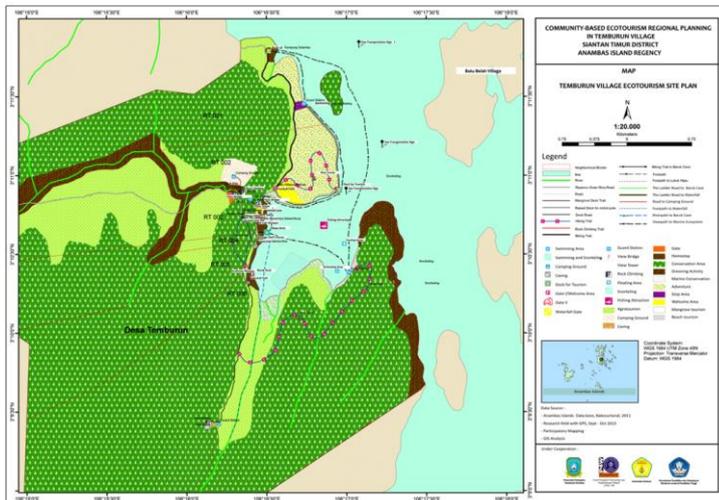


Figure 4: Site plan for ecotourism in Temburun village.

Tangible Sustainability for the Intangible Values

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Abstract

The notion of sustainability plays a central role while considering the conservation of ecological and built heritage. The heritage sustainability is a long lasting preservation if it is financially viable and productive. Tourism not only is a vital source of economic regeneration in heritage industry, it also provides an authentic insight to the traditional values of a place and its people. Cultural tourism of heritage and landscape would not be successful and sustainable unless local community participates in the development process. Community based tourism projects can help revive receding cultural values and practices and promote a sense of identity and ownership. The involvement of local community can have a significant impact on heritage tourism; where traditional practices can, not only be shared among indigenous people but also be passed down to younger generations and foreigners.

The main focus of this paper is to promote a sustainable community participation in local heritage tourism to preserve and revive the core human values of the place. This focus initiates to create a chain of learning and sharing experience with the promotion of tourism and training opportunities. The context for this study is based in Bahrain where more than 50 percent of the population is immigrant (World Statement Report, 2010). The paper explores the opportunities to involve the native population, with appropriate training, in raising awareness of cultural values and traditional practices, leading to promote heritage tourism among the expatriate community. This research attempts to take a journey back in time to discover the techniques and craftsmanship of ancient Arabia and hopes to recuperate traditional human values of the time. As a result, a well-informed and skillful workforce should emerge, empowered to contribute in the conservation of their heritage with the greater sense of ownership and pride.

Keywords: *Heritage; Sustainable Tourism; Community; Cultural Values*

1. Introduction

“Heritage is a dynamic reference point and positive instrument for growth and change” (International Cultural Tourism Charter, ICOMOS, 1999). The emerging connection between development and accepting change is a driving force to sustain the heritage as human values. However, authenticity of the values and place is questionable when considering “change” as a sustainable approach; particularly when discussing intangible cultural heritage which represent dynamism and constant variation, and is perhaps difficult to preserve. A significant source to ensure sustainable heritage protection is cultural heritage tourism, which can lead to conserve the sites for regular use. “Conservation means all the processes of looking after a place so as to retain its cultural significance. It includes maintenance and may, according to circumstance, include preservation, restoration, reconstruction and adaptation and will be commonly a combination of more than one of these” (Burra Charter, 1988: 1.4). Conservation and restoration of cultural heritage can enhance its significance resulting in increased cultural tourism. In Bahrain, there are two main sources responsible for the heritage preservation:

1. *The Ministry of Culture (MoC)* that is the official authority managing cultural and heritage affairs with national and international support.
2. *Private restoration projects*, mainly initiated by the Minister of Culture, focusing on historical houses of old Muharraq and Manama.

2. Cultural Tourism in Bahrain

Broadly stating, Cultural Tourism stands for exploring tourist attractions with the intention of gaining new knowledge and experiencing traditions and customs of a place. The National Trust (1993) defines

Cultural Heritage Tourism as “traveling to experience the places and activities that authentically represent the stories and people of the past and present. It includes historic, cultural and natural resources”. A significant benefit that can result from promoting cultural heritage with tourism is the sustainable economic growth for the local community. However, such success cannot be achieved without the participation of these local communities, in this case, native and expatriate Bahrainis

Due to rich oyster banks in the vicinity, Bahrain presents an attractive landscape and is proud to have the finest variety of the pearls in the world (Olsen, 2002). Although in recent times Bahrain might be more recognized for hosting popular Formula-1 race, with its bespoke racing tracks, the history of Bahrain dates back to Stone Age around 5000 BC. Alongside a number of significant historic buildings and heritage sites, the world’s largest known pre-historic cemeteries are located in the land of Bahrain known as *the burial mounds*. Among other tangible heritage sites are historic forts, old souqs, magnificent mosques and other religious institutions that attract a large number of tourists every year. Recently a historical location, also nominated for a World Heritage Site and includes old heritage houses along with the pearling rout, has gained great popularity among tourists.

Bahrain is part of the Gulf Cooperation Council (GCC), which is comprised of six Arab countries around the Arabian Gulf that share many common cultural traits, (Dayaratne, 2014). However, there are many customs and traditions that are specific to Bahrain and present its unique tangible and intangible heritage. To name a few, pearling, intricate jewelry making, basketry, Islamic calligraphy, poetry, music with *Oud* and *Rebaba*, dancing with swords, and the old traditional embroidery with the gold thread, where four women work together for a month to complete one dress. While there is a substantial amount of effort from Bahraini authorities to protect their built and tangible heritage, there is a significant risk that these intangible traditional customs might become extinct, due to growing foreign influences. This paper attempts to explore sustainable ways of protecting and conveying such cultural heritage.

3. Methodology

Initially intended a literature review, the research mainly collected data through interviews; by observing cultural practices and by photo elicitation method.

- The researcher experienced great difficulties in accessing relevant literature firstly for being written in Arabic and secondly due to strict confidentiality policy of the Ministry of Culture on archived documents. Nonetheless, other international literature was consulted for the purpose of this research.
- 106 people were interviewed during this research which included, 10 professionals mainly from heritage conservation background, who were asked to share their views on ‘empowering local communities for heritage tourism. 38 participants were expatriates and 58 were native Bahrainis; these two groups were encouraged to share their perception of Bahraini culture and give their opinions on cultural tourism; the questionnaire for the native group was translated into Arabic.
- In order to establish a thorough understanding of the traditional heritage a number of cultural sites and events were visited, such as traditional cafés’, embroidery, pottery and basketry workshops, attending cultural events such as *Gergaoon*, where children dress up, in traditional costumes during the holy month of Ramadan and go door to door asking for sweets.
- Finally due to the researcher’s limited ability to communicate in Arabic, a unique method of photo elicitation, being a powerful tool (Harper, 2002), was used to gather information on general public’s perception of their cultural heritage and identity and their response for tourism activity in the town. These participants were from all ages, genders and nationalities.

4. Research Outcomes

4.1. Sharing and experiencing the identity of community

Williamson, (undated, unpagged), cited in Pollard (2013, unpagged), while describing the community aspects of identity, describes the community is a connection between a group of people based on overlap of intent, identity, interest and experience. Local communities’ participation is central to the sustainability of tourism industry. Local community renders the landscape of heritage to make it alive

for the outsiders. Scherl and Edwards (2007, p. 71) as cited by Muganda, Sirima & Ezra (2013), describe local communities as ...groups of people with a common identity and who may be involved in an array of related aspects of livelihoods. They further note that local communities often have customary rights related to the area and its natural resources and a strong relationship with the area culturally, socially, economically and spiritually. (p. 54)

This research found an interesting pattern both through interviews and observing practices. Native Bahrainis were found to be very proud of their traditional heritage where they invited the researcher to experience certain cultural events; however they seemed rather reluctant to share their practices with non-natives. It was also apparent that where majority of the elite classes enjoyed cultural celebrations; art and craft activities such as basketry and embroidery were perceived an occupation for medium income families and restricted to limited workshops or houses.

4.2. Lack of empowerment of the local community in Tourism activities in Bahrain

Although the educated population in Bahrain is well informed about their cultural heritage, they do not seem to place much value on community participation in promoting this asset. One such example observed is a historical café named 'Zaafan' which has been restored and now offers an authentic experience to its visitors who enjoy a 'highly priced' coffee in a traditional style. Although this set up can be seen as a positive step to bringing younger generations back to their traditional roots; ironically similar style cafés and the same authentic coffee culture exists within the few miles distance of old parts of Manama, Bahrain. One wonders why some cultural artefacts and customs receive higher acknowledgement only after becoming a part of a museum or a text book? Such lack of local community participation can also be observed while restoring building and developing urban landscapes where general public's views are seldom considered. While commenting on the lack of participation from local public, Orbasli states, "Decisions relating to the conservation of the cultural heritage, from monuments to neighborhood renewal, cannot be isolated from the local communities who will in many cases be their best guardian" (p. 359, 2000). This indicates that the heritage without community's cultural practice does not portray the actual picture of the culture and traditions.

4.3. Raising awareness to promote community participation

Intangibility of the cultural values is the coherent feature of the tangible heritage expressions.

The interviews and photo elicitation helped to identify the community understanding about their cultural heritage. As this activity involved both native and expatriate population, interesting pattern emerged. Most participants from both groups were familiar with cultural practices but only natives acknowledged them as THEIR cultural heritage. Upon asking whether, cultural practices should be shared within the community and passed on to younger generations; most peoples' response was positive. Some participants blamed foreign cultures to have taken over and resulting in diminishing traditional values and customs.

5. Conclusion

The most notable finding from this research is that different groups perceive cultural heritage differently:

- Native Bahrainis are very proud of their cultural heritage but are somewhat reluctant to share it with others
- Natives recognize Bahraini traditions as their own heritage; none of the expatriates interviewed, could associate themselves with those customs.
- More privileged group does participate in cultural celebrations, but considers traditional art and craft activities as an occupation for craftsmen.
- Most professional participants agreed that cultural practices should be shared, leading to promoting heritage tourism

It is acknowledged that the research itself is of value to both local community and expatriates who are living in Bahrain for a long time. There is no doubt that the government of Bahrain is working hard to upgrade the heritage status for the promotion of tourism activity in the place. However, the decision makers ignore community involvement which causes the serious issues of losing authentic expression of the cultural values.

6. Future recommendations

- To archive these diminishing cultural values, there should be systematic recording and documentation of heritage to maintain the memory of the heritage history. Community can play a major role to develop social mapping, collecting old photos and record biography of old people. Community based documentation will contribute the viability of Cultural Heritage.
- The communication gap is not only between the government and community but also among the relevant government departments concerned with urban planning, tourism and heritage conservation. They should work together with the community more closely to build on what they have achieved and regarding what they can further contribute to the improvement of the quality of the environment and heritage tourism.
- It is recommended to enhance the sustainable use of heritage sites in Bahrain tourism through the development of a thematic framework with the consideration of community participation.
- It is strongly recommended that government of Bahrain should take initiative to preserve tangible heritage and intangible values and ask students, academics and researchers to conduct research on sustainable tourism issues within the community.
- Research should also focus and highlight the authentic Bahraini cultural values as there is a mixed population settled for a long time. There is an urgent need to design rational mechanisms for the authentic documentation. There should be special offers and promotions given to business owners and community for promoting tourism and traditions like café and restaurant owners, educational institutes which can invite people through conferences. Community participation is always a key role for the sustainable tourism as empowerment of the local community is the most tangible reality to sustain the intangible human values of a place.

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Forging Heritage-led Sustainable Development Strategies in Mudurnu, an Anatolian Silk Road Town

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Abstract

The historic town of Mudurnu is a gem of urban heritage, with its vernacular and monumental architecture and legacy of Ottoman trade and craft guilds. Known recently for its poultry industry, its economy was hit by Turkey's 2001 economic crisis; efforts since then for revitalization through cultural tourism are now reaching a point where it will be a challenge to ensure development does not compromise local character. A timely research project was funded by Koç University to prepare a Management Plan, aiming to balance conservation of Mudurnu's heritage and the needs of the local community.

Keywords: *Site Management; Sustainable Development; Historic Towns; Anatolia; Silk Road*

1. Introduction

There are a myriad of international guidelines in evolution related to heritage protection and sustainable socio-economic development, aiming to improve the state of the socio-cultural and natural environment around the world. Among the key points highlighted increasingly in most of these guidance documents are 'empowerment of the local community'; 'using heritage resources to provide impetus for development', 'garnering community support for heritage as a contributor to an improved quality of life and identity'; and 'balancing local development with preservation of the integrity of heritage'.

Site management, since its emergence as a method of strategic planning for protected areas, has become a fundamental approach addressing the entirety of these issues, as it is based on reconciling multiple stakeholder interests and takes heritage into the wider context of economic development and other community needs. This is testified in the particular case of World Heritage- but is equally applicable to other heritage sites- that a more layered and holistic approach to management "that takes into account social, economic and environmental concerns provides a basis for giving the heritage a function in the life of the community, as embodied in Article 5 of the Convention"¹.

These principles and issues are also highly relevant in Turkey, a country with a great wealth of cultural heritage sources- many of them cultural and/or historic urban landscapes- as well as a dynamic society and growing economy. While these growth dynamics place the built heritage under constant threat, there are at the same time many opportunities to apply the principles of sustainable development, particularly at a smaller urban scale, where development dynamics are less complex and more manageable. Some of these opportunities stem from the country's long established legal and institutional framework of conservation, and its expansion to include new concepts and tools in the last decade. Arguably the most important one among the new concepts is site management, introduced in the 2004 amendment to the Conservation Law no. 2863 and the associated 2005 regulation². As for

¹ (Wijesuriya et al, 2013, p. 4).

² (Turkish Ministry of Culture & Tourism, 2004; Turkish Ministry of Culture & Tourism, 2005).

new tools, these include devolved powers of regulation to local authorities, new funding sources at national (Ministry of Culture & Tourism (MCT)), regional (Development Agencies) and provincial (Real Estate Tax Fund) levels, and incentives for property owners and investors.

The practice of site management planning in Turkey, in the sense that ICOMOS and UNESCO guidelines set forth, can be said to have begun with the above-mentioned legislative reforms, and appears to be motivated by a policy of prioritizing World Heritage presence in the country. High-profile, often World Heritage Sites (WHS) like the historical areas of Istanbul or the neolithic site of Çatalhöyük have been the focus of management plans in recent years. However, sites that are of more modest scale, spread throughout the country in greater numbers, also warrant attention in terms of site management, both as prescribed in current national legislation- which prescribes management plans for all listed conservation areas- and by nature of their own characteristics and needs³.

The historic Silk Road town of Mudurnu, in the northwestern Anatolian province of Bolu, is one such significant site. A small gem of urban heritage neglected after falling outside the major highway networks, the town has until now not had a World Heritage agenda, although some noteworthy instances of collaboration occurred between stakeholders for the conservation of the town's cultural resources, hinting at a potentially favorable climate for site management. Thus, it became the subject of a site management plan preparation exercise, to apply the legislation at a modest, less common level, and to assist a small municipality in realizing their aspirations for sustainable tourism and development.

2. Mudurnu: a remarkable history and a wealth of heritage assets

Mudurnu, with a population of around 5,200, lies along its namesake river and forms part of the larger Sakarya River Basin, along with other similar towns situated along the historic Silk Road. Known in antiquity as Bithynia, the region around Mudurnu holds traces of the Hittite, Phrygian, Lydian, Persian, Roman, Byzantine, Seljukid and Ottoman cultures. Mudurnu became a major Ottoman trading and crafts center, owing to its strategic location along trade routes, which has left a rich legacy of traditional timber-frame residential architecture (fig. 1). Beside the citadel (rumored to have given the town its name, after Moderna, daughter of the then Byzantine governor), the monumental architecture of Mudurnu features Ottoman works such as the Yildirim Bayezid Mosque and Baths; Sultan Suleyman Mosque, the 288-shop Bazaar ('Arasta'), the hill-top Clock Tower and numerous tombs for dervish saints. This dense fabric forms a powerful ensemble together with the town's natural setting in a rocky river valley (fig. 2). Complementing the built heritage is a strong intangible heritage element, reflected in the strong tradition of commerce and guild culture ('Ahilik') dating back to the 13th century and still surviving through the Merchant Prayer and various artisanal crafts, in the cuisine of the region, in the strategic role Mudurnu played in the Turkish War of Independence of 1919-20 and the proud Republican urban culture that flourished here afterwards, and in the famous son of Mudurnu, P.N. Boratav, ethnologist and founder of the Turkish Studies centers in Stanford and Paris-Sorbonne Universities. Furthermore, the town is surrounded by a range of natural heritage assets, including thermal springs and lakes, a popular holiday destination among them being Lake Abant. This all makes Mudurnu a distinctive cultural landscape, as well as a strong candidate for eco-/cultural tourism.

A large part of the existing settlement of Mudurnu is designated as an urban conservation site (with 235 designated historic buildings) and the citadel as an archaeological conservation site. A Conservation Plan was prepared for the historic urban center in the mid-1990s.

Despite its rich array of heritage assets, Mudurnu's livelihood and modern-day reputation have been founded on the poultry industry, led by Mudurnu Tavukçuluk, an easily recognized brand name in the Turkish retail market. The predominantly mountainous, woodland terrain of Mudurnu district has supported the traditional economic sectors of agriculture, animal husbandry and forestry, while tourism has not been as prominent.

Things changed for Mudurnu with Turkey's economic crisis of 2001, which dealt a blow to the poultry industry, causing a stream of emigration and a deep sense of loss in the community.

³ (Yıldırım, 2014).

3. Revitalization efforts in Mudurnu since 2003

Efforts to find a way out of the economic decline were soon begun through consultations among the mayor, district governor and interested members of the community. In 2003, a new initiative to revive the economy through cultural tourism, sought in a way to ‘reinvent’ Mudurnu’s identity. First, local stakeholders came together for the 3T Project, based on tourism, textile and agriculture (*‘turizm-tekstil-tarım’*), and then focused on the ‘Project for Tourism-based Revitalization of Traditional Architecture’, featuring restoration and adaptive reuse of some thirty historic houses, rehabilitation of several streets and the historic Arasta and some public realm improvements. This latter project, which won an award from the Turkish Union of Historic Towns, had a strong governance aspect, involving coordination between the Municipality, Bolu Province Directorate for Culture & Tourism, the MCT and local homeowners⁴. Concerted local efforts were continued with the ‘Mudurnu, City of Culture’ Workshop organized by the Bolu Abant İzzet Baysal University in 2010, and the creation in 2011 of the Silk Road Tourism Development Union formed by municipalities of the region, which recently issued an Action Plan for the ‘Silk Road Tourism Corridor’, based on one of the thematic corridors defined in the Tourism Strategy 2023 of the MCT. Other recent initiatives have been an agro-tourism training program funded by the East Marmara Development Agency (MARKA), the creation of an archeological park displaying classical era artefacts, a City Museum displaying ethnological features and early 20th century photographs, and the P.N. Boratav Culture House converted from the old district governor’s office.

As evident, substantial efforts have been made in the past decade to channel Mudurnu’s heritage assets into economic development by way of cultural tourism. As a result of historic mansion conversions and other hotels that started operating, Mudurnu has attained one of the highest levels of bed capacity within its region (1,057 in 2014) and is continuing to see increased visitor numbers (over 160,000 in 2012) and overnight stays (almost 32,000 in 2014, although the average duration of 1.2 nights is not seen as satisfactory and the occupancy rate of %21.89 in 2014 leaves much to be desired)⁵. A true breakthrough in sustainable tourism has not yet been truly achieved, and more remains to be done for the town and its district to adequately preserve its heritage assets and fully realize its sustainable development potential.

Local officials cite insufficient financial resources, as well as a lack of motivation in the community, that holds Mudurnu back from fully shaking off the climate of economic decline that lingers. However, the town actually seems close to reaching a turning point, when it will become a challenge to ensure that local development is achieved without compromising the integrity of Mudurnu’s local character. The various local initiatives made until now, coupled with increasing attention by the central government to the region geared toward promoting tourism, may finally result in an outburst of tourism attention to Mudurnu. Some new risks are emerging, such as the increasing tourism activity reaching a level that is hard to manage and damaging to Mudurnu’s environment. Perhaps more critically, the increasing thermal resort investments in and around Mudurnu are likely to cause a strain on carrying capacity in terms of local water and energy consumption (the Sarot resort has already introduced close to 11,000 units, and 18,000 more units are planned by the company in the coming years⁶). Some of the planned thermal projects cater to Gulf tourists and promote an extravagant architectural style at odds with the local landscape. For local citizens, the Turkish Mass Housing Administration (TOKİ) is building 2,500 new housing units (about half of these completed), expanding the existing settlement toward the southwest; there is a large demand for these ‘modern and comfortable’ residences, creating a risk of migration of residents from their historic homes, leaving them to decay or change authentic functions.

It is thus a critical time to prepare for the risks associated with over-development and tourism, and strategic planning is one way to do this. Already, the Silk Road Tourism Corridor Action Plan prepared for the region’s towns anticipates tourism needs. Providing a counterpart to this kind of

⁴ (Yildirim, 2011, pp. 303, 480).

⁵ (Yildirim et al, 2014, p. 128).

⁶ (Yildirim et al, 2014, pp. 111-12).

planning that focuses more on cultural heritage will be an important measure toward keeping the ‘conservation- development’ balance, as a key element of sustainability.

4. The Site Management Plan process

In this context, it was good timing that a research project was funded, for the Fall 2013 term, by the J.M. Kaplan Fellowship for Site Management at Koç University’s Research Center for Anatolian Civilizations in Istanbul. The Mudurnu Cultural Heritage Management Plan thus began as an academic exercise, which evolved in Spring 2014 into a full-fledged site management plan, officially prepared and approved as per the Turkish legislation. The Plan, aiming to ‘develop a strategy for sustainable development in Mudurnu that balances conservation and development, protects the town’s heritage resources and benefits the local community’, strives to provide ‘a roadmap for how the site’s significance will be preserved together with stakeholders’, adapting global best practice and national legislation for the particular circumstances of Mudurnu.

The Turkish Conservation Law no. 2863 (article 3a) defines management plans as a method to be applied “for all protected urban, archaeological and historical conservation sites and their influence zones, with the coordination of official authorities and non-governmental organizations, comprising conservation and development projects, along with their yearly and five-yearly implementation phases and budgets, to be reviewed every five years”. With this legal basis lending the process credibility and gravitas, and putting forth the arguments derived from international guidelines, it was possible to draw sufficient interest and ‘buy-in’ from several major stakeholders, for them to commit as official ‘Project Partners’ and to acquire funding for the official plan preparation. Arguments used to advocate the plan defended that an effective management plan could: a) help mitigate existing risks; b) bring together and coordinate all initiatives under one vision; c) facilitate information sharing and optimize economic resources; d) enable all stakeholders to take part in the process and create synergy; and e) adapt to changing circumstances and more effectively reach planning targets (such as those stipulated in the existing Conservation Plan), thanks to its focus on ‘process’ rather than ‘end result’.

The four local stakeholders that became official Project Partners were Mudurnu Municipality (the primary body authorized by Law 2863 to set up a site management system), the Mudurnu District Governorship, the Mudurnu Civic Council and the Mudurnu Culture, Tourism and Solidarity Association (MUKTUDER). Soon after, the regional development agency covering this area, MARKA, came on board, suggesting a funding application to be made for their Direct Activity Support (DFD) scheme. The MCT (Section for WHS) was notified early on in the process and became another supportive stakeholder, with its key role at the national level as the body approving the management site boundary. Since an essential condition for a successful site management plan is a strong culture of solidarity and cooperation, we had caught a favorable wind in Mudurnu.

The main phases the planning process, formulated as per the conservation legislation and the MARKA funding calendar and budget, and undertaken on staggered/ parallel timelines, were:

- Establishing the framework, through meetings with the project core team gathered from Project Partners’ members/ staff;
- Acquiring funding from MARKA for professional planning fees and logistics (Mudurnu Municipality or other Project Partners did not have a ready budget for the project);
- Gathering a planning team from experts in architecture, planning, archaeology, art history, economics, business administration, public administration and tourism;
- Holding stakeholder information and consultation meetings, including six citizen meetings, a ‘Site Identification’ mission by MCT (fig. 3) and a high-profile ‘Strategy and Visioning Workshop’ at Abant Lake, which the Bolu Province Governor attended (fig. 4);
- Establishing the official units of the management structure: Site Manager, Advisory Board and Coordination & Supervision Board (the approving body);
- Establishing the Mudurnu Site Management website (fig. 5);
- Preparing the Draft Plan report, and based on reviews by stakeholders and official management boards, completion and approval of the Final Plan on September 9, 2014;

The content of the approved Management Plan comprises an inventory of the site’s cultural assets; appraisals of existing conditions, site significance and SWOT; the Plan Vision; Plan Principles and

Policies elaborated into 23 Targets and 134 Actions, grouped under 7 themes: 1) Administration-Governance; 2) Documentation- Research- Publication; 3) Improvement of the Physical Environment; 4) Tourism, Promotion and Visitor Management; 5) Education, Awareness-raising and Capacity Building; 6) Developing Economic Sectors that Support Heritage; 7) Risk Management. A schematized roadmap is also provided, including a cycle of basic steps to: Build Infrastructure; Attract Visitors; Manage Visitors; Accumulate Revenue and Re-invest into Site; and Widen Scope (toward the nature theme and the regional scale).

The plan tried, through its content, to address issues such as targeting an appropriate tourist profile whose demands will be compatible with the town's authentic fabric; harnessing the built heritage for economic income through appropriate conservation and reuse (boutique hotels in historic houses organized jointly by an 'eco-tourism cooperative'); and marketing local products of traditional crafts and agriculture to create sectorial variation beyond tourism. The first principle of 'faithfulness to local values' is perhaps the most important measure in the plan, *vis-à-vis* the impending threat of inappropriate development.

5. Conclusion: Prospects for effective implementation toward sustainable development

The completion of the Management Plan as a tangible output was a major milestone achieved, and the excitement has been shared by all stakeholders. But the real measure of success will be when the Plan is put into action by a local team with a capacity for self-sufficient and sustainable operation, following up on periodical work programmes, monitoring, performance reviews and plan revision. For the Plan to be viable, stakeholder commitment and persistence will be key, as well as resourcefulness in securing financial resources, especially seed money to get a revolving fund based on tourism income going.

One way to overcome these challenges may be taking it to the broader, regional level, engaging the Silk Road Tourism Development Union and towns with a similar character that form the 'Silk Road Basin' cultural landscape. This may also be the more feasible way forward for a UNESCO nomination, which has become a real aspiration for Mudurnu.

The above questions will hopefully find positive answers as the implementation process unfolds, as long as it does indeed move forward. The current optimism and motivation of the people of Mudurnu is an opportunity for a sustainable development strategy to be achieved, which protects the town's cultural identity while elevating its economic prosperity.

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Figure 1: View of Armutçular Mansion, with Kanuni Sultan Süleyman Mosque and the Mudurnu River Valley topography in the background (Photo: S. Parlak 2014).

Figure 2: General view of Mudurnu townscape as seen from the Clock Tower below the Byzantine Citadel (Photo: F. Onur 2014).



Figure 3: The Mayor (l) and District Governor (c) of Mudurnu hosting a Ministry of Culture & Tourism delegation for the site boundary identification meeting (Photo: E. Yildirim 2014).



Figure 4: Participants of the ‘Mudurnu Vision and Strategy Workshop’ organized in April 2014 as part of the management plan preparation process (Source: Mudurnu Municipality 2014).

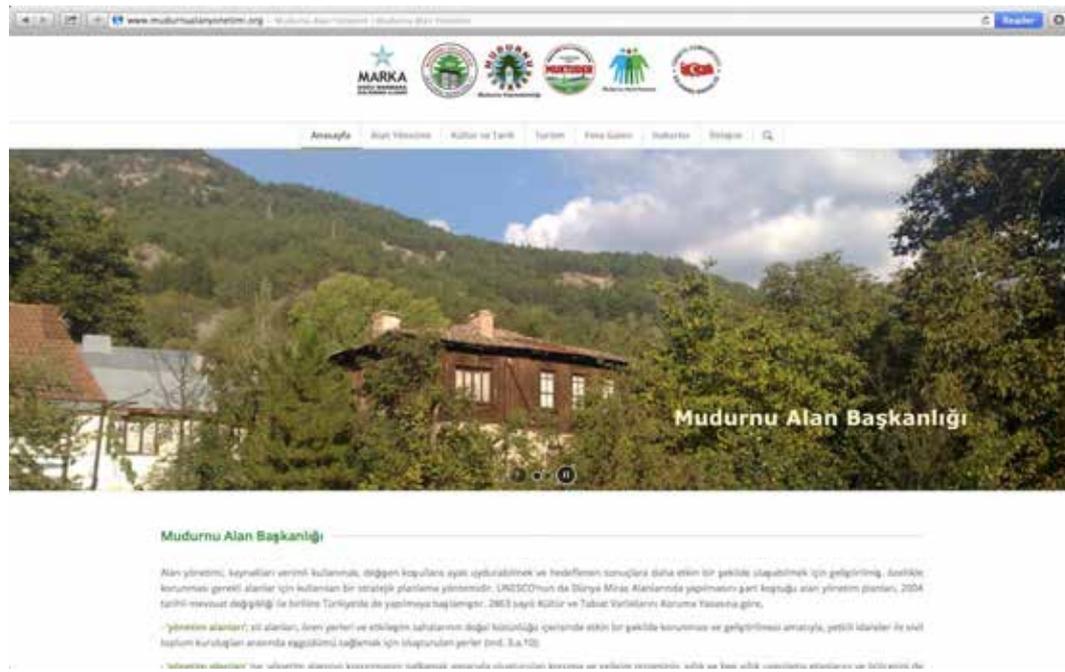


Figure 5: Homepage of the Mudurnu Site Management Website, www.mudurnualanyonetimi.org.

A Research for Providing the Sustainability of Immovable Cultural Heritage of The Historical National Park of Troia

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Abstract

The Historical National Park of Troia had been focus of so many conservation and planning projects from past to present. The last one of these projects is The Troia Museum Project. It is clear that the probable increasement of visitor number may cause so many harmful effects on the cultural and natural heritage of The National Park. By the time that The Museum put into service. The aim of this study is to create and offer a new approach for sustainability of the cultural heritage and natural heritage of The Historical National Park of Troia aganist these probable harmful effects.

Keywords: *The Historical National Park of Troia, Sustainability, Inventory, Database, Immoveable Cultural Heritage.*

The Historical National Park of Troia is located in the north-west part of Turkey, 25 km away from the city centre of Çanakkale. The national park area is called as "Dardanelles or Hellespontos" and located in the entrance of Asian Coast of Çanakkale Bosphorus¹. The national park is accepted as the centre of Troad.

The National Park Area, became a scene for so many historical events and civilizations from past to present by being located in the centre of Troas Region. This area contains so many natural assets beside its cultural assets. The National Park of Kazdağları (Ida) and The Historical National Park of Gallipoli are also located in this region close to The Historical National Park of Troia².

In The Republic of Turkiye, the term of national park , firstly appeared within the 31.8.1956 dated law no 6831 The Forests Law³. After the promulgation of this law, in 1971, a long term development plan had been prepared by the ministry of forests for the suggestion of this area as a national park⁴. The national park area is located in a very strategic military point and has so many military areas inside. This caused a disagreement between authorized organizations of the national park. These disagreements retarded the promulgation period of the area as a national park. Although these retardation, this area is accepted and promulgated as a national park by the decision of T.R. Ministry Council, date and number of 30.9.1996 and 96/8676⁵.

At the present time, The Historical National Park of Troia is under the control of T.R. Ministry of Forests. T.R. Ministry of Forests is authorized for the control of the national park within the context of T.R. The National Parks Law, date and number of 09.08.1983 and 2873⁶. Finally, The Long Term Development Plan of The National Park, approved and adopted by The Ministry of Forests⁷.

¹ <http://en.wikipedia.org/wiki/Dardanelles>, 29.09.2014.

² see fig. 1.

³ Official Journal of The Republic of Turkey, Date: 8/9/1956 No : 9402.

⁴ The Report of Development Plan for The Historical National Park of Troia, The Ministry of Forests, 1971.

⁵ Official Journal of The Republic of Turkey, Date: 7/11/1996 No : 22810.

⁶ Official Journal of The Republic of Turkey, Date: 11/8/1983 No : 18132.

⁷ The Long Term Development Plan for The Historical National Park of Troia, The Ministry of Forests, 1996.

The National Park obtains so many instances of immovable cultural and natural heritage. At the present time, some of these are under the conservation of The Code of Conservation of Cultural and Natural Properties , 21.7.1983 dated and 2863 numbered⁸. By this law, T.R. Ministry of Forestry and T.R. Ministry of Culture and Tourism is authorized for every conservation and planning projects those will be carried in The National Park.

The main value of The National Park is the area of The Trojan War and the cultural and natural values of this area. These are the most important specialities of The National Park.

In the forthcoming years, this wealth of cultural and natural heritage of the area is respected by the international authorities and the archaeological ruins of Troia is accepted as a World Heritage Site at the date of 02.12.1998 and with the number of 849⁹.

In the present time, The Archaeological Site of Troia is one of the most recognized historical areas in all over the world. And the findings of Troia are in the collections of many important museums of different countries. Recently, the idea of collecting these findings in a museum close to Troia has been a source of an inspiration for The Troia Museum Project¹⁰.

Nowadays, the building period of The Troia Museum in the last stage. The authorities expect the number of the visitors of Troia to increase from 500.000 to 1.500.000 by the time The Troia Museum put into service.

It is quite obvious that, most of the conservation and planning campaigns carried in The National Park was focused on The Archaeological Site of Troia. This is the reason of the lack of conservation and planning campaigns those were carried on the other cultural and natural properties of The National Park. Especially, the vernacular heritage of The National Park is in the lack of any conservation and planning process and under the danger of extinction.

In the year of 2013, under The Conservation and Restoration Programme of The Architecture Department of The Mimar Sinan Fine Arts University, a research project called as "A Research for Providing The Sustainability of The Immovable Cultural Heritage of The Historical National Park of Troia" is started to be carried. The main aim of this research project is, establishing the essential principles of a new conservation and planning approach and a scientific method for the cultural and natural heritage of The National Park in the context of "Troia and Geography of Homer".

The Historical National Park of Troia provides so many instances of immovable cultural heritage which are dating different historical periods and civilizations. A part of these instances are under conservation of The Turkish Government. In this research project, it is understood that this conservation period hadn't been carried on the vernacular heritage of The National Park.

The cultural and natural heritage of The Historical National Park of Troia can be examined under two main groups as Immovable Cultural Heritage and Natural Heritage. The immovable cultural heritage of The National Park is examined under the groups of; archaeological conservation areas, historical conservation areas, monumental buildings, natural properties¹¹.

Apart from these, seven settlements, those are fully or partly inside the natural park area involve so many distinguished instances of vernacular architecture of this territory.

Archaeological Conservation Areas

The Archaeological Site of Troia, Ajanteion, Işıldak Tepe, Beşiktepe, eight tumulus attributed to the heroes of The Trojan War and The Ottoman Village Settlement around Cezayirli Hasan Paşa Tower are under conservation as being grade 1 archaeological conservation area¹².

Historical Conservation Areas

The National Park Area had been a battlefield for The 1. World War. During The Battle of Gallipoli in 1915, Kumkale Zone at the entrance of Çanakkale Bosphorus had been exposed to a violent bombing

⁸ Official Journal of The Republic of Turkey, Date: 11/8/1983 No : 18132.

⁹ <http://whc.unesco.org/en/list/849>

¹⁰ The Troia Museum Project , see fig. 2.

¹¹ See fig. 3.

¹² The Archive of The Cultural and Natural Heritage Conservation Board - Çanakkale,2013.

and amphibious operation¹³. And the cemetery of The Castle of Kumkale (Kale-i Hakaniye) built in 1659 during the sultanate of IV. Mehmed are under conservation as a historical conservation area¹⁴. The Kumkale Castle and The I. World War Battlefield are in The UNESCO - Temporary List of World Heritage like Gallipoli Peninsula Battlefields¹⁵.

Monumental Building

The monumental heritage of The National Park dates Roman and Ottoman period. Cezayirli (Algerian) Hasan Paşa Tower, The Castle of Kumkale, A Roman Aquaduct and 2 bridges are under protection as monumental heritage¹⁶.

Natural Heritage

Epic Poet Homer, gives important information about the natural structure of the area in the pages of Iliad. The natural structure of this area is changed substantially since the time of Homer by alluvial deposits of The Skamender¹⁷.

The Springs of Kırkgözler, The Oak forest of Hatice Sultan, The Delta of Skamender, The Beşik Bay are the natural conservation areas of The National Park¹⁸.

Vernacular Heritage

Halileli, Tevfikiye, Kumkale, Çıplak, Yeniköy, Kalafat Villages are fully, Taştepe and Pınarbaşı Village are partly take part in the national park area. In past, Kalafat and Halileli Villages are Greek villages. But these villages had been Turkified, by the effects of immigrations during the Ottoman and Republic Periods¹⁹.

In the years of 2013 and 2014, field surveys are carried by the project team in the villages of Halileli, Tevfikiye, Çıplak, Kalafat and Yeniköy.

A Decision Making System for The Historical National Park of Troia

The constitution of a decision support system for conservation and planning of The Historical National Park is one of the most important phase of this project. This system consist of a databank, a database and a geographical information system. Several types of documents like drawings, photographs, maps are collected in databank. The database is constituted for adding and processing the documents and informations of the cultural or natural assets those are recorded in this decision making system²⁰. The database is prepared by using The Microsoft Access Software. And it processes the documents and information by with the help of main components of MS Access like tables, forms and reports. All of the information about the cultural and natural assets are recorded in to the tables by using the forms. And the reports are used for processing the results²¹.

In the future time, the association of the databank and the database with a geographical information system project is aimed for making syptial analyses. Until now, by this project, most of the cultural and natural assets of The Historical National Park are recorded by fieldworks and office studies.

Conclusion

In the recent past, the interest of the societies on the cultural and natural heritage dramatically increased. At the same time, this interest is influenced by the rapid development of the technology. Beside the conservation processes , correct interpretation and representation of these cultural and

¹³ http://tr.wikipedia.org/wiki/Kumkale_Muharebeleri, 12.9.2014.

¹⁴ <http://www.canakkaleili.com/kale-i-hakaniye-kumkale.html>, 29.9.2014.

¹⁵ <http://www.milliyet.com.tr/-canakkale-dunya-mirasi/gundem/detay/1870753/default.htm>, 21.4.2014.

¹⁶ The Archive of The Cultural and Natural Heritage Conservation Board - Çanakkale, 2013.

¹⁷ See fig.4

¹⁸ The Archive of The Cultural and Natural Heritage Conservation Board - Çanakkale, 2013.

¹⁹ Ramazan Eren, Çanakkale İli'nin Tarih İçindeki Gelişimi ve Folklor İncelemeleri, p. 193.

²⁰ See fig. 6

²¹ See fig. 6

natural assets came into prominence. The first step of conservation process of a cultural or a natural asset is making a definition and interpretation of it²².

In this research, the project team intended for constituting a technological approach for definition and interpretation of the cultural and and natural heritage values of The Historical National Park of Troia. And it is desired that this study to be a useful scientific model for heritage areas those similar specialities like The Historical National Park of Troia.

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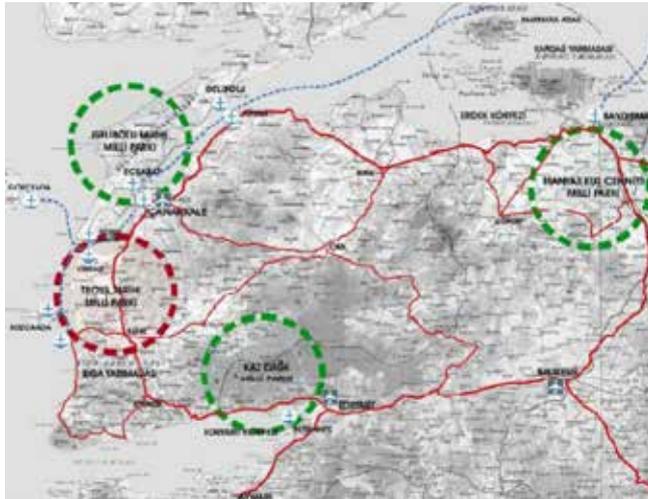


Figure 1: The location of The National Park (The Preparatorywork Report of The Troia Museum Project,2007,METU,p. 3)

²² Icomos, Charter on The Interpretation and Presentation of The Cultural Heritage Sites, 2008.



Figure 2: The Troia Museum Project (http://www.yalin-mimarlik.com/yarisma_projeleri.php?id=70, 27.9.2014)

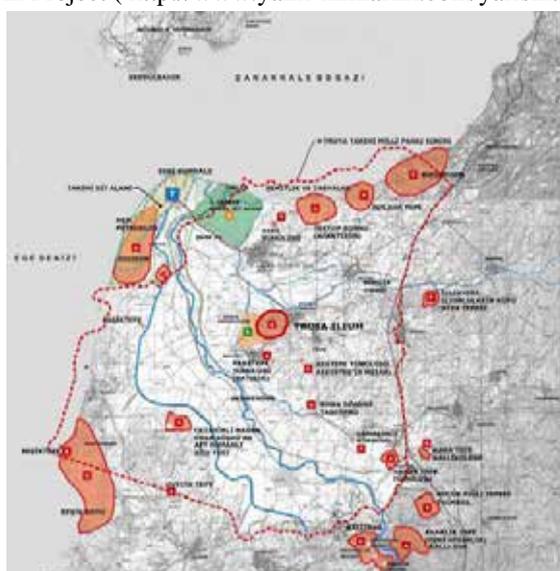


Figure 3: The conservation areas in the national park. (The Preparatorywork Report of The Troia Museum Project,2007,METU,p. 21)



Figure 4: General view of The River Skamender (The Project Archive ,2013)



Figure 5: The ruins of an old village house , Çıplak Village (The Project Archive ,2013)

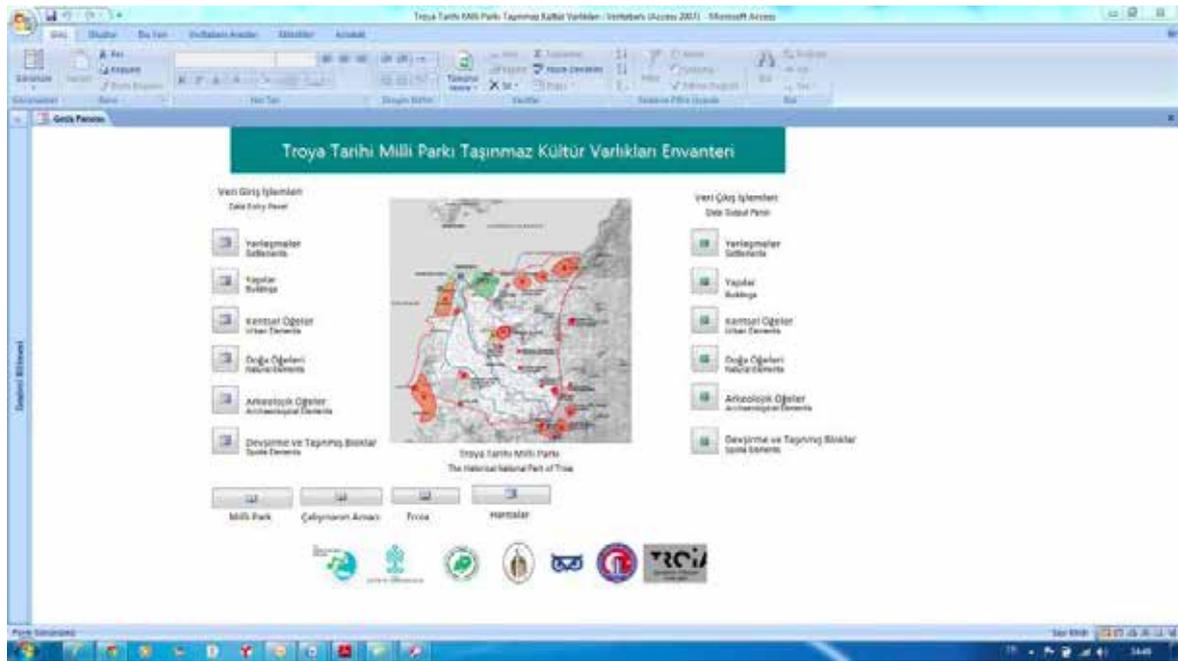


Figure 6: The interface of the databank (The Project Archive ,2013)

Cultural Heritage Attractiveness and It's Role to Empower Local Community and to Enhance Conservation

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Abstract

Conserving, changing or destroying cultural heritage is directly related to individual and collective interests. Public participation in heritage conservation occurs when individuals calculate and recognize their benefits. Cultural heritage attractiveness is the reactions of an individual to the human values attributed to the heritage. A paradigm showing the increase or reduction of benefits related to cultural heritage attractiveness is presented, which directly results with positive local community empowerment or negative disempowerment, impacting cultural heritage conservation.

Keywords: *Human Values; Attractiveness; Local Community Empowerment; Carrying Capacity*

1. Individual and Public Interests for the Conservation of Cultural Heritage

Human values define individual and public interests which has resulted in the creation and inheritance by the current generation of a vastly rich and diverse cultural heritage. Such cultural heritage includes monuments, traditional architecture, historic urban fabric, and cultural landscapes which are nested within local communities today. These individual and public interests which created cultural heritage has the ability to change and destroy this heritage. The following examples demonstrate this theory:

- A. In 2005, an earthquake shook Qeshm Island in the Persian Gulf in southern Iran. The seismic tremors caused the partial or complete collapse of many of the traditional wind towers on the island, and there were human casualties and injuries due to such collapse. Although some of the traditional wind towers survived the earthquake, many of the owners decided to demolish and destroy them after the natural disaster to mitigate future human casualties from occurring during future earthquakes.¹ This is a clear demonstrative case where the interest and priority of the owners of the traditional wind towers changed from (i) desiring to protect and use an architectural cultural heritage (i.e. the wind tower) designed to utilize the natural wind to cool habitation and work areas in a hot climatic environment with no energy consumption, to (ii) choosing to deliberately destroying and demolishing the functioning heritage to replace it with high energy consuming and environmentally polluting coolers.
- B. In 2005, the citizens of Dresden decided to build a bridge over Elbe Valley River in Germany through a local referendum. Building the bridge had visual impact on the cultural landscape of the area, and the UNESCO World Heritage Committee decided to delete Elbe Valley from the World Heritage List declaring that its outstanding universal value had been damaged.² This is a good example of how collective public interest determines the changes made in a cultural heritage area.
- C. On an individual level, heritage property owners may easily calculate the direct economic benefits of renting or selling the property, or destroying the heritage property to sell the land. However, such owners will not be able to calculate the benefits possibly gained by the contribution of the heritage property within the historic urban landscape. Therefore, the owner will have no interest to invest, conserve and make decisions concerning the cultural heritage

¹ Haeri, 2010.

² Official UNESCO World Heritage Committee decisions, ICOMOS Nomination Evaluation and state of conservation reports can be accessed from <http://whc.unesco.org/en/list/1156> (accessed on 2014 September 29). There are numerous articles published concerning the referendum and the delisting decision, including <http://www.bbc.co.uk/news/world-europe-23825738> and <http://www.spiegel.de/international/germany/world-heritage-revocation-germany-s-elbe-valley-loses-unesco-status-a-632637.html> (accessed on 2014 September 29).

of the area, town, or region within which the heritage property is located. Such case which is common worldwide, demonstrates how individuals who are unable to calculate the benefits of heritage properties are unlikely to participate in cultural heritage conservation.

Although monuments are changed and destroyed through natural or human disasters, individual or collective interests always play a significant role in the fate of cultural heritage. Such interests determine whether to conserve or not, how to conserve, when and how to change cultural heritage and its functions in society, and whether or not to partially or completely destroy the heritage. Thus, if cultural heritage is to be conserved, it is critical that there is sufficient individual and collective interests for cultural heritage conservation

2. Cultural Heritage “Attractiveness” and its Role to Motivate Public Interest

Cultural heritage “attractiveness”³ is defined as the reactions of an individual person to the values of a cultural heritage.⁴ According to this definition, “attractiveness” could be considered as the basis of the relationship between that individual person and the cultural heritage. The relationship between an individual person and a specific cultural heritage varies between positive feelings such as appreciation, amazement, recognition of the heritage as a source of knowledge and experience to negative feelings such as dislike, undesirable and burdening inheritance. “Attractiveness” of cultural heritage relates to the positive emotions and feelings which result with the interaction between the individual person and the cultural heritage. Misunderstanding cultural heritage attractiveness can sometimes lead to over-restoration or reconstruction of cultural heritage, which could inadvertently decrease the cultural heritage attractiveness.

Cultural heritage attractiveness can be categorized into “apparent” and “latent” attractiveness with regards to its manifestation - in other words, there is attractiveness which is visible or invisible to the individual person seeing and experiencing the heritage. Additionally the characteristics of cultural heritage present a separate set of attractiveness which is related to (a) the inherent characteristics and original qualities of the heritage; (b) whether the heritage is presented out of context in an artificial setting; or (c) if the heritage is presented in a reproduced, new manner and sometimes grossly misleading way. Inherent characteristics and qualities of cultural heritage could include the original material and design, aesthetic beauty, urban and natural landscapes which are apparent, while the heritage's historic values are latent. Bazaars, mosques, churches, houses and schools which continue to function for the purposes they were originally built for are good examples illustrating this set of qualities. Attractiveness deriving from an artificial context is created by designing settings where the cultural heritage is given a new function in today's society. Museums where cultural heritage objects are displayed out of their original context, rehabilitated caravanserais adaptively reutilized as tourism facilities, restaurants or public halls, historic housing or palatial complexes restored and functioning as visitor accommodation or film sets illustrate this second set of attractiveness.⁵ The third set of attractiveness can be presented in many ways, such as the reconstruction, rebuilding or adding of the heritage structures, restoration disregarding authenticity, or even attribution of historic value to a newly constructed feature reproducing the original heritage.

Visitors and tourists always seek more attractiveness, notably for the first two sets of attractiveness. If visitors have the knowledge that the heritage is a reproduction and vastly altered, the interest and amount of attractiveness is usually dramatically decreased. For the owners of historic buildings and planners, it is crucial to have awareness about the amount of attractiveness of the heritage concerned and how to potentially increase the attractiveness for the two following reasons: (i) financially the heritage property needs to be sustained and thus the heritage attractiveness should somehow translate

³ Shirazian, 2013, p. 7.

⁴ Bernard Feilden stated that “the values assigned to cultural property come under three major headings: [I] Emotional values: (a) wonder; (b) identity; (c) continuity; (d) spiritual and symbolic; [II] Cultural values: (a) documentary; (b) historic; (c) archaeological, age and scarcity; (d) aesthetic and symbolic; (e) architectural; (f) townscape, landscape and ecological; (g) scientific; and [III] Use values: (a) functional; (b) economic; (c) social; (d) political.” (Feilden, 1982: p. 6).

⁵ In his compilation of UNESCO Heritage Awards examples, Richard Engelhardt illustrates the diverse adaptive ways of giving new functions to heritage structures which have often lost their original functions (Engelhardt, 2007).

into income generation and sustainability; and (ii) heritage owners and planners usually desire to retain their reputation and social status as good citizens contributing to the public interest.

There are two parameters enabling the measurement of cultural heritage attractiveness: breadth and depth. The breadth of cultural heritage attractiveness relates to the quantity and space occupied by the cultural heritage. On the other hand, depth of cultural heritage attractiveness is relative to (i) the amount of cultural heritage values; (ii) the knowledge of the cultural heritage values; (iii) whether or not the target group / audience is particularly interested in the cultural heritage concerned; (iv) whether or not the presentation and interpretation of the cultural heritage values easily strengthens the relationship between the cultural heritage and the target group; (v) environmental parameters which increases or decreases the attractiveness of the cultural heritage.

Cultural heritage “attractiveness” motivates individuals, collective interest groups and audience to:

- I. Learn and know more about historic monuments and its cultural context;
- II. Visit historic and cultural monuments, and;
- III. Expend and invest in cultural heritage, historic monuments and their conservation.

Thus, cultural heritage “attractiveness” plays a key role in three areas for local community empowerment:

- a. research identification and recognition;
- b. tourism, and;
- c. conservation.

3. Cycle of Empowerment of Cultural Heritage Attractiveness

The overall value of cultural heritage as perceived by individuals as well as society as a whole include the monetary cost-benefit value in addition to the intangible and tangible cultural heritage values attributed by members of society. Nevertheless, it is a reality that most human behavior today related to cultural heritage, historic building and monuments is based on some type of cost-benefit analysis. In fact, the economic criterion has become the main and priority concern of communities worldwide, and the key criterion for almost all policy decisions at individual and societal levels. Therefore, to conserve cultural heritage for future generations, it is critical to present cultural heritage attractiveness with direct linkages to local community empowerment and income generation. To raise awareness concerning cultural heritage and increase demand for heritage conservation, to increase cultural exchanges at national and international levels, and to empower local communities, a socio-economic cycle based on the cultural heritage attractiveness definition is redefined and proposed.

To redefine the costs and benefits associated with cultural heritage conservation or destruction, a step by step process is described below and illustrated in Figure 1. The first stage involves the following steps:

Step 1: Determining the breadth and depth of cultural heritage attractiveness by:

- i. identifying and recognizing the values of the cultural heritage;
- ii. conserving the cultural heritage values;
- iii. presenting the cultural heritage values, and ;
- iv. identifying the specific target audiences with particular interests in the cultural heritage.

Step 2: Based on Step 1, determine the local desirability, fame and willingness to visit.

Step 3: Determining the number of visitors and amount of time spent by the visitors at the cultural heritage.

Step 4: Setting the maximum number of visitors (person per day/night) by:

- i. measuring the carrying capacity of the cultural heritage;
- ii. measuring the carrying capacity of the local community and its infrastructure;
- iii. measuring the carrying capacity of the local environment;
- iv. determining and setting the threshold for the maximum number of visitors and time spent at the cultural heritage based upon the lowest of the maximum carrying capacity threshold

of i, ii, or iii.

Based upon the above four steps, the second stage of actions could be undertaken, either resulting with a positive cycle of local community empowerment of cultural heritage attractiveness, or with a negative spiral of reduced cultural heritage attractiveness and local community disempowerment.

The positive cycle of local community empowerment of cultural heritage attractiveness can occur when the maximum number of visitors and time spent at the cultural heritage does not exceed the lowest of the maximum carrying capacity threshold of cultural heritage, local community and its infrastructure or the local environment. As long as the carrying capacity threshold is not exceeded for these three factors, there should be an increase in direct and indirect revenues for the local community, which in turn can be invested for cultural heritage conservation as well as the infrastructures related to the local community, tourism and environmental needs. Such investments will consequently increase the depth and breadth of the cultural heritage attractiveness, with enhanced presentation and experience of the authentic cultural heritage, and increased attractiveness created by artificial and imitation cultural heritage. This increase in the cultural heritage attractiveness will contribute to augment the local desirability, fame and willingness to visit factors. The carrying capacity threshold may increase moderately and gradually with investments in the cultural heritage conservation, presentation and infrastructure development, while the growth in attractiveness and the willingness to visit will allow reasonable augmentation in the price of the supply. As long as the carrying capacity is not exceeded for any of the three key parameters, i.e. the cultural heritage, local community and local environment, the positive cycle of local community empowerment of cultural heritage attractiveness should continue.

The negative spiral of reduced cultural heritage attractiveness and local community disempowerment is caused when the number of visitors and time spent at the cultural heritage exceeds the lowest of the maximum carrying capacity threshold of cultural heritage, local community or the local environment. The direct and indirect costs to the cultural heritage, local community and / or the environment exceeds the benefits and revenues, which in turn reduces the local desirability, fame, and willingness to visit. These factors inevitably result with a negative spiral of disempowerment of the local community, the deterioration and destruction of cultural heritage and or the local environment.

This positive cycle and negative spiral should be communicated to the individuals, collective interest groups and community concerned in a easily understandable manner. If people are more aware of the positive cycle, there is a win-win opportunity for people, cultural heritage and the environment. On the other hand, insufficient awareness and ignorance of this "positive cycle of empowerment through cultural heritage attractiveness" has frequently led to the negative cycle of disempowerment and reduced cultural heritage attractiveness which has resulted with the destruction of cultural heritage as the case of the wind towers of Qeshm Island clearly demonstrates.

4. Conclusion

This article has attempted to define cultural heritage attractiveness and clarify its relationship with individual and collective interests, which directly impact upon the fate of cultural heritage and its sustainability. A paradigm of a positive cycle of empowerment of local communities through sustainable and sound management of cultural heritage attractiveness as well as the negative spiral of disempowerment of local communities as a result of overexploitation of cultural heritage attractiveness has been presented. It is desirable that further research is undertaken on this subject, notably to test and develop the paradigm. Additionally, a framework system to measure cultural heritage attractiveness needs to be elaborated, tested and applied, founded upon sound research platforms. Lessons from natural heritage and environmental conservation experiences and practices should also be further examined for possible application for the cultural heritage sector.

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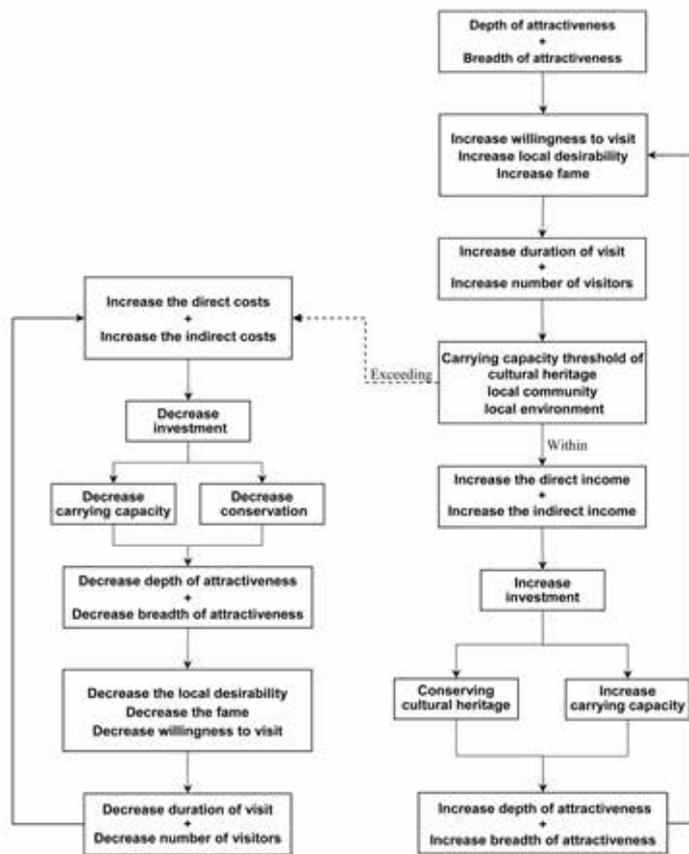


Figure 1: Cycle of Empowerment of Cultural Heritage Attractiveness.

Evolution of Residents' Self-conservation System for Yangdong Historic Village, a World Heritage Site: Progress in 4 years after the village was inscribed

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Abstract

Its inclusion in the World Heritage list in 2010 (Korea's Historic Villages: Hahoe and Yangdong) has induced unprecedented changes in the village, with a sharp rise in the number of visitors leading the village to face diverse issues and problems. This paper came from the recognition of such circumstantial changes. The in-depth observation of the village over 4 years after its inscription on the list allowed us to diagnose and classify circumstantial changes therein in order to identify underlying conflict structures. The ultimate purpose of this paper is to formulate the principles of the residents' self-conservation system designed to actively respond to such circumstances. The inclusion of the village in the list requires not only the existing function of the main family but also a new concept-based entity that can correspond to current times and lead the village. In response, by setting up the Yangdong Historic Village Operation Committee, residents have worked hard to promote the functions of site-based and flexible ordinances and to establish a residents' self-conservation system with the motto of 'sharing economy', 'value-oriented tourism,' and 'responsible tourism'. Holding the meetings a total of hundreds times over the past three years, the chairman and members have been united in continuously developing the village, respecting each other's opinions and promoting co-prosperity. It expects that they will have to share the principles of co-existence and co-prosperity.

Keywords: *Self-Conservation System; Historic Village; Living Heritage; Value-Oriented Tourism; Community Design*

1. Introduction

On July 31, 2010, Yang Dong Historic Village in Gyeongju was inscribed on the World Heritage List (Number 1,324), along with Hahoe Historic Village(Korea's Historic Villages: Hahoe and Yang Dong). This is very significant in that Korea's living heritage was chosen as one of the World Heritage sites for the first time in the Korean history (image 1). Unlike general cultural assets, Yang Dong Historic Village is a rural village where residents currently reside, making it a site of living heritage. However, since the introduction of a national management system (Important Historic Cultural Property #189) in 1984, work in the village that had naturally changed over time has stopped, causing changes in lifestyle and production modes.

Its inclusion in the World Heritage list in 2010 has induced unprecedented changes in the village, with a sharp rise in the number of visitors leading the village to face diverse issues and problems. A rising number of visitors brought about splits in the rural community and the collapse of the way of life and production system in the village, leading it to degenerate into a tourism-oriented historic village. An increasing number of visitors directly link to tourism, making it hard to exclude the possibility that the village's heritage may be in peril, a phenomenon that has been widely witnessed among living heritage sites throughout the world. Fortunately, residents in the village and the local government (Gyeongju city) have recognized the seriousness of the issue, devising plans to overcome obstacles.

This presentation came from the recognition of such circumstantial changes. The in-depth observation of the village over 4 years after its inscription on the list allowed us to diagnose and classify circumstantial changes therein in order to identify underlying conflict structures. The ultimate purpose of this paper is to formulate the principles and plans of the residents' self-conservation system designed to actively respond to such circumstances.

2. Analysis of Changes in the Village after Inscription

What should be noted the most in terms of changes in the village after its inscription on the World Heritage List is the new establishment of the historic village management system and the formulation of the village ordinance. The issue over the permanent stationing of public servants that has been demanded since 1984, when the village as a whole was designated as a cultural property, was resolved, with the village ordinance (Yang Dong Village Preservation and Operation Ordinance) for devising specific ways for village support helping identify new channels for village preservation. However, most of the changes in the village caused by the city of Gyeongju were designed to cope with civil complaints from visitors, giving rise to another issue in terms of the authenticity of the village (tab. 1).

Analyzing more than 50 types of circumstantial changes that occurred in the village after its inscription on the World Heritage List, three kinds of trends can be identified. First, changes in the solidarity of the community were identified. The village was expected to face serious difficulties due to 'confusion in the production system' and 'outside visits exceeding village capacity' resulting from the advancement of the tourism industry in the village. Of course, such phenomena plunged the village into confusion, which it is still trying to clear. However, the Operation Committee that was launched to cope with and respond to such issues by the grandsons of head families served as an important opportunity to strengthen the unity of the community. The existing concept that grandsons of head families are symbolic beings was totally converted. Controversies between residents and those who left their homes were significantly incurred, but the forward-looking idea of the grandsons of main families who wished to protect their village was deemed to overcome such conflicts.

Second, changes in the position of the public sector to recognize a bottom-up approach can also be mentioned. The Act for Protecting Cultural Properties is a strong means for regulation. Over the past 25 years or so, due to the above Act, residents have resided in old/worn-out houses (especially thatched houses), in an outdated living environment (use of squat toilets, prohibition of use of stand-up kitchens) and in a poor production environment (prohibition of animal husbandry and cultivation of special crops), not equipped with the minimum requirements for a modern life. This rose from the fact that the village as a whole in which people were still living was designated as a cultural property. However, the biggest culprit was the top-down policy of the government that has turned a blind eye to the reality facing the residents. The inclusion of the village in the World Heritage List provided room to change the existing system. The establishment of a historic village management club for onsite support and the formulation of village ordinances enabling the direct support of the city of Gyeongju have led the government to listen to and respond to the voices of the residents. The third trend is related to the misconception of visitors about the village. They tend to regard Yang Dong Village as a fossilized historic village. Of course, the source of such misunderstanding is that the village has been designated as an important historic cultural property and historic village in accordance with National Law. As a result, visitors tend to mistake residents for tour agents, regarding houses and paddy fields as exhibition facilities. This has led to and exacerbated some conflicts between residents and visitors, or between residents and the public sector. In response, visitor training, viewing restrictions (open house system, etc.), and collection of visiting fees have been discussed and promoted, which should be preceded by changes in the attitude of visitors toward Yang Dong village. In other words, not only local residents but also visitors should recognize that what should be observed in the village is its spiritual aspects based on Confucianism and the mood of the village as a whole, rather than its infrastructure.

Considering the types of changes comprehensively, four kinds of conflicts can be identified. They can be mainly classified into 'direct' and 'indirect' types. The direct type can be categorized into conflicts between residents and the public sector (Gyeongju city), between residents and visitors, and between residents and other residents (general residents vs. commercial employees; existing commercial employees vs. new commercial employees), while the indirect type can be classified into those between residents (village) and the public sector (the government) and between residents/the government and people who departed from their homes (fig. 1).

3. Responses to Changes in the Village

As of now, Yang Dong Historic Village is showing three types of new changes, differentiated from the circumstance before its inscription on the World Heritage List. First, due to a rapidly rising interest in the village following its inscription on the list, the demand for different experiences ‘historic village (traditional experiences)’ & ‘World Heritage(recognition of historicity)’ has expanded. Second, the local government (Gyeongju city)’s active involvement in village preservation produced confrontation between ‘a historic theme park (tourism complex)’ & ‘a living rural village (village life)’. Third, based on the recognition and attitude of residents, conflicts between ‘the pursuit of tourism-related economic feasibility (tourism agents)’ & ‘the preservation of the value of the village (local residents)’ have been incurred. Unlike the autonomous changes (before 1984) of a rural village and the inflexible changes (1984-2010) under the Cultural Property Protection Act, such circumstances show that the village is experiencing confusion due to the lack of understanding of and adaptation to the status of living heritage.

Recognizing that changes in the village occurring after the inscription of the village on the list may lead to the collapse of the community that has been maintained through a social/cultural network, the Operation Committee and residents chose ‘sharing’ as a conceptual means to overcome the difficulties. This can be defined as a concept that was expanded from Hyangyak, Dure, and Gye, traditional cooperative groups for the community (image 2). In relation to this, residents have tried to solve conflicts among related entities through a scheme based on concepts such as ‘economic sharing’, ‘value-oriented tourism’, and ‘responsible tourism’. The objective of economic sharing is to establish a village economy system based on equality by securing a common economic framework based on public interests (in terms of World Heritage) and breaking away from the economic structure concentrated on tourism agents. To this end, a specific control system should be developed, which is equipped with strong authority and clout to control the expanding tourism-oriented structure.

Through several village seminars and dozens of Operation Committee meetings held, residents chose ‘economic sharing’, ‘value-oriented tourism’, and ‘responsible tourism’ as the main concepts for residents’ self-preservation. Along this vein, conflict-resolving methods that the village should promote were also mentioned and discussed. These are designed to secure ‘sustainability’ (life and production) and ‘flexibility in change’ that the village must be equipped with as a Living World Heritage Site. When the three concepts are pursued, the following basic principles should be applied.

First, the roles of residents as creative producers should be cultivated. In order to induce ‘responsible tourism’ and pursue ‘economic sharing’, residents’ passive attitude should be changed. Breaking away from the existing system (top-down) where residents rely on the unilateral support of the public sector will provide the basic framework for residents’ self-preservation and rehabilitation that Yang Dong Historic Village has pursued. In particular, through the constructive development of the Operation Committee, this will serve as an opportunity for residents to share tourism benefits.

Second, the purpose of the visit to the village should be reformulated. Currently, visits to the village are mostly designed to study its history or make use of leisure time. In the process, residents, especially tourism agents, fail to veer away from the commercial concept, ‘selling’, with tourists not being welcomed and even regarded as irksome. Residents and tourists need to change their attitudes: The former should convert their position from ‘selling’ to ‘informing’, ‘welcoming’, and ‘treating’, while the latter should also change their position from ‘seeing’ to ‘learning’, ‘respecting’ and ‘realizing’. As a result, both residents and tourists will be able to benefit from their common goal, ‘sharing’. Third, the visit to the village should be induced in comprehensive perspectives. Yang Dong Historic Village exists because of clan rules based on Confucianism, the filial duties/manners of descendants complying therewith, the production system that has not changed over more than 500 years, the well-preserved physical environment, and the natural environment that has long been intertwined with the lives of ancestors. Visits to the village should be approached with comprehensive perspectives, including economy/production (content), history/life (culture), and the present life/future vision (time), veering away from temporal perspectives relying on the past. Such an approach will provide an opportunity to identify the features inherent in the village and to strengthen its real value (fig. 2).

4. Conclusion

Generally speaking, historic villages have regressed due to socio-economic and cultural reasons, rather than physical ones. Therefore, the existing infrastructure-based preservation process can delay the degeneration physically but has its limits in restoring and maintaining the authenticity and integrity of a historic village. In order to avoid such circumstances, the recognition of a historic village should be fundamentally changed, which must start from promoting changes in the attitude of entities directly related to the village and abandoning fixed ideas thereof.

Yang Dong Historic Village was inscribed on the World Heritage List not due to its traditional exterior but because of the continuity of the production system based on the life of residents and Yang Dong fields. In other words, maintaining and cultivating the value of the village as a living heritage are key to its preservation. The inclusion of the village in the list requires not only the existing function of the main family but also a new concept-based entity that can correspond to current times and lead the village. In response, by setting up the Yang Dong Historic Village Operation Committee, residents have worked hard to promote the functions of site-based and flexible ordinances and to establish a residents' self-conservation system with the motto of 'economy sharing', 'value-oriented tourism', and 'responsible tourism' (fig. 3).

Against this backdrop, from the viewpoint of an observer or participant, three items are essentially required. First, dedicated, full-time workers should be hired. A village committee cannot be operated only by residents with their own jobs. Full-time workers with expertise should be employed as coordinator and programmer. Second, fixed assets should be secured. This works as a basic framework for the residents' self-conservation system and is also the most efficient way to overcome inflexibility in public financing. The required funds can be secured through the donations and contributions of village-related entities (those who left their homes, etc.), common profits from marketing in economy sharing, and the collection of visiting fees (discussions are under way). Furthermore, the fund should be built not through a one-time event but by using a continuous collection system to which the concept of the National Trust Movement applies.

Third, residents themselves should be equipped with their own philosophy and principles. This will lead not only to keeping the spiritual idea of the leader group that will promote the residents' self-conservation system but also to protecting the pride and dignity of the historic village with more than 500 years of history as a World Heritage Site. The philosophy and principles should be formed through sympathy, sharing and co-existence based on rationality, rather than on arbitrary features that may appear in the residents' self-conservation system.

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Image 1: Landscape of Yangding (partly).

Main Entity Purpose	Visitors	Government Support (Gyeongju)	Residents	Outsider Support (Expert)
Visit/ Communication Promotion	<p>A rise in the number of group visitors; A rise in the number of short-term visitors; A rise in the number of family visitors; A rise in the number of long-term visitors; A rise in the number of foreign visitors; A rise in the number of visitors who wish to experience traditional culture; The concentration of visitors at the village entrance; The appearance of large-sized tour buses</p> <p>□</p>	<p>New establishment of a historic village management club; Support for holding traditional wedding (twice); Support for holding a Korean wrestling contest for foreigners; Support for holding the main family (SeoBaekDang) food festival; Conclusion of an MOU with KHNP; Designation as Hyangdan Luxury Old House (#1); Village tour agents (5 persons/day);</p>	<p>Launch of Yang Dong Village Operation Committee (April 2, 2011); Revision and announcement of Yang Dong Village Regulations (January 16, 2012); Volunteer activities of young adult/women's committee; Village Newspaper (Ginkgo) distribution and management.</p>	<p>Publication of Village Newspaper (Ginkgo); Holding village seminars (6); Establishment of Yang Dong Village Research Institute (UIDUK University)</p>
Convenience Support		<p>Installation of temporary parking lots/ Allocation of parking guides; Construction of heritage exhibition center; Buses traveling between New Gyeongju Station and Yang Dong Village; Installation of convenience/public facilities for visitors (chairs, public rest rooms, drinking water fountain); Installation of facilities for safety and convenience of residents; (CCTV; village road; road pavement; community hall front yard construction); Transfer of community hall (in the heritage exhibition center).</p>	<p>Installation of joint marketing site for women's committee; A rise in the number of individual salesmen among residents; A rise in the number of restaurants and private rental rooms; A rise in the number of weekend stores; Installation of indoor vending machines; Flowing of underground water into Yang Dong stream; Identification and renovation of old paths (3); Installation of path signposts (25).</p>	<p>A rise in the number of volunteers (Pohang Young-il High School; one keeper per cultural asset)</p>

Resulting Circumstances	Noise from Loudspeakers (guide); Invasion of resident privacy; Restriction of movement of farming equipment (weekend); A rise in illegal parking; Crop theft	Village landscape damage from the installation of public facilities to cope with civil complaints; CCTV-related obstacles; landscape damage from non-traditional well (6) renovation.	Activities of head family grandsons; Closing of the doors of Hyangdan and Simsujeong; A rise in food prices; Conversion of rice fields into lotus fields; A rise in the number of new enrolled students in Yang Dong Elementary School. (2011)	Continuous newspaper publication
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Table 1: Changes in the Village after its Inscription on the World Heritage List.



Image 2: Resident's big event(Juldarigi) in Full moon day 2013.

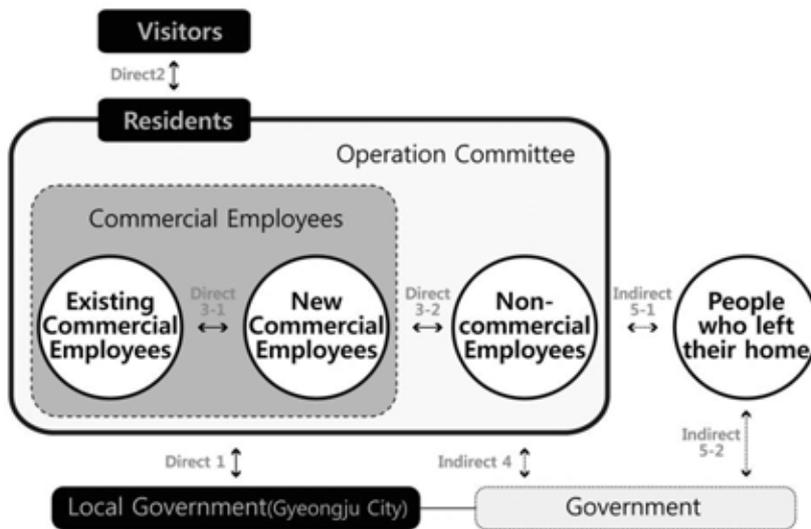


Figure 1: Conflicts from Changes in the Village.

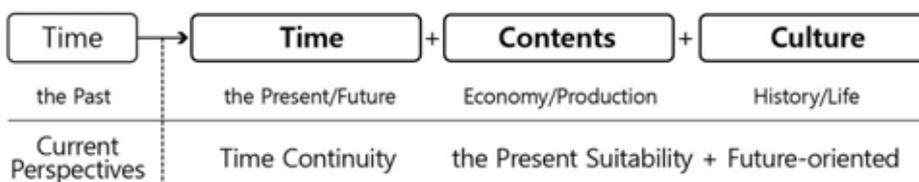


Figure 2: Comprehensive Perspectives Regarding the Value of the Village.

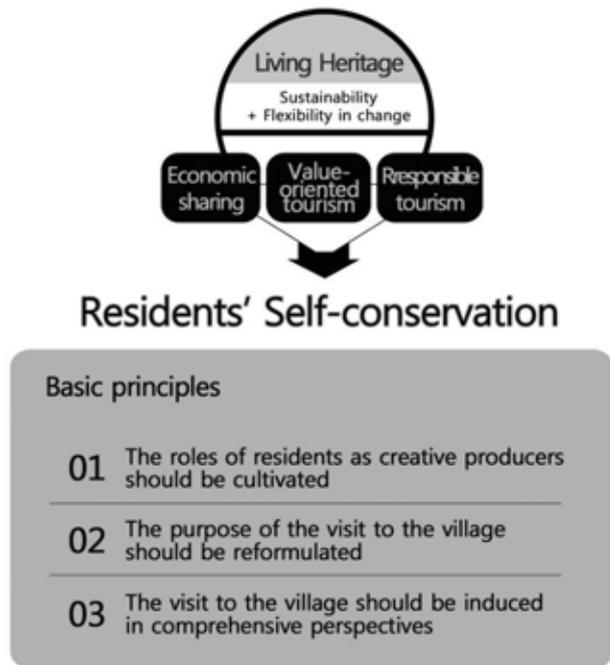


Figure 3: Basic concept of residents' self-conservation.

Landscape and Historic Urban Areas: Possible Common Declensions

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Abstract

The paper aims at pointing out how community and identity could form an important binomial which we could make reference to, also according to the more recent output at an international level. We could single out elements that join logics and policies of safeguarding, valorisation and management of the historic-cultural heritage and landscape. Both are outcomes of human action over the time and an expression of its cultural heritage, namely they have man as an undisputed element of reference, as well as the communities with their own needs and peculiarities.

Keywords: *Landscape; Historic Urban Areas; Community; Identity*

1. Transience and criticality of the systems

The last seventy years have been characterized by different types of events which have often determined deep revisions of the political and socio-economic logics and choices. If, on the one hand, some events have emphasized the human skills, on the other hand, they have pointed out the limits of the actions conditioned by impromptu decisions, which were the outcome of suggestions induced by a sequence of events. History has also shown the high fragility, and sometimes the transience, of some systems which we realize and the importance to verify their sustainability.

If we think for a moment of the many interventions we carry out with enthusiasm in towns and historic areas to support the fruition of monumental and cultural heritage by the activation of touristic flows, for example, it is easy to understand what these processes have very often determined (heritage decay, alteration of values, loss of identity, ...), when they haven't been correctly managed and planned. The current general situation of crisis frequently risks to allow the prevailing of a purely economic kind of instances. This determines that, also if there are best intentions, people aren't able to see the fundamental principles and references. Both when it would be opportune attentively to reconsider life systems and to centre the attention on the elements which appear as a real reference. Whether we consider the historic centers or landscape in general, there are several problems and issues to face up to this subject and it is interesting to consider in a conjoint way their possible declension, because assonance and complementariness could exist.

From the point of the economic view the historic urban areas and landscape are also economic goods able to produce workplace and income. They assume a shape of saleable products and precious attractors which are able to attract visitors and economic resources by tourism, for example. Today, this opening seems very attractive. But in order for this to happen successfully over time it is necessary that both things preserve their elements of identity and that this could become a symbol. The aesthetic integrity, indeed, is not only finalized to answer the touristic demand in itself, but to assume also a value in economic terms. As far as it is unquestionable the importance to preserve the historic and aesthetic dimension of the goods, for the promotion and sale of a tourist product, it is the identity of the destination that counts and, if it could appear paradoxical, it is "the sight of the tourist" (Urry, 2002) which ends to certificate the value of the good. But how far could we accept this logic? Tourism can play a positive role in the development and revitalization of some historic areas or forgotten landscape, but it has to respect and support local community identity and its culture and traditional activities. Tourism activity must respect and not interfere with the daily life of the residents. Certainly the question isn't so simple and trivial to realize without the production of serious consequences.

If the existence of a heritage "on offer" becomes fundamental, there are several and complex conditions in order that this heritage is offered in a right way and not depreciated and impoverished. In effect there is a strong relationship among what concerns the offer and the impact that could imply a system which is unmeasured proportionately. In other word, the problems which we have to confront

are different and, over all, what could concern the realization of a proportionate system of services, able to satisfy some aspects of the demand. Surely, in a certain way, there are some nodal questions that we have to ask ourselves:

- What role do the communities have?
- What is needed for the sustainability of the policies?

Too often we are troubled to favour economic and human fluxes and we end up allowing that outside aspects to the context prevail, changing these contexts in a radical way, producing different things, making it difficult for the inhabitants and who ever frequents these areas to continue to stay there in an appropriate way. It seems that we forget the people that have set up them over time, by their life systems, and we make them alien. Perhaps we need to start again and attentively reconsider this heritage, and to pay attention to the elements which really could be configured as a reference.

2. International documents

Two important documents have been approved in the 21st century. They explain and reflect the present historic context well: the *European Landscape Convention* (2000) and *The Valletta Principles for the Safeguarding and Management of Historic Cities, Towns and Urban Areas* (2011). Their Preambles point out the critical state of the present historic, economic, cultural and social context and the great aspiration to define and give order to a form of safeguarding, management and planning of the landscape and historic urban heritage, according to the more recent cultural concepts.

Aside from the different kinds of assonance, it is very interesting to underline as, apart from the fact that one makes reference to the landscape and the other to the historic towns, the primary role that it is assigned to the community. When the European Convention says “‘Landscape’ means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors” (art. 1, a) and The Valletta Principles “Historic towns and urban areas are spatial structures that express the evolution of a society and of its cultural identity” (Part 1, a), both pay attention to the collective dimension, or rather to the crucial relationship that is realized between the communities and their contexts of reference.

In the Convention, to give relevance to the people’s perception and to recognise landscape as result of the conjoint action of natural and/or human factors and their interactions (art. 1) leads us to consider landscape as the transposition of the life context, in other words to affirm it contributes to the production of local cultures that are a primary identity element, crucial in the construction of the collective identity. Similarly The Valletta Principles underlines an indissoluble bond among spatial structures and their local cultures, or community and identity.

Indeed, beyond the impulse which links the subjects of these documents, it could be interesting to try out possible common declensions, or to grasp indications looking towards defining effective and efficient policies and actions, or rather aimed at safeguarding and increasing the value of this “common heritage”.

3. Local communities and identity

As it is easy to observe the two Documents, on the one hand, together pay attention to the very local dimensions, on the other, give emphasis to the role that communities, or better people, have in the process of reconfiguration of their contexts. Indeed, if it is true that actions of transformation could be done by single people, it is as realistic to deem that the cultural and economic value, which could assume valorisation and protection of a landscape or historic urban area good, it transcends the individuality in favour of a collective dimension. On the other side undoubtedly communities, through their own actions and interactions with the natural system, determine the shaping of the landscapes and their life contexts. They implicitly give the shape and express their way to perceive and live territory. Therefore landscape and historic towns are identifiable as products of a specific relationship that is determined between community and territory, or better of the human action over time, as well as expression of its cultural heritage: namely they have man as an undisputed element of reference and communities with their own needs and peculiarities. Towns and historic urban areas have a symbiotic relationship with the communities which live in them and they can’t be considered as separate, they constitute a good of the community. In the some way a landscape is an outcome of human action and a

cultural transposition of the life environment of a community: both are expressions of the human action and, in a certain way, work together to build a collective identity.

In the outlined view it is extremely evident as if we are looking at territorial contexts, we always have the necessity to make reference to a specific community and as it is never possible to leave out of consideration community behaviours (Petroncelli, 2013). Communities, therefore, assume an active role and aren't only an indisputable reference element, but also, among the different kind of actors which contribute to the territorial transformation, an important category to assign a particular consideration. Even if it could sometime be enough the intervention of an individual to determine very big transformations and alterations, the problem that we have in front of us today is, above all, to have success in planning and managing territory in a viewpoint of safeguarding: that means oriented to grasp collective values and local cultures, to pass over what is produced by the single relationship into man/environment. It is also in virtue of this that today we utilise always more frequently the expression "common good" and this is suitable both for historic urban areas and landscape.

Usually to speak about the "common good" leads us almost solely to think about tangible goods shared with more people, i.e. without limit to the access. Indeed it is also true that this concept could make us think of an ensemble of life conditions of a society, for example able to favour the wealth, as is expressed in an explicit manner in the *European Landscape Convention*. Therefore, it is in this direction that we think it is necessary to move when we make reference above all to the collective values: the appellative of "common good" couldn't be assigned in an explicit and automatic way exclusively when there is a cross-reference to an ensemble of real rights.

The Convention – having the aim to clarify about the concept of landscape, find convergences, promote landscape protection, management and planning of the entire territory ("... this Convention applies to the entire territory of the Parties...", art.2) and to suggest general and specific measures towards to "...increase awareness among the civil society..." (artt. 5 e 6) – has intended to underline, on the one hand, what is the responsibility of the competent public authorities, and, on the other hand, the crucial role of the community; the "Valletta Principles", on the contrary, also looking at favoring a sharing of the ideas, is conceived as a document finalized to propose guidelines to safeguard and manage historic areas. So it is in this meaning that looking in a complementary way at these two international documents appears interesting, with the aim to provide a structured vision able to support safeguarding, management and planning.

4. Landscape and historic urban areas: possible common declensions and complementarity

If all men, by their own actions, contribute to the production/transformation of the cultural heritage and landscape, it is very important that everyone carries out their duties and roles with awareness. Then, conscious of the basic role which communities assume, for a better accomplishment of the territorial governance tools, it is important, on one hand, to favour the definition of a coherent collection of principles and policies, and, on the other hand, to propose and promote actions to different kinds of actors. The Valletta Principles, in a precise way, propose principles and strategies aimed at safeguarding the values of historic centres integrating them in a social and temporal context, as well as favoring the definition of interventions able to guarantee the respect of tangible and intangible historic heritage and the quality of inhabitants' lives. Communities, therefore, are considered as referential elements especially in the light of what the policies, overall based on economic and of marketing aspects, have determined over time. The numerous analysed challenges, induced by the several changes into actions (*Change and the natural environment, Change and the built environment, Change in use and social environment, Change and intangible heritage*) leads us to highlight the multiplicity of risks which impend and how in comparison to them it is important the presence of *Intervention Criteria. Values, Quality, Quantity, Coherence, Balance and compatibility, Time, Method and scientific discipline, Governance, Multidisciplinarity and cooperation, Cultural diversity* seem, in this way, to be very important and assume new appearance and nerve-centre meanings. It is really in the view to give a tangible contribution to the operativity that the document faces in detail some topics at the center of the present debate (*New functions, Contemporary architecture, Public space, Facilities and modifications, Mobility, Tourism, Risk, Energy saving, Participation*).

Therefore, while The Valletta Principles advise criteria and tools to suggest people which are involved in planning and management, the European Convention emphasizes, in a certain way, besides the responsibilities, the duties of each Party, i.e. the importance to favour collective information and sensitisation, as well as to increase the awareness of the role that everybody has to carry out to enhance its “goods”. It is in this sense that if we recognise that a close interdependence between the actions of people and territory exists, it is easy to understand the importance of protection, management and planning aimed at involving the communities, which undoubtedly will have previously been informed, been made aware and been made responsible. In that context participation gains particular value and features. It is also increasingly seen as a reply to the governability crisis and as a new spur to look for ways of collaboration and interaction between administrators and communities. Obviously, all that should not become a kind of a general “do-it-yourself”, but it asks for coordination of the fragmented social agents and awareness of the role played by each component within the general process.

Therefore it is crucial to start with an educational action and afterwards set up training projects for those who will be appointed to define and guide protection, management and planning actions. Indeed, to refer to protection, management and planning of landscape, exactly in virtue of the acknowledgement of landscape as a common good and of the need to follow the sustainable principles, asks for some basic steps to be allowed, such as:

- to interpret the community’s feeling towards its own landscape, aiming at finding a kind of aesthetic, ethical and knowledgeable “compromise”;
- to harmonize the community’s aspirations to the progress, taking into account the landscape peculiarities and identities;
- to integrate the individual interest with the collective one;
- to assemble the participation of the individuals within a communitarian view;
- to make medium-long-term planning choices;
- to work out goals that will not only be in accordance with the sustainable development, but also with the ecological protection, urban quality and safety from natural hazards.

To work for the protection of landscapes should mean to do our best not only to preserve the quality and the peculiarities of a given landscape which the populations assign a great value to, but also to attract the attention to those territorial areas that show the vision, the perception and the character of a community towards the past, the present and the future.

Then probably a priority and fundamental demand that we have to pose ourselves is” who we are” and “how we are”, having a very clear idea about “how we could be” and “who we would be”.

In this way planning has to work within a complex framework full of questions and duties. It is not always a question of defining and setting up new tools, but first of all of making people aware and responsible. The informed communities are more prone to be receptive, namely able to understand the eventual effects produced by their actions and so to understand their own responsibilities. In fact everybody knows the role played by the communities’ actions on landscape and how, apart from the effectiveness of the projects, people’s behaviour is crucial in the course of time. It is very important, apart from working out plans and tools able to improve the communities’ peculiarities and to harmonize the respective expectations, to try to realize consent about the plan indications, according to the individual and collective interests, namely trying to recompose and integrate participation of the individuals within a common point of view.

Indeed plans should give adequate indications for meeting the individual and common needs, on the one hand, while on the other hand, they should aim at arousing behaviours propelled towards time. It is just in virtue of this new meaning of landscape that the time dimension gains more value and becomes a crucial element of the context and its development. The acknowledged strict interdependence between landscape quality and quality of life, i.e. the widespread hope to improve the quality of life, lets us look into the future with more confidence. When interests of well-being are at stake, in the broader sense, nowadays it is easier to find an agreement and to arouse responsible behaviours.

Finally, when the communities don’t make themselves an active part, it is necessary to do our best to define and organize actions of information and to make everybody aware and responsible. In relation to the value that a “good” of quality could assume, we mustn’t forget the impact that some

irresponsible behaviours and actions could have, or at worst forms of indifference or abandonment. To increase the awareness must be a primary goal, as well as making people responsible. This is valid for every kind of “actor”.

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Methodology of Financial Economic Valuation of Heritage Assets that Make Cultural and Natural Landscape: from Global to Local and Vice Versa

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Abstract

This methodology of economic and financial valuation, for all the Heritage goods, proposes eleven principles: 1) intangibles; 2) built; 3) fashion; 4) authenticity; 5) event; 6) otherness; 7) environment; 8) relation of the heritage piece with the environment; 9) heritage monetary unit (by country); 10) market; and 11) all the principles add up. This new system requires some information sources.

The case study is in Argentina, Mr. Bernal's Home building by Architect A. Kanlay, only is working with the 1st postulate. The result of the sum of all the principles will be placed in a trust agreement.

Keywords: *Valuation; Economic; Financial; Heritage; Cultural*

1. Methodology

First part of the proposal (Ruskin): 1st Component

What does a process of devaluation mean? The intangible asset of a good that was always present, no matter in what instances and causes that generated it was transformed from tangible to intangible. For example: taking a hypothetical case –an asset legally declared categorized as “Monument”– due to the lack of maintenance, suffers a continuous deterioration leading to change its category and becoming a “heritage good”. But deterioration continues and after another evaluation it passes to the category of “ruin”. The deterioration continues and there is no longer any remains, only the place where it was hosted. It returns to evaluation and it becomes “associative landscape or place” category. Now it is assumed that in this area over the time, there was an archaeological site, the category is “archaeological site” obtained through historical data.

This hypothetical approach generated by an extreme sequence, shows that the memory endures in an area where there was something of value, and therefore the value of existence and durability over time, so it is present, past and future, it is this existence value that always remains constant.

This principle has various antecedents, the first one raised by Ruskin, as he calls it in his article: "The light of memory," he says in one of its paragraphs: XVI. “[...] In architecture, and super -induced accidental beauty is very often incompatible with the preservation of the original character; therefore the picturesque is looked for in ruins and it is supposed to be the decay. However [...], the sublime is in cracks, fractures, stains or vegetation that Architecture assimilates with nature and gives those conditions of form and color that the human eye universally appreciated. [...] The extinction of the genuine character of the architecture, it is quaint [...], or sublimity of architecture it only fulfills a function, [...] be an exponent of the age of this age as it has been said it is the larger glory of a building. [...] A building is not optimal until (time) has not gone over it. [...]”

Ruskin enriches this principle in the chapter of "The lamp of life" and says: III “[...] how far you can go formally without the spirit or vitality that could only report influence, value or charm.”

From this principle where the value is constant, the antecedent of Viollet-Le-Duc is incorporated and says: “Art is the form given to a thought, and the artist is who creates this form, manages to penetrate through it, this same thinking to their peers. [...] The art has its own value independent of the environment in which it was born and developed, the art is not barbarous merely because it is the art [...] The arts can be well developed and improved in a very imperfect civilization, and to realize their relative value they should be judged according to certain rules ...”.

Therefore, taking the background, the heritage economic valuation heritage begins based on a lineal function diagram. The functional model is of temporal evolution of the economic value of the piece. A constant intangible heritage value is taken into account.

From the concept of constant intangible heritage value, it is extended noting that for this to happen, it must be remembered that, heritage consists of the variables: tangible and intangible. Therefore, the tangible variable named *heritage undegraded* (VP_{Nd}), must also be constant.

What does this premise represent? It represents the essence of heritage or “base heritage”, which can contain both variables. The base of this feature is that there must always be some kind of information to support the authenticity, therefore, materialization is not valued, and the information of the heritage piece is valued. It is the minimum value that identifies the piece. It is not focused on the constructive level, but in the information and communication that the document offers, that is why it is always present and that is not altered with time. The assessment of “Undegraded Heritage” (VP_{Nd}), is valued through the catalog methodology¹. And then based on the above considerations, the first postulate is as follows:

1st postulate - Base Heritage: “Every property has a value Base Heritage, legally declared (it may be zero) that is not altered with time”.

2nd Component

Taking into account Ruskin, in his article called “Lamp of sacrifice”, he raises the distinction between “Building and Architecture” expressing: “Construction is a global action that means that it is the technique used in relation to the materials and how to apply it consistently; moreover, the Architecture is the design of this technique with these materials to meet a particular purpose”. These concepts are completed with the conflicting view of the restoration heritage action. He says: XVIII. “(...) Restoration involves the absolute destruction that a building can suffer, a ravage whose remains cannot be collected; a ravage accompanied by a false description of what it was destroyed. (...) That spirit the hand and eye of the dead workman gave cannot be invoked and asked for by other hands and other thoughts. Moreover, the simple and direct copy is (...) impossible.”

With these three concepts, the temporal evolution of a constructed heritage piece without any intervention is clearly observed. Then the value of the first postulate is reached. This second approach makes explicit the various stages that a construction has: the construction itself, architecture and non-intervention. It also marks implicitly that from the beginning, the building process has an economic value. So, the first thing is the location of the heritage piece, assessment of the surface based on the “land-building” relationship. The construction process begins. Materialization values (involving the employed labor, materials, and technical assessment according to runtime so far) are taken. In itself, it is the economic value at the initial time of its construction, but without any maintenance the good would change heritage category to reach the initial constant mentioned before. Hence the second postulate is born.

2nd postulate -Built Heritage: "The material value of a heritage building, legally declared evolves in time, (as far as there is not any prior intervention) under a law of the type" (fig. 1)

It is taken by convention the degradation time stated with the negative sign of the α coefficient pointing to materials of a finished construction based on the obsolescence that is approximately 30 years. The 30 years are exposed based on an ultra-modest good construction (earth technology: *adobe*); it is taken as a prototype and a hypothesis is generated based on its conservation condition without any action type and extra environmental event. What it is measured is the rate of degradation of the work that is represented by the negative sign. It depends on the quality of the materials and technology used in construction, noting that the depreciation reaches half of its value. (fig. 2)

¹ Note: “Catalog Methodology” means the sum of the various scales that make the identification of heritage and are based on supporting documentation (graphic, technical and historical) and they are the components that identify the design; antiquity, which places it in historical time; the condition of use and conservation condition; economic valuation; philosophical rating. If the heritage good is assessed as background, its construction and heritage category, if any, is incorporated. If the heritage good needs a specific valuation, these items are considered part of the formula and they are not quantified in all it because they are broken down based on the proposed postulates. All items come from the requirements for the global declaration to UNESCO.

It is clear that the field is not valued individually; it is titrated with the built part because the economic market value will be given in component 10 of this model.

The study case corresponds to a well rated from its architectural features. The site where it is located becomes relevant from the urban perspective, leads to the geography and thus to the geology of the territory. If in the hypothetical case the site had an archaeological good, it would be analyzed patrimonially.

3rd Component

Taking the concept that “the market is the main mechanism for allocating resources in the economy” and, although with some problems, manages to allocate more efficiently than other social processes, the market mechanism does not work well for the preservation of urban and rural assets. Although in this case it is just urban.

But, what does market consider as value? It is based on fashion as a cultural parameter, which is closely rooted to comfort, to the type, to the distribution given by function and to the status of certain areas. This has already been shown. So, when there is a need to highlight the above where the value assigned to the heritage community is not immutable but it changes all the time, among the factors of change the following are included: advances in archaeological, historical or aesthetic investigations; the increasing level of education in communities; increases in the income, and the evolution of aesthetic sensibility and even changes in fashion. According Masetto (1994), this fact gives rise to an economic dilemma related to the difficulty of judging the opportunity cost not observed from the point of view of the “replacement” as Herrera Mora posed, but as the way of investing resources in preserving heritage.

Only to a limited extent and in some circumstances, the values of consumptive use of urban heritage are built on the property market and are manifested through higher prices to certain customers, who value the heritage status of properties, are willing to pay to use properties of historic centers.

But fashion from the heritage perspective is clearly essential, because it is the parameter that works and can produce change of reuse, revitalization, rehabilitation and recycling. This item is the turning point and alertness, it leads to the event and authenticity of heritage besides it acts as the action that marks prevention.

3rd postulate, -Fashion-: “The value of fashion or style, of a heritage building, legally declared, evolves over time” (fig. 3)

4th Component

This fourth component is based on the International ICOMOS charters from Burra, San Antonio Texas, Nara and Brasilia about the authenticity in all its aspects following the concepts of Viollet-Le-Duc that posed as the new method and says: “(...) must have a moral basis or better, must be addressed through ethical- aesthetic identification. If you (want) to find an architecture seriously, the first condition to be respected is not to lie, either in the composition of the assembly, in the details of the building (...) the absolute sincerity, is something very new and very sharp”

But this method expressed by Viollet-Le-Duc, is based on the approach given by R. de Fusco where he defined the method that is the purpose of historical research, confirming the most of his interest part of his interest where he puts he past [...] in function of the modern operational activity.

This raises that the authenticity survives despite the degradation of the 2nd and 3rd principles. In the 4th component mathematical foundation, the exponential model is of contrary growth to the above, so it is positive. It starts from its heritage valuation, taking the 50 years as the initial parameter, because it is always observed patrimonially from the present.

Fifty years refers to the stipulated time given by law –both at the national, Argentina and provincial, BA. Province– level, from there, any good can begin to be considered as heritage. Normative rules legislate for state assets, but in a global framework they could also cover individual property domains.

4th postulate -Authenticity-: There is a “value increase” (for authenticity of the declared goods) that evolves increasing over time therefore the function is inverse to the deterioration process.

Then a law is proposed (fig. 4)

5th Component

An event can be an unforeseen fact but it must be limited in time.

The heritage assets may contain such data; they are always certified by the date of occurrence of the event. These events can be of various features: legal, customs, economic, architectural, technological, significant value or impairment; any event that the good has had, or its elements.

As most of the heritage values are not built in the market, but in other areas of social relations, for example, the value as object of donation, this is regarded as an event value. It is also an event value, a technological change or intervention in the materiality of the property.

Therefore, the event adds value to the heritage piece and it is constructed in the same mathematical way—exponential function. It is the same as the valuation given by authenticity, except that it occurs when the event happens, so there is a before and after the event, having a temporary period to determine when this event happened.

5th postulate -Event-: There is a “value increase for every historical event that happens over time” as follows (fig. 5)

2. Concluding the first part of the proposal

So far the valuation is based on the principles and background taking the event as positive or negative. The formula represents the summation of all the principles.

$$V_R(t) = VPB + Vmat_0 \left\{ e^{-\alpha t - \beta t} + \left[(e^{\phi(t-50)} - 1) \cdot \Delta(t-50) \right] \right\} \pm \sum_i E_i (e^{\delta(t-t_i)} - 1) \cdot \Delta(t-t_i)$$

6th Component: Otherness

A great variety of heritage values are built in cultural and political fields. From the legal declaration process of a good that it is only issued by the State, it acquires a categorization and consequently the legal protection. This process that begins with the identification, valuation, validity, categorization, protection, assessment and intervention, has a typological law called valuation of relative alteration.

The mathematical representation is given by a “constant” and “by parts” function based on the attributes analyzed and valued. It is “by parts” because the function represents the rule when it is derogated; or it may be infinite, when the rule continues over time, which lasts valuation and therefore the value. For the study case, the legal declaration may possess several jurisdictions, therefore it is applied the sum of the regulations the heritage asset has.

6th Postulate – Otherness: “There is an adjustment due to the state of enhancement of the work (identification, category, protection, evaluation, and intervention)”

This item is directly related to the rules that are used to categorize or to authorize an intervention and it depends on the conservation state. (fig. 6)

7th Component: environment

7th Postulate -patrimonial environment: “The characteristic of the environment is to have a heritage piece and what surrounds it. But sometimes the environment can also have its own heritage characteristics, which must be considered”.

The quantitative estimate of the postulate for VE, is based on the First postulate by catalog method. (fig. 7)

8th. Postulate - Heritage Environmental Influences - “The larger legal declaration (code) generates influences on the heritage asset and on the environment, so they are valued and valued”

The influence of the property in the environment must be determined, “xe” or “V”. Thus the influence of environment is IE; (fig. 8)

8th Component

9th Postulate - heritage monetary unit, “The heritage monetary unit determines the current value of the heritage asset”.

Under the rules, specific validity and valuation techniques applied by the law for the province of Buenos Aires, a formula is generated.

$$HMU(\text{International, National, Provincial or Local}) = \frac{\text{Expenses}(\text{Cultural_Institute}) + \text{resources}(\text{Ley_6174})}{\text{Heritage_Point}(100hp) * \text{Quantity_of_Legal_Goods}(\text{BA.province})}$$

This postulate leads to the change and transfer the concepts of valuation to value. The conclusion of the entire heritage item must be multiplied by the monetary unit and then be added to the value given by the market from the present view.

9th Component

10th Postulate -the relationship with the real estate market, “The real estate market determines the present value of the good; any declared heritage piece is embedded in the permanent reality, so it should be a requirement to evaluate and value it from the present”.

It is calculated by its own technical rules of valuation and legislation, but it cannot be assessed as a heritage property based on its pre-established rules.

3. Conclusions and final position

Since joining the concepts of heritage valuation and the background expressed by Viollet-Le-Duc based on stylistic restoration for intervention on the heritage object, there is no limit in intervention. The goal is to put it back into life, or to return it to its maximum value, and even improving the quality of the original object. The last concept is the highest position, which can denature the good to be protected, so it is considered as one of the ends.

$$V_v(t) = \left\{ \sum V_{mar}; e^{-\alpha_i(t-t_i)} x \Delta(t-t_i) \pm A_R (e^{\tau(t-t_i)} - 1) \cdot \Delta(t-t_i) \cdot \Delta(t_f - t) + \left[\left(\frac{VEpp}{SEm^2} \right) x * m^2 prop \right] \right\} amp + VMerc$$

The general formula that arises is the union of the conceptual extremes on valuation and restoration of the heritage good -Ruskin and Viollet-Le-duc- and they are only taken conceptually. The link of the two comprises the heritage universe, and if any term could not be verified, it would be zero, by the independence principle, because it does not modify the rest of the equation.

This methodology is applied in a case of the Bernal family house designed by architect A. Kanlay. Part of the first postulate for the scope of this work, will be developed:

Case: BERNAL house by architect ANDRES KANLAY. Antecedent: project

(figg. 9-11)

B. The study case: heritage economic value in base of the first postulate

(figg. 12, 13)

VP_{Nd} = non-degradable heritage value.

VP_{Nd} (AK) = 335.07 heritage points (hp)

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Figure 1: 2nd postulate - Built Heritage.

$$VP_d(t) = Ae^{-\alpha \cdot t}$$

VP_d(t) =	Heritage value based on time
A =	value at initial time or initial economic constructive value (Vec)
Vec =	can be equal to VPB (value of base heritage), because the assessment is always done from the present to the past. So it can be used as of base heritage, but with the analysis of the construction process, leading to all its authors.
e =	2.718...base of natural logarithm
Being α a positive constant that depends on the characteristics of the materials and technology used in the construction.	
$\alpha = \alpha[\text{value of materials (Vmat), value of labor (Mo), value of the technique (Tec)}]$	
$\alpha = \frac{\ln 2}{30}$	

Figure 2: Graphic.

GOOD		→ Ves → Vmat., Mo. and Tec. → Vec = A
Ves = Economic valuation of the surface		
Vmat = Valuation of the materials		
Mo = Valuation of labour		
Tec = Technique valuation		
A = Vec = Economic valuation in the initial time of construction		

Figure 3: 3rd postulate, Fashion.

$$VP_d(m) = Be^{-\beta \cdot t} \text{ with } \beta > 0 \text{ independent of } t. \text{ (for fashion) "}$$

VP_d(m) =	Heritage valuation degraded by fashion
B = Vec =	Economic valuation of the built heritage. See 2 nd postulate
50 years old =	it is the heritage time given by law
e =	2.718...
β =	Coefficient that measures the "cultural degradation" generated by the market; β depends on the type, distribution and functionality. β represents the action of fashion by degradation. It is represented with the negative sign.
$\beta = \frac{\ln 2}{50}$	Represents the average life. The number 50 represents the number of years, β is the time the fashion economic value takes to reach half of its maximum value as regards the initial time.

Figure 4: 4th postulate – Authenticity.

$$Vec (e^{\phi(t-50)} - 1) \cdot \Delta(t-50)$$

Vec =	Original value. It is economic value of the built heritage.
φ =	Is a constant that measures the growth of asset value, which depends on the materials of the work, executer, designer, function, style, etc..
$\phi = \alpha / 2$	

$$VP_d(t) = \text{Vec} (e^{\phi(t-50)} - 1) \cdot \Delta(t - 50)$$

Figure 5: 5th postulate – Event.

$$V(t) = E \cdot (e^{\phi(t-t_i)} - 1) \cdot \Delta(t - t_i)$$

E =	Event value
t _i =	Time of occurrence of the "i" event
φ =	Event weighing coefficient
Δ(t - t _i)	This means that the whole term is "0" zero, if "t" is before the event occurs.
Δ(t - t _i) =	t < t _i , 0
	t > t _i , 1

Figure 6: 6th postulate – Otherness.

How much does the intervention value + or - in the period t_i < t_f, where t_i is the start time and t_f is the completion time, or categorization, or protection? But now it is used only for categories. For each alteration t_i ≤ t_f

- A_R** = the alteration value or impact (table generated by each country and locality)
- τ** = the degradation speed, for categorization-protection, as regards the used rule
- V** = the valuation of the heritage category; or protection; or intervention.
- ln** = natural logarithm

Vmat = value contributed by catalog (UNESCO requirements)

$$\Delta(x) = \begin{cases} 0, & \text{si } x < 0 \\ 1, & \text{si } x > 0 \end{cases} \quad \tau = \frac{\ln\left(\frac{V}{A_R} + 1\right)}{t_f - t_i} \quad V_j = A_{Rj} \left(e^{\tau(t-t_{ij})} \right)$$

In conclusion the sum of each alteration gives: $\sum_j A_{Rj} \left(e^{\tau_j(t-t_{ij})} \right) \Delta(t - t_{ij}) \Delta(t_{fj} - t)$

Δ(t - t_{ij}) Δ(t_{fj} - t). This means it has beginning and end, that is before t_i and after t_f it is identically zero. Zero principle is equal to the different components that do not affect each other but are independent.

Figure 7 - 7th postulate -patrimonial environments

VE = Value of the heritage environment

$$V = \frac{VE}{\text{Environment_Surface}} = \# \text{m}^2 \text{ environment (Value_Per_Square_Meter_of_Environment)}$$

Figure 8: 8th postulate - Heritage Environmental Influences.

IE = [xe . # m² property]
m² property = (land surface + build surface)

Figure 9: Antecedent: project development.

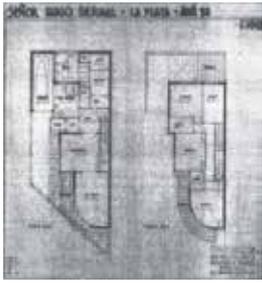
A. 3 rd PROJECT	Partial results	Top		
Scale # 13: by design	0.5 x 25	132		
Historical scale – time function	old (2014 – 1936) = 78			
Scale # 10: graphics	0.5 x 7	9		
Scale # 12: graphical development	0.5 x (1; 2; 5)	7		
Scale # 11: design situation - project	0.5 x 3	5		
F(t) = 10 / 1000 * 78 + 1 F(t) = 1.78 $P3 = F(x) * 0.5 \left\{ \frac{25}{132} + \frac{7}{9} + \left[(1 + 2 + 5) * \frac{1}{7} \right] + \frac{3}{5} \right\}$ P3 = 1.78 * 0.5 { 0.18 + 0.7 + 1.14 + 0.6 } P3 = 1.78 * 0.5 * 2.69 = 2.39hp Σ Antecedent = 2.39 hp				
			Figure 10 – 3 rd Project Plan – Arch. Andres Kanlay	Figure 11 – Front Draw – Arch. Andrés Kanlay

Figure 12: First postulate development.

BERNAL house – ANDRES KANLAY	Partial results	Top	
Historical scale – time function	2 x old (2014 – 1936) = 78		
Scale # 39: Historical study (historical valuation)	2 x 5 x F (t)	17	
Author: Andrés Kanlay (by curriculum)	2 x 32		
Scale # 44: grades of heritage significance – Hugo Bernal Andrés Kanlay	2 x 2	2 x 4	

Scale # 40: geological process (geographic valuation)	2 x 6	6	House
Scale # 13: Design	2 x 21; 1; 1;	132	
Scale # 47: Criteria (Use value - morphological and social)	2 x (4; 4)	5	
Scale # 3: Historical heritage value	2 x 2	2	
Scale # 1: Esthetic and knowledge - philosophical values	2 x (5 ; 6)	7	
Scale # 11: Design situation - Draft	2 x 3	5	
Scale # 17: Work dossier	2 x (2; 2; 2)	10	
Scale # 12: Drawing techniques	2 x (2:1; 2:2; 2:3; 2:4; 2:1;3:7)	7	
Scale # 29 : Condition (single family dwelling) - potential use	2 x 8	11	
$F(t) = 10/1000 * 78 + 1$ $F(t) = 1.78$ $VH = 5 * \frac{1.78}{17} = 0.52$ $AK = F(x) * 2 * \left\{ 2 * 0.52 + 2 * 32 + 2 * 2 * 2 * 4 + 2 * \frac{6}{6} + 2 * \left[\frac{21}{132} + \frac{1}{132} + \frac{1}{132} \right] + 2 * \left[\frac{4}{5} + \frac{4}{5} \right] + 2 * \frac{2}{2} + 2 * \left[\frac{5}{7} + \frac{6}{7} \right] + 2 * \frac{3}{5} + 2 * 3 * \frac{2}{10} + \left[2 * \frac{\left(2 + 1 + \frac{2}{3} + \frac{2}{4} + 2 + \frac{3}{7} \right)}{7} \right] + 2 * \frac{8}{11} \right\}$ $AK = 1.78 * 2 * \{ 1.04 + 64 + 4 + 8 + 2 + 0.33 + 3.2 + 2 + 3.13 + 1.2 + 1.2 + 1.88 + 1.45 \}$ $AK = 3.56 * 93.45 = 332.68hp$ <p>Σ Antecedent + economic value of heritage first postulate</p>			

ENHANCING THE ROLE OF LOCAL COMMUNITIES IN IMPLEMENTING THE WORLD HERITAGE: TWO EXHIBITIONS DESIGNED BY YOUNG PEOPLE FOR LOCAL YOUTHS

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Abstract

The role of a professor of architecture who is responsible for training new generations of young students in an increasingly globalized, multicultural and interconnected world is very complex, especially if he intends to make students sensitive to the architectural issues of other cultures. His challenge is to train students to conserve architectural heritage through working with local communities while taking in consideration the cultural and social differences of those communities. To achieve this goal, the lessons could include case studies, to demonstrate the complexity of instilling the heritage/conservation concept in different cultures. In its course of "Sustainable Architecture," The School of Architecture of the University of Udine conducted a case study of this type.

The two-year study focused on the sites of Bandiagara-Djenné (Mali) and Emdibir (Gurage-Ethiopia). The Udine study found that the future of conserving a country's cultural heritage could be achieved only through the active involvement of the local communities. Young architecture students hold the key to achieving this goal. Mobile exhibitions are an effective way to carry the message to the local communities. The two exhibitions analyzed in the paper are mainly planned and designed by young students for the young people living in the communities involved and refer to two different realities that have been addressed in different ways and with different themes.

For the first project (site of Bandiagara-Pays Dogon - Mali), the students used a Mali street artist's work for their exhibit. The artist used recycled beer and soft drink cans to build fifteen small Dogon masks. In designing the exhibition for the exhibition of fifteen works of the Malian artist Ladhji, the students had to take into consideration the symbolic values of the Dogon statuary and the masks as well as the architectural features of Bandiagara - Pays Dogon site that have made it the most visited city of Mali and of the entire African heritage.

In the second case, the focus turned to the earthen architectural heritage of Ethiopia. The Mali and the Ethiopia exhibits have been viewed at Italian schools, and institutions in Mali and Ethiopia have asked The School of Architecture to display them in their country. The exhibits have taught young viewers that local culture must be considered in heritage conservation projects.

Key words: *Implementation of the World Heritage, Conservation Awareness, Earthen Vernacular Architecture, Mali, Ethiopia*

1. Background

The idea for this paper arose in a course of sustainable architecture of the University of Udine. The idea led to the development of a two-year study of Mali and Ethiopia.

The two projects revealed a common approach: make young people aware of the participatory approach to the preservation of tangible and intangible heritage, as well as the necessity of respecting cultural and social values of sustainability.

There are two important factors common to both exhibits. First, the exhibits adhere to the UNESCO World Heritage Earthen Architecture Programme (WHEAP). Secondly, both exhibits promote the theme that heritage constitutes a vital ingredient of sustainable local development, and that, before

embarking on a program, the students must involve themselves in the local communities, with a view to becoming sensitive to different cultures.

To implement these two guidelines, several lessons at the Architecture School focused on the symbolic aspects of architecture – particularly, the relationships between signs, symbols, and myths. The exhibits reflect the knowledge gained from these lessons.

In other sessions, the class studied the mythological roots and rites related to the kanaga masks. This study led to the mythos that conveyed the sacredness, origin, and cosmogony of the Dogon people. These roots can trace the socio-cultural context of the Bandiagara - Pays Dogon sites.

Since the first of the two exhibitions is based on the work of artist Ladhji, operating in the city of Djenné, in studying this city, the architectural students examined the city's symbolic aspects, and its urban fabric – observing that the architecture of the Moroccan and Toucouleur houses become protagonist of the urban scene. Both typologies summarize the symbolic apparatus of the two cultures and convey their related myths and symbolic values. In the typology we can recognize symbols and myths that come across the River Niger from the heart of sub-Saharan Africa as well as myths that come from the Sahara and get with the nomads to the city. All these values are fixed in the symbolic forms of housing as well as in the earth construction details. In the second case, the lessons focused on the issues related to the definition of the thematic area, which show the exhibition on the transformation of the vernacular architecture and the landscape of the central highlands of Ethiopia. Some lessons focused on the symbolic aspects of the circular shape of the Gurage vernacular dwelling, which was built as a result of the progressive refinement of the local building culture – a culture which, over time, increasingly depended on local materials such as earth, wood, and cereal straw.

2. Fifteen works of the Malian Street Artist Ladhji: a Mobile Exhibition Helping the Understanding of a Heritage

The students used the work of a street artist, Ladhji, for their exhibit. The artist created fifteen models of Dogon masks obtained from recycled beer and soft drink cans. In designing the exhibition the students had to take into consideration the symbolic values of the Dogon statuaries and masks as well as the architectural features of Bandiagara - Pays Dogon site, which have made it the most visited city of Mali and of the entire African heritage.

Being involved in understanding the creative process of the artist Ladhji and of an artistic product linked to the ritual aspects related to the Dogon masks, the students made reference to the "Intangible Heritage Convention (2003)" calling for community participation in the identification and safeguarding of the heritage. In this case the focus turned to the role that communities, groups and individuals can play in the production, safeguarding, maintenance and re-creation of the intangible cultural heritage, thus helping to enrich cultural diversity and human creativity.

With a view to enhancing the local culture and understanding the environmental issues of the Dogon culture, the students have also focused on the vernacular architectural values related to the settlements of the Cliff of Bandiagara, as well as to the symbolic aspects of the structuring of the Dogon villages and rituals connected to the lives of local people in various stages of their existence. Also intending to make the exhibition of a Malian artist a focus for dissemination to other young people of the problems that the Dogon people face today, students have also studied the history, social issues and the architectural and environmental aspects that characterize the current conditions of the local population. For instance they found that the Dogon culture is seriously threatened by disappearance in the next few decades, because increasingly longer periods of drought make it difficult to grow cereals and other crops. As a result, young people are stimulated to leave the rural life based on agriculture-based rural life and move to big cities, dreaming of a better future and the comfort of the modern society. During their preparatory research, the students discovered that the Dogon architecture remains a remarkable example of rational vernacular architecture, in terms of materials, aesthetics, high quality of construction, functionality of spaces and creativity of shapes. Their earthen architectural heritage has adapted, over the time, to the climatic conditions of the site. The process of progressive settlement and its evolution towards a permanent human habitat, come from the need for the Dogon's population to survive. It is for this reason that the masks have been the pretext for the students to reflect that a natural habitat had been the temporary shelter for the Dogon population, but the geo-climatic conditions imposed the need to adapt this extreme habitat to a place of residence. This is why the

Dogons, after their long and hard migration from the southern Mandè area to the central plateau region, created the conditions for an exceptional habitat that combined the natural and cultural elements in an original integrated architecture.

The students have focused on the masks Kanaga that the artist has reproduced trying to fix them in the dynamism of their ritual dances, capturing different aspects of related symbolism and ritual features.

In particular, the students have studied the symbolic aspects related to the Dogon cosmogony (revealed

in Ladhji's masks) that represent his desire to preserve and reproduce an important part of the Dogon's intangible heritage. In their project, students prepared also a small CD catalogue, and they designed a wooden structure to display the statues depicting the Dogon dancers wearing Kanaga masks as well as all containers for the exhibition display and transport.

3. An Exhibition Promoting the Conservation of Earthen Vernacular Architecture and Landscape in Emdibir Area (Gurage Ethiopia)

In the second case, the students constructed an exhibit showing the Ethiopian earthen architectural heritage, as well as the traditional and the latest technologies of earth construction. Being aware that since the 1990s the World Heritage Committee has been encouraging greater community involvement in the identification and management of heritage properties, the students designed an exhibition to raise awareness among primary school students and local communities of the importance of conserving the earthen architectural heritage as an integral part of the identity of the Ethiopian people. The exhibition was conceived and created in partnership with several non-profit organizations such as CARITAS and the CEVI NGOs actually developing a cooperation project in Ethiopia.

In preparing for their exhibits, the students researched documents and Charters that have addressed community involvement. The documents that they considered included the Budapest Declaration (2002) which emphasize "the active involvement of our local communities at all levels in the identification, protection and management of our World Heritage properties" as well as the UNESCO Recommendation on Historic Urban Landscapes (2011). The exhibition design consists of a series of boards, pictures and drawings printed on canvas that make the exhibition easily portable and, due to its low weight, the transport costs are limited. Due to its light weight and flexibility, the exhibition features an easy set-up and an easy display through the use of a steel rope taut and fixed to the wall. The exhibition provides a full perspective of the architecture of the world's earthen architecture. The only three-dimensional elements are made up of a few small-scale models showing the main types of vernacular earthen architecture. These models depict the technologies and typologies of the Ethiopian earthen architectural heritage.

After a presentation at the headquarters of the Italian NGOs, the exhibit has now found a permanent place in the Emdibir TVET College where it plays its promotional role for which it was conceived.

Early bookings for the next two years include a number of primary schools from the Guarage region.

4. Appropriate Tools for Raising Awareness

A first positive note concerns the fact that both exhibitions once prepared for their usability by the public have begun to move and act as a layman for which they were designed. Both exhibits were designed to be available to the public; accordingly, they are mobile and cheap to transport. Already the goal is being met, because the exhibits have attracted young people who leave with a greater understanding of the need for community involvement in identifying and protecting tangible and intangible heritage – worldwide. An important element of the educational process underlies both teaching experiences described. The architectural students deserve to be commended; not only because of the hours of work they devoted to the project, but also for carrying the message to the public. Through their organization - AAU -Alumni Architecture Udine - promoted and publicized both exhibitions from time to time asking for specific support from various local institutions (municipal administrations, NGOs etc.). In particular,

after it's initial success at the Udine "Commercio Equo e Solidale Shop in 2012, the Artist Mask Exhibit toured various locations in the Italian network of "Fair-trade" shops. The exhibition has been visited especially by young schoolchildren of primary schools as well as by customers of the store network. The Mali and Ethiopia experience share a common lesson: the future of the world's

architectural and cultural heritage can be ensured only through the active involvement of communities and their young people. The two exhibitions were planned and designed mainly by young students for young people of the communities involved and refer to two different realities that have been addressed in different ways and with different themes. A basic important lesson to be learned from the two experiences is that to involve the communities, we must improve awareness and invest in young people and, in this case, architectural students working with a young audience. Also the method of communication chosen is that of the mobile exhibit which proved to be a particularly efficient tool for easy use, low cost and high educational impact.



Image 1 Wooden structures designed by students to display Ladhji's masks in the first exhibition at "Commercio Equo e Solidale" shop

Image 2 Ladhji's masks representing Dogon dancers wearing Kanaga. The Malian artist preserve and reproduce an important part of the Dogon's intangible heritage



Image 3 Small-scale model A designed by students depicting the technologies and typologies of the Ethiopian vernacular earthen architectural heritage in the Gurage highlands.

Image 4 Small-scale model B designed by students depicting the technologies and typologies of the Ethiopian vernacular earthen architectural heritage in the Gurage highlands.

World Monuments Fund and Community Participation in the Protection of Cultural Heritage

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Abstract

World Monuments Fund is an advocate for the preservation movement. Since 1996 WMF supports the protection of threatened sites through the biennial Watch program. The historic centers of Buenos Aires, La Plata (Argentina) and the Cabanyal (Spain) were proposed to the Watch by private groups concerned about the loss of their heritage caused by migration, demolition, and inadequate legislation. Supported by WMF they organized Watch Day public events that raised awareness and achieved improved heritage protection laws. WMF believes cultural heritage is a resource to be recycled, promoted through public campaigns, protected by effective legislation, and supported by sustainable economic strategies.

Keywords: *World Monuments Fund; Watch; Buenos Aires; La Plata; Cabanyal; Community Participation*

World Monuments Fund (WMF) is an advocate for the preservation movement. Every project it supports is an opportunity to raise awareness among the public, government agencies, community organizations, and potential donors about the importance of heritage preservation. Through programs like the World Monuments Watch (Watch)², WMF speaks out in support of the protection of sites around the world. Every two years since 1996, the Watch is a call to action for cultural heritage around the globe that is at risk from the forces of nature and the impact of social, political, and economic change. Starting in 2012, WMF offered communities behind the World Monuments Watch sites the opportunity to organize their own Watch Day³ events to advocate for the heritage that is central to their lives. From Argentina to Poland and Madagascar to Japan, communities came together to preserve, protect, and celebrate treasured places and local cultures. (fig. 1)

WMF has supported cultural heritage preservation projects in more than 30 historic towns, sometimes in response to devastating events such as floods, earthquakes or armed conflict. In other cases, such as the historic centers of Buenos Aires and La Plata in Argentina, and the Cabanyal neighborhood in Valencia, Spain, they were proposed to the Watch by neighborhood groups and professionals concerned about the disappearance, abandonment, and deterioration of their urban heritage caused by migration, uncontrolled demolition, changes in urban planning regulations or inadequate legislation, as well as by infrastructure projects that threatened the integrity of the urban fabric and affected the quality of life of its inhabitants.

The Historic Center of Buenos Aires⁴

The Historic Center of Buenos Aires contains nearly 100 National Historic Monuments and almost 6,000 designated sites. The city's Secretary of Culture identified 1200 additional buildings as having heritage value without protection of any kind, and there are many other examples that deserve to be preserved. On the other hand, the average construction in Buenos Aires in the previous 20 years was 1 million square meters per year, but since 2008 the average increased to 6 million. A large portion of

² www.wmf.org/watch/about-watch.

³ www.wmf.org/watch-day.

⁴ www.wmf.org/project/buenos-aires-historic-center.

the construction occurred in the Historic Center from the demolition of existing buildings, many of which had heritage value. (fig. 2)

In light of this situation, the private organizations Basta de Demoler and Fundación Ciudad joined efforts in the fight against the indiscriminate destruction of the heritage of Buenos Aires and nominated the Historic Center to the World Monuments Watch list of 2010. Their proposal included the following objectives:

- Promote community participation in the defense of cultural heritage;
- Propose a clear and inescapable law enforcement;
- Propose a coordinated and participatory management system enforced by qualified professionals; and
- Promote the complete and final documentation of the built heritage of the city.

In order to raise awareness towards the precarious state of the city's heritage and inspire improved legal protection, Basta de Demoler and Fundación Ciudad, with support from the embassies of France and Brazil organized the symposium "Salvemos Buenos Aires -1er Encuentro de Gestión de Patrimonio Arquitectónico y Urbano," which took place in Buenos Aires in September 2010. The results were published with the support of WMF and Fundación YPF⁵. This publication was launched at the headquarters of the Legislature of the Autonomous City of Buenos Aires on October 5, 2011, and the next day, the legislature approved the expansion of the protected area of the Historic Center to include more than 40 blocks and 200 historic buildings.

However, two months later, the same legislature, under pressure from city officials decided not to extend the 2548 law that temporarily protected all structures built before 1941 (about 140,000 buildings). Basta de Demoler and six other NGOs protested publicly and filed a court injunction to reinstate the law and prevent the demolition of buildings constructed before 1941.

Despite these efforts and achievements, the long-term protection of the heritage of Buenos Aires has not yet been secured and the constant surveillance of activists from Basta de Demoler and similar associations, seem to be the only obstacle that stands against the indiscriminate demolition of the built heritage and the environmental degradation of Buenos Aires, caused by the pressure of real estate development. (fig. 3)

Their most recent battle has been the fight to prevent the construction of an illegal tower next to the historic Santa Catalina de Siena Convent.⁶

City of La Plata⁷

La Plata, founded in 1882, is the political and administrative center of the province of Buenos Aires. Its design, based on hygienist and rationalist concepts, corresponds to a grid crossed by two main diagonals with a square every six blocks and a green lung (El Bosque). Its architectural heritage is composed of a mixture of houses of different styles which were adapted, harmoniously in most cases, to changes in the habits of the population. Starting in the 1960's some initiatives threatened these design principles by advocating the demolition of historic buildings or the paving over of public gardens to build new structures in excess of three stories. In 1982, the Municipal Decree 5338/82 protected properties built before 1930, and in 2000 the Ordinance 9231 defined 12 heritage areas and listed 13,000 properties to be preserved, but left out important zones, allowing the demolition of historic buildings to construct tall structures. In 2006, the still current Ordinance 1579 protected only 1,826 properties of heritage value, of which 200 have been already demolished. Finally, in 2010 the adoption of the new Code of Urban Planning (COU) further increased the number of permitted levels and functional units, reducing the protection of the listed buildings which are being demolished and replaced with new speculative buildings.

In light of this situation, and particularly in response to the demolition of an iconic facade, a group of professionals disturbed by these acts decided to summon the neighborhood to discuss alternative ideas and strategies. This resulted in an assembly called "Defendamos la Ciudad de La Plata". Today the

⁵ <http://www.wmf.org/dig-deeper/publication/salvemos-buenos-aires-1er-encuentro-de-gesti%C3%B3n-de-patrimonio-arquitect%C3%B3nico-y->

⁶ <http://www.wmf.org/project/church-and-monastery-st-catherine-siena>.

⁷ www.wmf.org/project/city-la-plata.

Assembly and the civil association derived from it: “S.O.S La Plata”, work in a coordinated manner. One of their activities was the nomination of La Plata to the Watch 2012.

Their objectives include:

- Suspension of the COU and the adoption of a code that has the consensus of the community stakeholders, takes into account the uniqueness of the city and plans for the future in a rational and sustainable manner;
- Creation of clear and positive rules for builders, architects and related professionals, and owners of historic houses;
- Limitation of construction of tall buildings;
- Enhancement of the urban and suburban spaces and their surroundings, with improved economic building indicators and a push to lower densification in the center of town;
- Suspension of the concession of illegal temporary building permits which give false expectations to investors;
- Cooperation of specialized entities in the development of feasible and intelligent intervention proposals;
- Community participation through communication and social commitment achieved by clear mechanisms and without political manipulation;
- Economic development in sectors neglected by developers;
- Improvement of public transportation and parking in central locations and development of alternative means of transport such as bicycles and trams;
- Creation of skilled jobs in conservation and restoration;
- Recycling of construction elements and promotion of the use of renewable energy;
- Identification of the inhabitants with their city and appropriate care of public and private spaces.

The Assembly and S.O.S. La Plata promote their goals through a website, Facebook and twitter and through public events, such as demonstrations and protests, as well as legal injunctions against illegal demolitions (fig. 4). In October 2012, as part of the Watch Day program, WMF sponsored the “Week of Heritage at Risk”, consisting of a series of public events that included talks in schools, a film series and advertisements through social media, with the aim of raising local citizen’s awareness about the unique characteristics of the city of La Plata, strengthening their identity and adding people and similar heritage organizations to the campaign for the protection of the city. The events were organized by S.O.S. La Plata and had the participation of 300 residents, professionals and fine art students⁸ (fig. 5).

Neighborhood of El Cabanyal⁹

El Cabanyal is a settlement of sailors and farmers established in the sixteenth century north of the harbor and about three miles east of the Old Town of the city of Valencia, Spain. Originally made up of small residential barracks, the Cabanyal-Canyamelar district began to organize itself in the late eighteenth century with the construction of the Church of the Rosary and the Chapel of the Angels, and its first streets developed as a connection of the two churches. In the nineteenth century, the neighborhoods of Cabanyal, Canarymelar and Cap de França consolidated as a separate municipality of Valencia named Poble Nou del Mar, with a population of about 8,000 inhabitants and 1,746 buildings, mostly of residential use. In 1897 it was annexed to the city of Valencia and the process of the gradual replacement of the old barracks by the current buildings started and continued until the first third of the twentieth century. The Cabanyal-Canyamelar is an eclectic assembly of vernacular architecture, representative of a popular modernism expressed in the rich tile decoration of its facades. It is a unique neighborhood in Europe for its heritage value, the quality of its urban fabric, its colorful social life, and its proximity to the sea, the harbor and the university. It is one of the three districts that make up the Historic core of Valencia and was declared a site of Cultural Interest by the Generalitat Valenciana in 1993 (fig. 6).

⁸ <http://defendamoslaplata.blogspot.com/2012/10/6-de-octubre-dia-del-patrimonio-en.html>.

⁹ www.wmf.org/project/barrio-del-cabanyal-canyamelar.

Despite its landmark status and legal protection, the City Government of Valencia, in its Special Plan for Protection and Internal Reform (PEPRI), proposed the construction of a wide avenue (extension of the Blasco Ibáñez Avenue) which runs through the neighborhood and divides it in two, profoundly altering its urban fabric. This intervention involves the expropriation and demolition of 1,651 houses while proposing the introduction of a construction model totally alien to the traditional style of the neighborhood. This plan, proposed in 2000 entails the destruction of 261 listed buildings, most notably the Lonja del Pescado de la Marina Auxiliante (fig. 7).

The Ministry of Culture of Spain declared in 2009 that the PEPRI prescribed the destruction of the Historic Cabanyal-Canyamelar, and proposed that the municipal plan was modified to ensure the protection of the historical and artistic values that motivated the protection of the neighborhood. Since then, a victim of the battle of wills between local and national government, the district suffers from neglect and physical deterioration caused by the pressure that the City Government has been subjecting it to for the past years. The current pressure was preceded by a long period of legal and economic uncertainty due to the lack of urban regulations during much of the second half of the twentieth century and more recently by the approval of the PEPRI. Meanwhile, the buildings acquired by the City with the intention of demolishing them to implement the Special Plan lie abandoned and pose a danger to the safety of local residents (fig. 8). For these reasons, the Neighborhood Association Cabanyal-Canyamelar founded in 1977, proposed the inclusion of neighborhood to the Watch 2012. Their objectives include:

- Call international attention to the Heritage-Urban-Social problem affecting the historic fabric of the Cabanyal-Canyamelar;
- Revitalize and regenerate the neighborhood as an opportunity for progress, taking advantage in a participatory manner of the potential that makes it unique and singular;
- Restore the connections of the neighborhood to the west with the city and to the east with the waterfront, improve east / west permeability and implement an ambitious program of rehabilitation and retrofitting to regenerate and revitalize the neighborhood;
- Take the necessary steps to revitalize the neighborhood as a residential coastal area offering a high quality of life for current and new residents.

In July 2012, four local organizations: the “Asociación de Comerciantes, Industriales y Profesionales del Marítimo” (ACIPMAR), “Salvem El Cabanyal,” the neighborhood association “SI VOLEM” and the “Asociación de Vecinos y Vecinas Cabanyal-Canyamelar,” set aside their differences and signed a common proposal to promote “rapid regeneration, revitalization and invigoration of the Cabanyal-Canyamelar”.

In October 2012, as part of the WMF Watch Day sponsored event, the neighborhood association of Cabanyal-Canyamelar organized a tour of the neighborhood with the participation of WMF-Spain and renowned personalities from the worlds of culture and heritage of the University of Valencia and the Real Academia de Bellas Artes de San Carlos, and the president of the Heritage Awards of the European Union, all of which agreed to defend: “a controlled conversion of El Cabanyal to allow new functions but without losing the essence of the neighborhood”. This event had great media coverage and helped convince many that the opposition of the neighbors to the Special Plan was not a politicized or partisan struggle, which gave the advocates more credibility and general support.

This message written by the nominator of El Cabanyal to the Watch summarizes the results of this initiative:

Undoubtedly the inclusion of El Cabanyal in the 2012 World Monuments Watch List, once the project was paralyzed by the Ministry of Culture, meant a turning point, which is slowly paying off, not only to reinforce the stopping of the municipal project, which is more than dead and only needs a burial, but also to start laying the foundations upon which we can plan the future of our neighborhood. A plan that takes advantage of the historic value and of those qualities that make us unique and different from the rest of the city. A few weeks ago we had a meeting with the Hotel Business Federation of Valencia and they fully agreed with this approach. Two years ago this would have been unthinkable.

Vicente Gallart, Vice Presidente, ASSOCIACIÓ VEÏNS CABANYAL-CANYAMELAR.
Message to WMF dated Abril 7, 2013.

The neighborhood associations promote their goals through the web platform of Salvem el Cabanyal¹⁰, and in 2013, the Living Cabanyal Archive, a citizens' initiative aimed at raising awareness about the historic waterfront of Valencia by promoting sustainable town-planning through cultural identity and participation, received the European Union Prize for Cultural Heritage / Europa Nostra Awards¹¹.

In July 2014 the Supreme Court of Spain dismissed an appeal from the Generalitat Valenciana, and upheld the 2009 Ministry of Culture's determination to stop the PEPRI, declaring that the cases involving destruction of cultural heritage were of the competence of the State. Furthermore, it ordered the city government to revise the Special Plan to warrant the protection of the historic values that motivated the inscription of El Cabanyal as a historic monument.

The verdict was welcomed by many preservation organizations, but the threat of the PEPRI albeit in a modified version, still persists. (fig. 9).

Final reflections

Cultural heritage is the reflection of the achievements of communities through time which encompasses a wide range of places and extraordinary sites ranging from the humble and unknown to the majestic and emblematic.

WMF recognizes that investing in the preservation of cultural heritage implies investing in the human framework that allows the continuity of cultural traditions through both local use and enjoyment, as well as by the participation of individuals from around the world in the appreciation and preservation of this common heritage.

Cultural heritage is a resource that can provide a practical benefit through recycling and replacement of speculative demolition by speculative rehabilitation, through the adoption of policies that promote adaptive reuse and are disseminated through extensive public awareness campaigns.

Especially in the case of historic districts, heritage preservation is directly associated with the preservation of the environment and quality of life of its inhabitants, therefore, the interventions proposed by public entities should take into account the views of a broad representation of actors and not just a limited group of experts or investors.

Finally, it is necessary to strengthen the administrative and management capacity of local, regional and national governments, through the development of effective protective laws and legislation that promote innovative financial strategies that support the development of healthy communities and markets that can sustain revitalization and development programs, thereby ensuring the long term preservation of heritage, environment and quality of life.

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¹¹ www.cabanyalarchivovivo.es.



Image 1: World Monuments Fund – Watch Day.



Image 2: Buenos Aires petit hotel demolitions.



Image 3: Basta de Demoler demonstration at the legislature of the City of Buenos Aires.



Image 4: “Defendamos La Plata” demonstration.



Image 5: La Plata Watch Day poster.



Image 6: El Cabanyal typical façades and plan of protected area.



Image 7: El Cabanyal Special Plan for Protection and Internal Reform (PEPRI) proposal.



Image 8: Neglect at El Cabanyal.



Image 9: PEPRI - 2014 Revision.

An Administrative Strategy which Ensures both the Conservation of Cultural Heritage and the Protection of Property Rights: an Example of Surface Rights Scheme of Kinmen National Park

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Abstract

In order to conserve the appearance of precious traditional buildings and the cultural elegance in a sustainable way, the Kinmen National Park (KMNP) is granted, by negotiation with the owners of the traditional buildings, the surface rights free of charge in exchange for 30-year lease of repairing, renovation, managing and using the properties. During the 30-year lease KMNP Headquarters subleases these properties to private organizations or individuals for operation in order to provide these heritage buildings with sustainable management. By doing so, not only it will enhance the practical value of the heritage buildings but also eliminates the concern the general public might have towards the designation of historic buildings: that their private property might be turned into public ownership. Thus such a model proved to be the better mechanism of balancing the constitutional property rights and the private cultural heritage preservation.

Keywords: Kinmen (Quemoy); Surface Rights; Property Rights; Heritage Preservation

1. Introduction

Kinmen was restricted to ordinary traveling and visiting before the Martial Law terminated in 1992. While the development activities were restricted, the trace of the special period remained and became the most valuable heritage for Kinmen. Certain traditional settlements were well preserved in its integrity and authenticity. In order to conserve the appearance of precious traditional buildings and the cultural elegance in a sustainable way, the Kinmen National Park (KMNP) Headquarters continuously promotes the repair and reuse of traditional residential buildings in traditional settlements in Kinmen.

Kinmen National Park was initiated in 1995 with the scale of around a quarter of Kinmen Island, and one of the selective criteria is the "Preservation on the Architectural Landscape of traditional settlements". There are 12 settlements in Kinmen National Park (fig. 1). Among them, 7 representative traditional settlements are then being involved and preserved in the park area base on the diversity and reality of architecture and the variety of historical monuments and cultures of everyday life¹². In addition to the diverse styles of architecture, such as southern Fujian buildings, Western style buildings, and historic monuments, the cultures of everyday life, such as traditional spatial configuration, patriarchal system, ethnic ceremonies, and feng shui, are preserved in good conditions (fig. 2).

2. Difficulties for Preservation of Kinmen Traditional Settlement

KMNP Headquarters have faced the difficulties from the social and regulative aspects while promoting the preservation work on settlements.

1. Social Aspect

(1) Population Exodus: From 1949 to 1992, due to the application of Martial Law, Kinmen's

¹² (Chiang, 2003).

development was suspended. For the sake of education and employment purposes, most people have moved to Taiwan, and somehow the rests who remains in Kinmen then moved to downtown area for the convenience of business and life. Therefore, the traditional settlements are facing the challenge of population aging and outflow.

- (1) Enormous Repair Expenses: These are conflicts between people either use or inherit the properties (heritage buildings) because of the share property mindset for families. The ownership is always the issue for family to discuss and argue, and commonly people would rather keep the heritage buildings without repairing then ask for all shareholders to participate and share expenses in order to repair or maintain the share property.
- (2) Complicated Equity: Under the constrains of traditional mindset that indicates the family house as the central of a family, seldom does any transaction of real estate happen in the settlement, and one of the most important reason is because the inheritors are consist of few descendants already move out from Kinmen.
- (3) Constrains for Reuse: One of the best way to evoke local economic development is to attract consumption from external demands like promoting cultural tourism, but the aging society has encounter difficulties while providing services due to the rare service providers in the settlements. Furthermore, the previous point that indicates the complicated equity also restrict the possibility of investment on industry transformation or heritage reuse.

2. Constitution Aspect

The traditional buildings in KMNP are consisting of 2 parts: 1. The ones authorized and designated as monument base on the Cultural Heritage Preservation Act and 2. The non-monuments. The first kind is qualified for apply subsidies for the purposes of preservation, maintenance and reuse but just a few. The second buildings are the major components of the settlement landscape but have no subsidies. Somehow the locals didn't really expect their own houses being designated as monument due to the lack of knowledge and understanding for the act and the fear for losing their private properties.

So far, only Qiong-lin village is a "Settlement" designated by the "Cultural Heritage Preservation Act", and the other six ones were not recognized by the act. To ensure the sustainable development and preservation of traditional settlements in KMNP area, the supporting regulation and counseling mechanism such as payment of subsidies must be formulated and promoted through KMNP Headquarters because no clear law related to National Park Regulation can be adopted to this case¹³.

Many international cases took National Trust as the fundamental concept while pursuing reuse on monuments within the cultural heritage preservation. This idea not only enhances the effectiveness on reuse of cultural assets but also provides a professional and proper management criteria and reference. The supporting mechanism for deploying National Trust in Taiwan still requires trust from citizen to private sectors or organizations, which are able to commit to preservation mission and goals. Although the "Trust Law" has been committed from 1995, the current situation still indicates the difficulties for promoting settlements preservation by taking government regulation or policy as the tool¹⁴.

3. The Application of Surface Right

KMNP mentioned in the open proposal: "The maintenance of settlements differs from heritage preservation, it's a continuity of living cultural traits which requires local participation and contribution through offering appropriate incentives and norms in order to re-energize one place through culture input." Therefore, the major strategies KMNP headquarters took were more about encouragement and compensation to trigger the self-motivated preservation, for example, offering subsidy for historical buildings repair. For common cases, owners are at the same time users of these historical buildings, they will apply to KMNP headquarters for the subsidy to cover part of their repair expenses. The other cases are the buildings not designated by regulations, the situation are more like: owners are no longer users or residents of the area but remains the will for preserving these building without expending extra money and keep the authorship of the property. And this is where this article wants to address: how to ensures both the conservation of cultural heritage and the protection of

¹³ (Tsai, 2011).

¹⁴ (Lee, 2011).

property rights through an administrative strategy? Therefore, here's the regulation being proposed by KMNP headquarters, the surface rights in exchange for 30-year lease.

1. Object Filtering: KMNP headquarters filter the objects for setting the surface right through these terms and conditions:
 - (1) Importance to settlement development
 - (2) Whether a battlefield monument
 - (3) Distance to crucial landscape
 - (4) Potential for clustering effect
 - (5) Importance as architectural style development
 - (6) Scarcity or particularity of Architectural style
 - (7) Refinement of architecture or decorations
 - (8) Particularity on building construction methods

The KMNP headquarters enforce this project based on the selective criteria above, and select the certain buildings with the guidelines then started negotiating with the owner of traditional buildings in early 1996. However, on one hand is the increasing acceptance of more residents and on the other hand is the holistic planning concern for settlement landscape, KMNP headquarters has change to complete encouraging attitude that receive almost all applicants that shows the will for collaboration. Hence, more and more cases are shown to this innovative policy (tab.1).

2. Contracts for Surface Right: Below shows the contents of the contracts for surface right:
 - (1) KMNP Headquarters is granted the surface rights of the historical building free of charge in exchange for 30-year lease
 - (2) KMNP headquarters are authorized of repairing, renovation, managing and using the properties base on the original appearances of the houses.
 - (3) KMNP Headquarters are able to decide the managing mechanism for the historical building, open to public for exhibition or tourism purposes and subleases these properties to private organizations or individuals for operation in order to provide these heritage buildings with sustainable management.
 - (4) No transaction, lease, alteration, increase and any other behavior for changing or damage the original appearances are allowed during the 30-year contract duration.
 - (5) KMNP Headquarters should permit owners and their family members to worship ancestors at the main hall of the building base on the Kinmen etiquettes.
3. The reasons why residents choose "Surface Right Setting"¹⁵
 - (1) The responsibility for Ancestors
The residents of traditional settlements are raised in the environment of traditional clan, so they respect their ancestors and take the building as the root of the clan. Therefore, they believe in maintaining the building in order to keeping the inherent from ancestors. In view of the respect to the whole family, they should repair the house even thought most people have migrated to other places,
 - (2) The inconvenience of co-ownership
The historical buildings are mutual inherited by multi-offspring, and the complicity of ownership causes the difficulties of property usage by certain users that bring extraordinary inconvenience to life.
 - (3) High Cost for Renovation
The high cost for renovating the historical buildings depends on the size, scale and refinement on decorations, and by doing so, the owner gains both benefit of cost deduction and renovation on the inherent property without losing it.

4. Advantages for "Surface Right" Model

1. Flexible Adoptive Strategies

¹⁵ (Yang, 2006).

The “Surface Right” model provides a more flexible and adoptive way for heritage building renovation although it’s not a purely legal-driven approach, in other hand, it offer a choice between owners and KMNP headquarters. To concern both perceptions of residents who are owners and the sack of settlement preservation, surface right model renovate the house from the perspective of public sector under the contracts that take the right from surface but keep the land ownerships to the inheritors. The most precious part is the concerns of local feelings that empower future preservation aspirations.

2. Consulting on “National Trust”

The national trust approach seems workable for the settlement preservation, but the lack of mature organizations or firms that are willing to contribute still bring problems to the door. Therefore, the innovative approach taking public sector as the middle broker becomes a solution to the dilemma between investors and residents. Due to the trust issue address brought out earlier, the public sector took the responsibility as a broker to buffer between residents and complex trustees. And base on the empirical observation for years, this approach has achieve the win-win situation for three parties, owners, public sector and space organizers. More people from the community organizations take the chance to participate and engage in future management and operation.

3. Concerns from Intergeneration

KMNP Headquarters are in charge of investing up to few million dollars for the cost of building renovation after they acquire the surface right. Therefore, the 30-year duration is therefore designed in order to avoid the conflict caused by dispute for profits. The only focus for the investment from public sector is on heritage preservation.

4. Respects on Fundamental Needs to Heritage Building

Many of the heritage buildings in Kinmen are often dedicated to the common ancestor of several families, each family still regularly come back to the house to worship their ancestor every year, which forms a special ritual; although these old houses have lost its function as living spaces, but the demand as worshipping remains. Therefore, when signing the “surface right” contracts, usually it allows the original owner to worship in a fixed time every year. This ritual not only improves the willingness of owners to reserve the houses, but also expands the preservation scope from hardware preservation to cultural preservation. This “surface right” makes the worship ritual continues which also connects the relationship of owners with heritage buildings (fig. 3).

5. Summary: the Formation of Reliance Relationship and the Distribution of Preservation Concepts

The implementation of setting “surface right” has been done for nearly two decades, people gradually gain trust and confidence to KMNP Headquarters, more and more people are actively looking for KMNP Headquarters on setting the surface right to their heritage buildings. Even though residents may not understand what is settlement reservation, and what is cultural heritage, but this strategy is in line with the local people, reducing their burden. In this case, we found out that there are positive effects on both heritage preservation and improving the consciousness of residents.

About “surface right” heritage building re-use and restoration, now through the selection method, many heritage buildings are commissioned by private business to operate as hostels or specialty shops by KMNP Headquarters since 2005 (fig. 4). “Community relations” has been one of the most important criteria in the operation evaluation, which it strengthens the reuse of heritage buildings, but also increase the opportunity for residents to be involved and participate in the process.

“Surface right”, such a long-term and stable mechanism not only allows the government to demonstrate the performances of preservation of cultural assets, through this way, the ownership of buildings are protected, and also psychological needs (such as: worshipping) are met. The action strategy of settlement preservation has quietly sprouted in the mind of people and the government; we could foresee a beneficial result for future work to be carried on.

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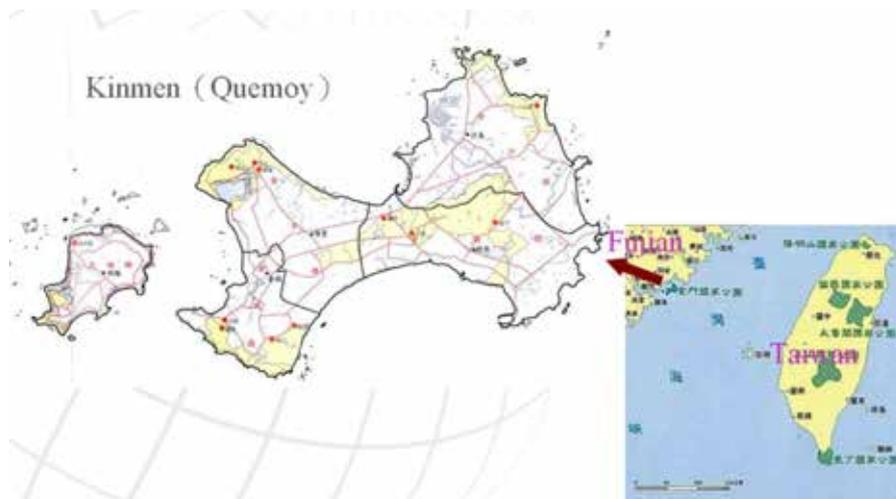


Figure 1: The most representative settlements in Kinmen (red points).

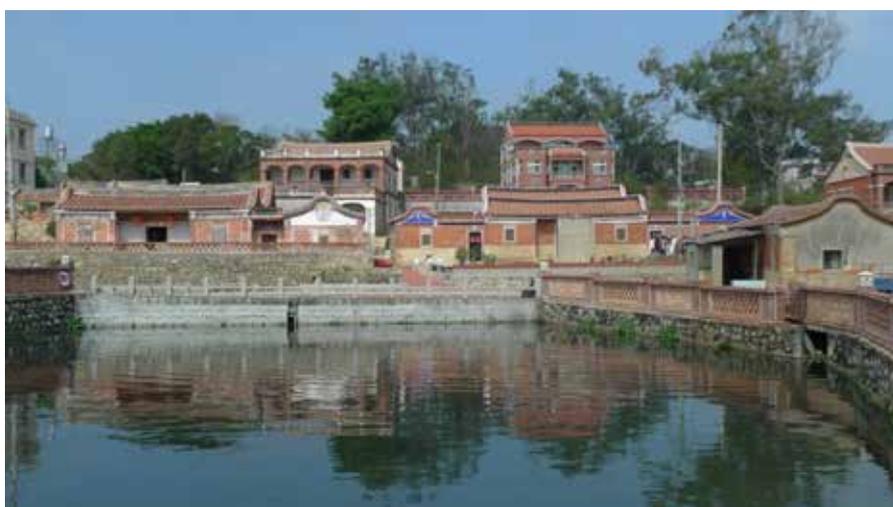


Figure 2: The traditional settlements in Kinmen are well preserved with integrity and authenticity.



Figure 3: The ancestral hall is the space for ancestor worshipping purposes.



Figure 4: Many heritage buildings are commissioned to operate as hostels or specialty shops.

Table 1: The amount of “Surface Right Setting” in KMNP (from 1995 to 2013).¹⁶

Settle- ment	Shan- hou	Zhu- shan	Ou- cuo	Shui- tou	Qiong- lin	Nan- Shan	Bei- -Shan	Xiao- jing	Others
1995									
1996	1								
1997		1							
1998									
1999	1			2					
2000	1	1				1			
2001	1	1		2	3				
2002		1	1	6	1		1		
2003				4	1		1		
2004	2	1	9	4					
2005	2	1		3			2	2	
2006	1	2		4	4	1			1
2007							1		
2008									
2009		1		1					
2010		1							
2011		1						1	
2012		2							
2013							1		
Total	9	13	10	26	9	2	6	3	1

¹⁶ The authors appreciate the help of Kinmen National Park Headquarters for the precious data used in this paper.

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I C O M O S
General Assembly

Symposium
Heritage and Landscape
as Human Values
Florence, Italia
9/14 novembre 2014



Theme 5
Emerging tools
for conservation practice

Thème 5
Nouveaux outils
pour la pratique de la conservation

Semantic and cognitive palimpsest
Outfitting and communication project

Conservation

It's abacus of different shapes,
and it let us interpretate conservation,
starting from thing structure



Theme 5

Emerging tools for conservation practice

Thème 5

Nouveaux outils pour la pratique de la conservation

Cultural mapping, Capacity building, Micro-financing, Social values analysis and Multi-purpose GIS are revolutionising heritage practices.

How can they enhance conservation practice?

La cartographie culturelle, le renforcement des capacités, les Micro-financements, l'analyse des valeurs sociales et les SIG révolutionnent les pratiques patrimoniales.

Comment peuvent-elles améliorer la pratique de la conservation?

Sub-themes

5-1 Technological innovation

5-2 Community engagement

5-3 Theoretical tools

5-4 Communication and Interpretation

Digital Representation Platform and Multi-scale Representation for a Multidisciplinary Knowledge of Some UNESCO World Heritage Sites in Italy

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Abstract

The paper describes reading criteria for the interpretation/documentation, integrated systems of digital technologies and 2D/3D digitization of Cultural Heritage (CH) and the procedures followed by Digital Representation Platform (DRP) promotes through integrated digital survey for CH in Milan and Trento as a case study of the research on the integration of new technologies to obtain 3D multi-scale representation architectures. The study from the methodological point of view has made use of the identification of levels of study differentiated, each of which is capable of identifying categories.

Keywords: *Digital Representation Platform; Multi-scale Representations; 3DCM; 3D Digitization Methodologies; Heritage Recording*

1. Introduction and Objectives

In recent years, digital heritage has begun to transform the process of re-creating and understanding the past¹. In fact, the purpose of the ICOMOS Charter for Interpretation and Presentation of CH Sites is to define the basic principles of Interpretation and Presentation as essential components of heritage conservation efforts and as a means of enhancing public appreciation and understanding of CH sites². The paper describes reading criteria for the interpretation/documentation, integrated systems of digital technologies and 2D/3D digitization of CH and the procedures followed by DRP³ through integrated digital survey. The DRP is meant to be particularly useful to heritage managers who are developing recording, documentation, and information management strategies for territories, sites, monuments. Recording, documentation, and information management are among the central activities of the decision-making process for heritage conservation management⁴. Conservation, being an ongoing activity, can be best described as a cyclical process, with heritage information being the knowledge base to which everyone dealing with the heritage contributes and from which everyone retrieves information. Without such a knowledge base collecting and disseminating information at all stages, the conservation process is without reference⁵. The DRP offer the possibility of obtaining new products not only in the surveying activity but also in representation, visualization, digital information and communications technologies with powerful instruments for multi-faceted analysis. Additionally, it offers a wide range of applications for collecting and processing historical data, monitoring of monuments and creating interactive information networks. Moreover, the present research project it is placed between the targets to explore the possibility of integrated digital survey and multi-scale representation. I have made 3D models of both the current status (geometric model) that support the analysis of the various stakeholders in order to identify guidelines for the relief aimed at the realization of multi-scale models of architectural sites. Today new opportunities for an integrated management of data are given by multi-resolution models, that can be employed for different scale of representation. It was identified a methodology for reading that can return a survey aimed at evaluating changes induced by simultaneity through the decomposition of multi-scale representation of the parties examined. Here I report the results of the research on most significant architectural buildings of Milan and Trento.

2. Line of Research Methodology

¹ (Brizard, Derde, Silberman, 2007).

² (Brizard, Derde, Silberman, 2007).

³ (De Masi 2014).

⁴ (Letellier, 2007).

⁵ (Letellier, 2007).

I identified relief guidelines aimed at the realization of architectural sites multi-scale models. This was made possible by the geo-referencing process consisting in the insertion of local systems in less local systems. Therefore the relation between the uncertainty of the model (derived from the uncertainty of the measurements), and simplification of the model (derived from selecting and transmitting only some geometric information considered essential to the description of the object on a certain scale) has been taken into account. The research was articulated according to the DRP of the architectural and the urban landscape, consisting of a set of cultural, geometric, morphological and dimensional knowledge for the creation of a 3D digital model implementable with multidisciplinary themes. The DRP improves current policies and standards and is based by: 1- heritage information with integrated activities of recording, documentation, and information management to acquire knowledge, understand values, promote the interest and involvement of scholars and ensure long-term maintenance and conservation of heritage places. 2- Information management with the process of finding, cataloguing and sharing information by making it accessible to potential users now and in the future; 3- Recording with the acquisition of new information deriving from all activities on a heritage asset, including heritage recording, research and investigation, conservation, use and management, and maintenance and monitoring. (fig. 1) The benefits of integrated digital survey describing the physical configuration of sites and their physical condition at known points in time fall into two broad areas: 1- conservation planning and management; 2-provision of a permanent archival record. These were the steps followed: 1- Visual frameworks in the urban space; 2- Criteria of heritage significance and principles of evaluation of CH assets. 3- Study of current methods of 2D/3D digitization intended and Open Source for CH preservation. 4- Study of the relief procedures with integrated laser scanning and photogrammetry. About the relief of the elevated parts, scanning and relief stance optimization were considered. 5- Study of the relief integration methods applied to the plan and the elevated parts in order to define a one-3D system. This was to identify the invariant with respect to the scale of representation in the geometry of the object and then proceed to the geo-referencing. 6- Study of best practices for the realization of 3D models that are mapped to different nominal scales and with different levels of detail. 7- Study of scale changes in the individual models (site, architecture, details) with simplifications based on the selection and activation of geometric information from different nominal scales. 8- Accurate documentation of each cultural object, encouraging an integrated interdisciplinary approach. 8- Study of Open Source tools and software for CH fruition and conservation. From a methodological perspective, the identification of Levels of Study (LS) has allowed me to identify categories of dimensional, constructive, formal and cultural values. Therefore, I started from the existing data collection organized by categories and subcategories, to understand the current relationship between identity signs and contemporary signs. The relief and the representation of the LS return information classifiable in a uniformed manner from a spatial, a functional, and a thematic point of view. The guidelines on criteria and conditions for evaluation of CH Assets were following: 1- historic and aesthetic significance. Is is related to its style, technical excellence, beauty, quality of design and execution; 2- Scientific or research significance; 3- Social and spiritual significance. For this reason, the survey also was based on the following criteria for complex representation: 1-Intrinsic significance (Authenticity, Extent/Completeness, Integrity, Continuity of use/demonstration, Corpus of evidence/study; 2 - Contextual significance (Rarity, Representativeness /Uniqueness, Diversity, Physical context, Threat/fragility; 3- Associative significance (Historic interest and association, Aesthetic attributes. The principles of evaluation of CH assets is carried out in accordance with: 1- Scientific knowledge and experience in the field to which the cultural asset belongs; 2-Available data and documentation on the asset (inventory, survey, study); 3- Results of additional research specifically; connection/relation with other categories of asset, or persons, communities and regions⁶.

3. Model and Characteristics of Multi-Scale Representations

The goal of multi-scale representations is to provide several representations where each representation is adapted to a different information density. Moreover, the multi-scale representations are representations of a given model in several degrees of detail⁷. Typically one primary representation is used to derive secondary representations with adapted scale as needed. In practice multiple discrete representations are typically prepared and stored in advance. An important characteristic of multi-scale representation is the similarity between the representations and the described subject, where similarity is defined depending on the purpose. According to defined by the Object Management Group (OMG), a model captures a view of a system and

⁶ (Technical report EU/CoE Support to the Promotion of Cultural Diversity, 2012).

⁷ (Glander, 2013).

describes those aspects of the system at the appropriate level of detail. Ideally the required variant can be generated on-the-fly for a continuous range of resolution requirements. To overcome the problem of mismatch between required and prepared representation, the representation with the closest resolution is used. In their simplest form, multi-scale representations form an ordered, linear sequence of representations R_0, R_1, \dots, R_n , where R_0 has the highest detail and R_n the lowest. Frequently, multi-scale representations are organized hierarchically. Preprocessing a primary representation in a hierarchical way allows one to follow a divide-and-conquer approach, i.e., to split the problem into smaller portions and process them independently⁸. In 3D computer graphics, level of detail (LOD) modeling represents a fundamental principle. LOD modeling enables interactive rendering of data sets that otherwise could not be rendered interactively or could not be rendered at all, as their size exceeds main or graphics memory, or processing power is too low. The LOD models are models with low polygon count either created by hand or derived automatically from a primary model⁹. To avoid disturbing popping artifacts when switching, geomorph techniques perform a smooth geometric interpolation between different LOD models¹⁰.

3.1. From knowledge to Complex Representation: Multi-Scale Representations of Virtual 3D City Models for CH and Urban Space

According to defined by the international CityGML standard (see you Open Geospatial Consortium) a virtual 3DCM is the digital representation of urban space that describes geometrical, topological and appearance properties of its components with an explicit level of detail (LOD). In general, a 3DCM serves as an integration platform for multiple facets of an urban information space. Visualization is an important part of many applications of 3DCMs¹¹. CityGML defines for city objects five LODs and requires that geometric and thematic aspects of a city object are described in context of one of the LODs¹². (fig. 2)

These were the LODs followed: 1- LOD-0 used for regional scale and contains a 2.5D terrain model with a surface texture applied. 2- LOD-1 contains prismatic block building models with flat roofs and no façade textures. 3- LOD-2 contains buildings with differentiated roofs as well as thematically and geometrically differentiated surfaces, including textures. Vegetation objects may be included. 4- LOD-3 contains highly detailed architectural buildings with high resolution textures as well as highly detailed vegetation and transportation objects. 4- LOD-4 adds interior structures to buildings, such as stairs or furnitures¹³. The CityGML standard is flexible with multiple representations of a 3DCM. In fact, 3DCM should be used: 1- Combinations of different LOD representations of buildings and the relief model within the same scene is possible. 2- CityGML introduces the concept of the terrain intersection curve (TIC), which describes the interface between a feature. It is a applications can locally adapt the terrain model to embed the feature. According to defined by Kada (2005) suggests reconstruction of a building model using half spaces. For each wall face of the original model, the algorithm creates a plane and a related buffer. Starting with the face with the largest area, the algorithm merges faces within a given maximum distance to the current face's buffer, adapting the plane's parameters and leading to a smaller number of planes. The final set of planes is used to create a cell decomposition of the building. Rau *et al.* (2006), suggests an approach working on building models comprised of prismatic shapes with sloped roof structures. First, the roofs are flattened and adjacent polyhedrons are merged if their height difference is smaller than a given feature resolution, yielding 2.5D shapes. Moreover, Forberg (2004) introduces another scale-space based on parallelism to generalize earlier findings and combine characteristics of both morphological and curvature space operations. The algorithm identifies parallel faces of the model and, starting with the smallest distance, moves faces towards each other so that they share the same plane. The moved faces result in merging building parts, removal of protrusions or adjustment¹⁴. In the approach of Fan *et al.* (2009) is directed at generalizing CityGML LOD-3 building models where the polygons belonging to one wall are projected to the farthest of its polygons' planes; polygons that are not parallel or coplanar are discarded. In his thesis Fan (2010) suggests another approach for the computation of CityGML LOD-2 building models with the building footprint is simplified using rules from Staufenbiel (1973), extended by rules to handle non-orthogonal curvature. Moreover, the roof geometry is generalized by individual polygons that are simplified using the same rules. Third, the generalized

⁸ (Glander, 2013).

⁹ (Hoppe, 1996; Garland and Heckbert, 1997; Pajarola and Gobbetti, 2007; Hu et al., 2009).

¹⁰ (Hoppe, 1996).

¹¹ (MacEachren and Kraak, 2001).

¹² (Glander, 2013).

¹³ (Glander, 2013).

¹⁴ (Glander, 2013).

footprint is extruded until it meets the generalized roof geometry. Coors (2001) applies an adapted surface simplification algorithm (Garland and Heckbert, 1997) to simplify single buildings. Introducing dominance values on important parts of the building. The simplification algorithm is adapted to conserve these parts while simplifying geometric complexity of the remaining model¹⁵.

3.1.1. Cell-Based Generalization

Cell-based generalization another technique to create representations of 3DCMs that are focused on giving a quick overview about the general structures of the urban space and is intended to facilitate multiple purposes. According to defined by Lynch (1960), who describes five major elements forming a city's mental image: paths, edges, districts, nodes, and landmarks distinguishable objects used for orientation. Therefore, I address this by using street network, coast lines, as well as non-building areas of a 3DCM to create cell blocks. I assume that block cells can represent individual buildings and monuments abstractly. The cell blocks are further shaped by computational geometry operations and enhanced by landmark buildings, which are maintained in the visualization. 3D building shapes are included, rendered as transparent shapes and with perspective projection in real-time. The visualization aims at adaptation to the scale: with increasing scale, buildings are first represented as footprints, then as oblique 3D shapes with reduced height, then with their full height. Secondly, photo-realistic perspective views of 3DCMs – either real-time renderings or oblique photographic imagery – are enhanced with text, icons, and rendered vector data¹⁶. (fig. 3) The technique of Royan *et al.* (2005) processes 3DCMs containing 2.5D building models to get a hierarchical representation usable for progressive transmission. The algorithm applies simplification operations to the 3DCM: footprint simplification by vertex removal, aggregation of adjacent buildings by edge removal, and aggregation of non-connected buildings guided by a cost function¹⁷. Designing landmarks in virtual 3D environments such as 3DCMs therefore can facilitate navigation and the acquisition of spatial knowledge¹⁸. Local landmarks and different levels of global landmarks can be differentiated by the size of their reference region. For higher LOA representations, I use a different technique to identify landmarks. The goal is to reduce the number of landmarks, while keeping important ones and maintaining an even spatial distribution. In the resulting landmark hierarchy, the number of landmark buildings is steadily reduced in subsequent layers of the hierarchy. (fig. 4)

3.1.2. Creating Building Representations

We have two types of building representations: high detail 3D geometry stored for single landmark buildings and 2.5D cell blocks. Whilst the former is directly integrated into the scene, the latter requires the creation of 3D geometry by extruding their polygonal footprints. The extrusion shape consists of wall geometry and planar roof geometry. We use the computed LOA representations in a focus+context scenario by applying generalization lenses¹⁹. (fig. 5)

4. 3D Digitization Methodologies

At present there is a significant variety of 3D acquisition methodologies. Those can be classified to contact and noncontact 3D scanners²⁰. Contact systems are not popular in the CH domain due to the fragile nature of artefacts. In contrast, non-contact systems have been used during the last decade in many CH digitization project with success²¹. Non-contact systems are divided into active and passive. The Laser Triangulation (LT) active acquisition method is based on a system with a laser source and an optical detector with the depth is computed by using the triangulation principle. The acquisition system is able to capture both geometry and colour using the same composite laser beam while being unaffected by both ambient light and shadows²². The Time-Of-Flight (TOF) active method is used for the 3D digitization of architectural ensembles. The method relies on a laser range finder which is used to detect the distance of a surface by timing the round-trip time of a light pulse²³. For large measuring ranges TOF systems provide excellent results²⁴. The Structured Light (SL) is another popular active method that is based on projecting a sequence

¹⁵ (Glander, 2013).

¹⁶ (Glander, 2013).

¹⁷ (Glander, 2013).

¹⁸ (Vinson, 1999).

¹⁹ (Trapp *et al.*, 2008).

²⁰ (Sansoni *et al.*, 2009).

²¹ (Koutsoudis, *et al.* 2011).

²² (Arius 3D Foundation System, 2013; Borgeat *et al.*, 2007).

²³ (Koutsoudis *et al.*).

²⁴ (Optech Ilris 3D, 2013; Faro Focus 3D, 2013).

of different density bidimensional patterns of non-coherent light on the surface of an object and extracting the 3D geometry by monitoring the deformations of each pattern²⁵. The SL systems that are able to capture 3D surfaces in real-time by increasing the speed of projection patterns and capturing algorithms²⁶. The Image-Based methods involve stereo calibration, feature extraction, feature correspondence analysis and depth computation based on corresponding points can be considered as the passive version of SL. Photogrammetry is another popular active method that is used to determine the 2D and 3D geometric properties. It can be described as the determination of camera interior and exterior orientation parameters, as well as the determination of the 3D coordinates of points on the content of the images²⁷. Open photogrammetric software solutions are able to perform tasks such as high accuracy measurements, camera epipolar geometry computations and textured map 3D mesh extraction. Recently have been introduced semi-automated image-based methods such as Structure-From-Motion (SFM) and Dense Multi-View 3D Reconstruction (DMVR) methods. The SFM-DMVR (algorithms from unordered image collections) attempts to reconstruct depth from a number of unordered images that depict a static scene or an object from arbitrary viewpoints. The method mainly uses the corresponding features, which are shared between different images that depict overlapping areas, to calculate the intrinsic and extrinsic parameters of the camera²⁸. Eos Systems Inc. offers PhotoModeler Scanner software to perform tasks such as reconstruct the content of an image collection in 3D dense point cloud that can be converted to a triangulated 3D mesh of different densities. In the same direction, Agisoft offers PhotoScan to perform high quality 3D reconstructions, orthophotographs, digital elevation models and georeferenced 3D models.

4.1. Case Studies: Digitization of Cultural Heritage

The cases study are a attempt for the 3D digitization and representation of two CH in Milan, Italy. There are no buildings around the monuments and they are considered an open access monuments. The 3D digitization of the monuments could be performed using photogrammetric survey with multi-image 3D reconstruction. The position of the two monuments allow the selection of viewpoints for photoshooting around the model. I used Agisoft PhotoScan as software solution for the production of digital 3D replicas of monuments. In fact, the process of capturing require temporary scaffolding for the image-based methodologies. I need to create a complete exterior 3D model of a monument using terrestrial photography. Moreover, I compare the 3D mesh produced by the SFM-DMVR software against the data I captured using terrestrial 3D laser scanning and total station surveying. For the terrestrial photo shooting session a DSLR Nikon D40 (18-55 mm lens) has been used with distance of the camera from the monument's surface was estimated at 5 meters. The range scans covered both high and low curvature areas that were enough for validating the quality of the data produced by SFM-DMVR software²⁹. A total of 400 photographs has been used for the 3D model of the monument 300 and a total of 24 points were measured using a Topcon GPT-3005N total station. The SFM-DMVR software (Version 0.8.5) has been used for this case study. (fig. 6)

4.2. Heritage Recording and 3D Modeling with Photogrammetry and 3D Scanning

The aspects of the evolution of CH can be documented by the combined use of laser scanner and techniques of photo-scanning. (fig. 7) In fact, the photogrammetry has had the task of providing the deliverables on which to base the reading multi-scale. Through geo-referencing, in the process of surveying, which can identify the invariant with respect to the different scales of representation in the geometry of the objects. The network classification of sites surveyed for buildings recorded in Milan was composed in two schemes. The network was built with total station Leica TCA, while the GPS and Leica GPS System 500 GPS1200. The points of support for the relief photogrammetric were detected with both topographic measurements (Leica TCR1103 and TCRM 1103) from ground GPS. The GPS survey was carried out with a long session for the determination of the absolute coordinates of the points of the main network, while for the determination of natural or target points for the support photogrammetric has acquired in RTK mode. The laser scanner used is the model of the Riegl LMS-Z360i with integrated digital camera which offers the opportunity to acquire not only the three points needed to determine the coordinates X, Y, Z each point but also to acquire even the RGB values corresponding to each measured point. To obtain a dense DEM models of the monuments of the site, you have done a total of 17 scans in overview mode and detailed in the in the center of Milan, and 13 in

²⁵ (Pavlidis et al., 2007).

²⁶ (Sansoni et al., 2009).

²⁷ (Grussenmeyer et a., 2002).

²⁸ (Koutsoudis et al.).

²⁹ (Koutsoudis et al.).

Trento, always in the two modes. The clouds were aligned on the basis of support points and tie points measured topographically distributed in the scanning area. The optimal value of 0.2 mm multiplied by the denominator of the ratio allows you to fix a priori a pattern of acquisitions in a manner very similar to the design of a photogrammetric survey, considering not only the overlap between scans to ensure good alignment, but also a distribution “pseudo-do-set” of points. The construction of a 3D-RGB digital model, obtained by some digital images of a real model, makes possible to acquire not only geometric data but also chromatic and thematic data. The data acquisition phase with ZScan was obtained by simultaneous acquisition of point of clouds and "photo-scanning" textures based on an algorithm of tri-multifocal analysis of the image. The latter, using coloured point of clouds, sees the images as input of information being metrically and chromatically valid in 3D coordinates of the points. The resulting models were exported for the subsequent phases of editing and generation of plans, sections, profiles, contour lines, up to DEM (Digital Elevation Model). The use of multi-level images, obtained with overlapped colored filters, can return as a photometric light curve resulted from the amount of absorbed light.

5. Results and Conclusion

In this paper different approaches to the acquisition and visualisation of 3D information from images have been examined. Moreover in this paper different approaches to the 2D/3D digitisation, 3D data acquisition methodology, 3D data post-processing of 3D information from images have been examined. I have to demonstrate that 3D acquisition methodology play an important role at all scales of research. 3D modeling should be intended as the generation of structured 3D data from the surveyed unstructured data and it consists of geometric and appearance modeling. However, for large sites' 3D modeling, the best solution is the integration of image and range data for document and preserve the landscape and heritage as well as share and manage them. The RDP is configured in this way as a resource to analyze the complex reality of measuring the material aspects with socio-economic mechanisms of perception of the quality of living. In addition the RDP show the potential of modern technologies of detecting, sharing and managing digital information in order to preserve the CH. The recent developments in image matching have demonstrated the potential of photogrammetry to derive all the fine details of an object with geometric results from a relatively small number of images very similar to active sensors.

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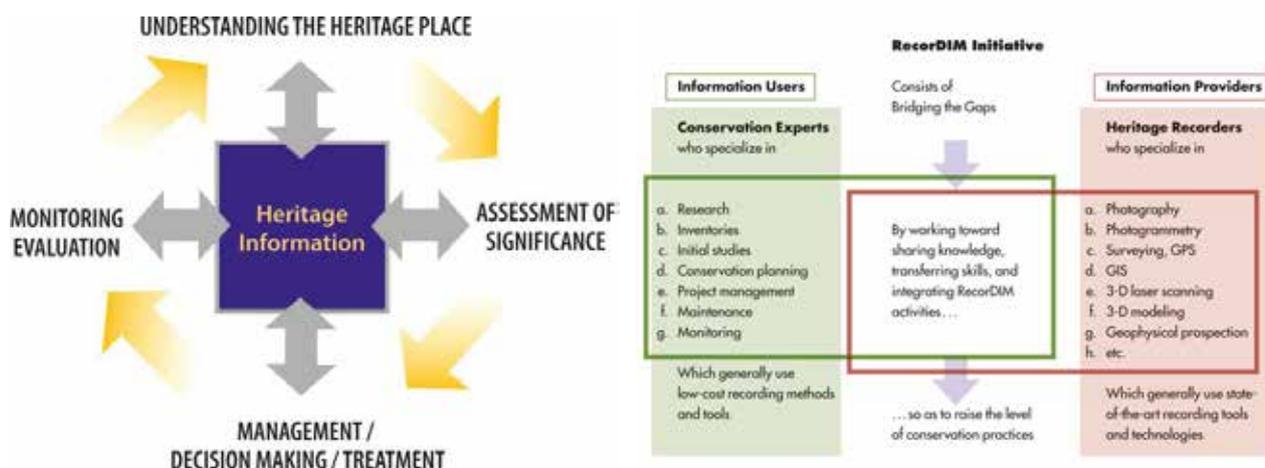


Image 1 - The use and flow of heritage information and Heritage Recorders (Brizard, Derde, Silberman, 2007, Basic Guidelines for Cultural Heritage).

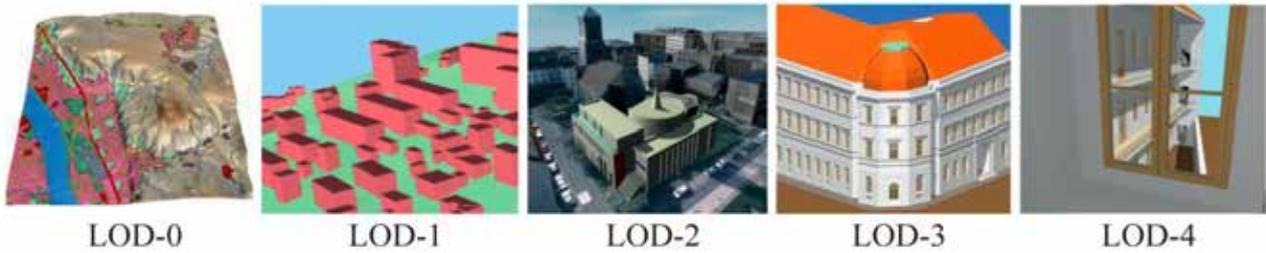


Image 2- The CityGML specification contains these examples to illustrate typical use of its five consecutive levels of detail - LOD - (Gröger et al., 2008).

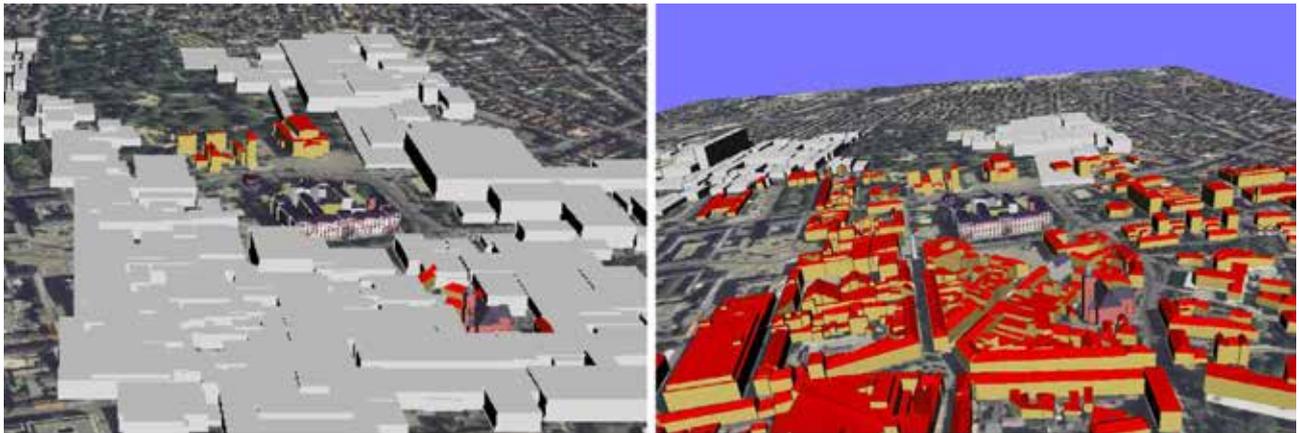


Image 3 - Buildings models are aggregated using boxes stored in an R-tree for efficient network transfer and visualization. Landmark buildings such as churches can be presented with a higher detail using dominance values (Coors, 2003).

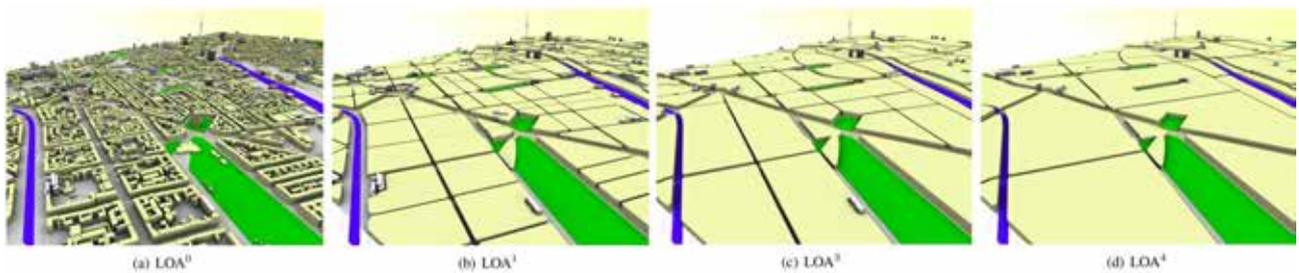


Image 4- For increasingly abstract representations, the algorithm creates increasingly large block cells with decreasing numbers of landmark buildings (small Berlin dataset). The definitive version of these images can be found at (Glander and Döllner, 2009).

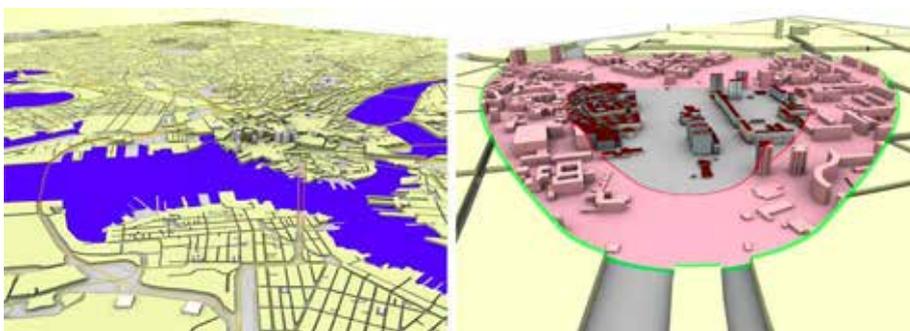


Image 4 - Generalization lenses can be applied relative to the virtual camera. Wherever the user moves the virtual camera, the current view reveals the highest detail in the center while showing more abstract representations in the peripheral area.

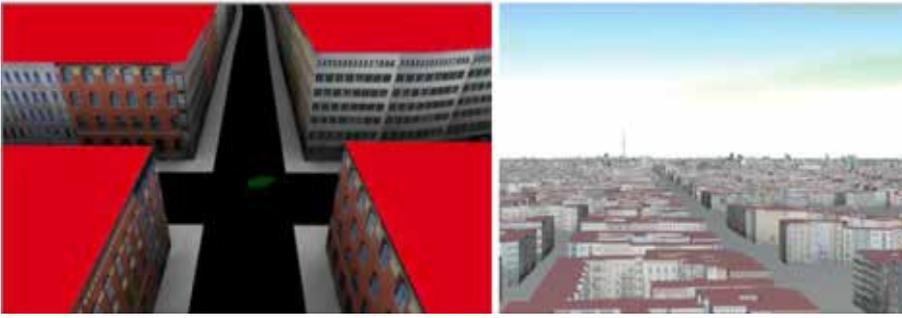


Image 5 - Schematic and 3D example of a junction after (right) processing of road segments, landmark buildings can be emphasized by scaling them according to their importance for navigation and orientation, enhancing the skyline.



Image 6 – SS. Giovanni Battista e Paolo Church, Milan, Italy (architects Figini e Pollini). Image position around the Church and Reconstructed CH by Smooth Shaded Triangular Mesh and Vertex Painted Medium Quality Triangular Mesh



Image 7- Galleria Garbari and Sala della Filarmonica Palace, Trento (Italy). Dimensional survey, architectural survey with the elaboration of plans and sections (scale 1:50 and 1:25). Milan, Italy. Course of Drawing, Milan Polytechnic (A. De Masi)

Safety Assessment of Masonry Constructions via Numerical Tools: The NOSA-ITACA Code

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Abstract

This paper describes the main features of the NOSA-ITACA code, software for the structural analysis of masonry buildings of historical interest resulting from integration of the finite element code NOSA and the open-source platform SALOME. After a short description of the constitutive equation used to model the mechanical behaviour of masonry constructions, some details are given concerning the code's implementation. Then, the result of a static analysis of the "Voltone" in Livorno, performed via the NOSA-ITACA code, is presented with the aim of highlighting the important role of mathematical models and numerical tools in assessing the safety of historical masonry buildings.

Keywords: *Masonry Buildings; Nonlinear Elasticity; Numerical Methods; Safety Assessment*

1. Introduction

In order to numerically describe the structural behaviour of ancient masonry buildings, it is crucial to realistically model masonry materials, whose response to tension is fundamentally different from that to compression, and whose mechanical properties depend on their constituent elements and the building techniques used. The numerous techniques proposed for modelling masonry structures can be grouped into the following main classes: micro-mechanical approaches [34], [37], rigid block modelling for limit analysis [27], [19] and dynamic analysis [10], homogenisation techniques [8], [18] and continuum models [26], [38], [33], [4], [31]. The most common constitutive models used are the linear elastic [26], [38], [33] and the elastic-plastic model [34], [37], [18] and [4]. The former provides only qualitative information on the global behaviour of masonry structures without however considering their inability to withstand tension, while the latter instead takes into account the strong nonlinearities of such structures' static and dynamic responses.

The studies described in [32], devoted to the development of numerical models for the structural analysis and maintenance of historical masonry buildings, are a contribution in the direction prescribed by article 2 of the Venice Charter [25], which reads "The conservation and restoration of monuments must have recourse to all the sciences and techniques which can contribute to the study and safeguarding of the architectural heritage". These studies have led to the implementation of the finite element code NOSA [15] developed by the laboratory of Mechanics of Materials and Structures (MMS lab) of ISTI-CNR, in which masonry is described as a nonlinear elastic material with zero tensile strength and bounded compressive strength. The code has been successfully applied to a number of studies, commissioned by both private and public bodies, on important historic buildings, such as the Medici Arsenal [32] and the church of San Pietro in Vinculis in Pisa [32], the bell tower of Buti [3], the church of Santa Maria Maddalena in Morano Calabro [32], and the Rognosa tower in San Gimignano [9], [20].

With the aim of improving the performance of the NOSA code and equipping it with an interactive graphic tool for pre- and post-processing, the project "Tools for the modelling and assessment of the structural behaviour of ancient constructions" has been conducted by the MMS lab and a research team from the Department of Civil and Environmental Engineering of the University of Florence. The project [23], funded by the Region of Tuscany (2011-2013), has led to the development of the NOSA-ITACA code, resulting from integration of the NOSA code and the open source graphic platform SALOME [24].

The present paper describes the main features of the NOSA-ITACA code and reports the results of a study of the "Voltone" – a large vaulted masonry structure located beneath Piazza della Repubblica in Livorno, Italy.

2. The NOSA-ITACA code

The constitutive equation for masonry materials proposed in [32] models masonry as a nonlinear hyperelastic material with Young's modulus $E > 0$, Poisson's ratio ν (where $0 \leq \nu < 1/2$), zero tensile strength and maximum compressive stress $\sigma_0 < 0$ and generalizes the constitutive equation of masonry-like materials introduced in [16] and [17]. The total strain tensor is the sum of an elastic term, which depends linearly and isotropically on the Cauchy stress tensor, and two orthogonal inelastic strains: the crushing strain, negative semidefinite, and the fracture strain, positive semidefinite. Constraints on the stress tensor, whose eigenvalues must be negative and greater than or equal to σ_0 , and the orthogonality properties between the stress tensor and the inelastic strains complete the set of equations describing the constitutive behaviour of masonry. The coaxiality of the stress, total strain, fracture strain and crushing strain tensors – valid for isotropic materials – allows for solving the constitutive equation explicitly. Moreover, it is possible to explicitly calculate the derivative of the stress with respect to the total strain, necessary to calculate the tangent stiffness matrix adopted in the Newton-Raphson method for solving the nonlinear equilibrium problem of masonry structures. More details on the constitutive equation and algorithms implemented in the NOSA code for nonlinear static analyses can be found in [32] and [15].

As far as numerical solution of dynamic problems is concerned, the equations of motion are integrated directly, and the Newmark method has been implemented within NOSA in order to perform the integration with respect to time of the system of ordinary differential equations obtained by discretising the structure into finite elements [14]. Moreover, the Newton-Raphson scheme, needed to solve the nonlinear algebraic system obtained at each time step, has been adapted to the dynamic case.

Within the framework of the project "Tools for modelling and assessing the structural behaviour of ancient constructions" [23], a new integrated tool, the NOSA-ITACA code, has been developed based on the finite element code NOSA and SALOME [24], an open-source integration platform for numerical simulation.

The NOSA code has been substantially modified and improved in light of FORTRAN 90 specifications and equipped with new finite elements, thus enhancing its application capabilities. The subroutines devoted to solving linear systems via modified LU factorization have been optimized, thus significantly improving the code's performance.

Moreover, a procedure for the modal analysis of linear elastic structures has been implemented. This procedure, aimed at solving the generalised eigenvalue problem obtained by discretising the structure into finite elements and assembling the stiffness and mass matrices, takes into account both the sparsity of the matrices and the features of master-slave constraints (multipoint constraints). The implementation, described in [35], is based on open-source packages embedded in NOSA: SPARSKIT [36], for managing matrices in sparse format (storage, matrix-vector products), and ARPACK [29], which implements a method based on Lanczos factorization combined with spectral techniques that improve convergence. In particular, ARPACK requires the user to supply an external routine to solve linear systems with the coefficient matrix given by the stiffness or mass matrix. To this end, the ICFS package has been adopted, as it provides an advanced implementation of the conjugate gradient method, accelerated with a preconditioner based on Incomplete Cholesky Factorization with limited memory [30].

Implementation of the NOSA-ITACA code was then completed by integrating the finite element code NOSA within the open source graphic interactive code SALOME [24], used both to define the geometry of the structure under examination and to visualise the results of the structural analysis. Specifically, the NOSA code has been implemented within the SALOME architecture (developed mostly in the C/C++ and Python languages) as an additional module on a par with those already existing (MESH, GEOM, POST-PRO), and called the Nosa module. Through such integration the Nosa module thus allows the user to define the physical quantities to associate to a mesh (materials, element thickness, boundary conditions, loads, analysis type, etc.), display the load applied to the structure, generate the input file for running and monitoring the finite element analysis, etc. The module includes the executable file "nosan" and several CORBA interfaces (with ".idl") for data exchange between the Nosa module and the MESH and/or POST-PRO modules. The Nosa module executes the numerical analysis using as input the card ("crd") created by the Nosa module itself, via the MESH module, and allows the user to monitor the analysis. Finally, the ".t19" output file containing the results of the numerical study is transmitted to the POST-PRO module via conversion into a ".med" output file (fig. 1).

NOSA-ITACA, which enables solving static and dynamic problems of masonry constructions even in the presence of thermal loads, can also be used to model restoration and strengthening operations, such as the application of metal chains and rods, as well as to assess the mechanical behaviour of historical masonry constructions subjected to earthquakes (in light of Italian regulations [11], [12] and [13]). In particular, when a seismic analysis is required, the modal analysis allows determining the conventional loads to be applied to the model in order to simulate the effects of an earthquake in accordance with such regulations [12].

Shell structures, such as vaults, domes, walls or towers can be modelled by using quadrilateral eight-node shell elements based on the Love-Kirchhoff hypothesis [32] or four-node shell element based on Mindlin plate theory [28]. Furthermore, solid elements, such as eight- or twelve-node brick elements, can be used to describe more complex geometries. A detailed description of the NOSA-ITACA code, including the SALOME Nosa module user's guide, the element library, the NOSA keywords reference and user subroutine guides is provided in [6].

Applications of the NOSA-ITACA code are described in [5], [7], [21], [1] and [2]. In particular, [5] and [7] provide detailed descriptions of the study of the "Voltone", whose static safety assessment is outlined in the present paper. Moreover, the code has also been used to study the church of San Francesco in Lucca [21] and the Dome of San Cerbone Cathedral in Massa Marittima [1] and [2].

NOSA-ITACA is a freeware/open-source software for computational mechanics, as is the Salome-Meca - Code_Aster package [22], and is distributed with the aim of disseminating the use of mathematical models and numerical tools in the field of Cultural Heritage.

3. An example application: non linear static analysis of the "Voltone" in Livorno

The "Voltone" (i.e., the great vault), built in 1845 after the design of Bettarini, is a 220-meter long, tunnel-like masonry structure located beneath Piazza della Repubblica in Livorno (fig. 2). It is constituted by a segmental vault, through which the "Fosso Reale" canal flows. The vault is set on two lateral walls and strengthened by buttresses placed at intervals of about 5.8 meters one from the other.

The vault, made of lime mortar and bricks, is about $0.41\div 0.43$ m thick, with constant thickness along the section and length of the vault, except for the tunnel's ends (in correspondence to the roadways), where the

thickness increases to about 0.7 m. The vault's structure, which is segmental (quite 'lowered' with respect to a semicircle), spans 12.4 m and has a rise of about 1.65 m.

The lateral walls, made up by external layers of a local chalky stone and an inner cohesive mortar core layer, are variable in height above the surface of the canal, decreasing from 5.27 m to 2.65 m. The walls' maximum overall height is 9.3 m with a thickness of about 2.3 m. The walls have been strengthened by some buttresses, whose thickness has been set to 1.6 m for the purposes of the modelling.

In order to realistically model the structural behaviour of this monument via the NOSA-ITACA code, the geometry, the mechanical properties of the constituent materials and the characteristics of the soil and surrounding structures must be known. To this end, some non-destructive tests were conducted (laser scan digital geometry acquisition and georadar scan of the surface of the tunnel and overlying square), and four vertical core samples extracted, two from the wall and surrounding soil, and two from the vault (at the crown and haunch), with the aim of accurately measuring the thickness of the vault and walls and determining the stratigraphy and mechanical properties of their constituent materials. In addition, two horizontal core samples were extracted from the lateral walls, starting from the intrados. The results of these tests were then supplemented by data gathered from historical and archaeological reports. The information collected allowed us to build a three-dimensional finite element model of the structure (fig. 3). The model was built by using 43,228 thick shell and beam elements and 45,379 nodes; the connections between the vault and the lateral wall elements were guaranteed by multipoint constraints able to model the geometrical misalignment between the vault and the wall, and specified by expressly developed user routines. The analyses have been conducted adopting the constitutive equation of masonry-like material with bounded compressive strength, under the assumption that the structure is subjected to permanent and accidental loads, calculated on the basis of the structure's usage class [11], [12]. More precisely, besides the permanent loads, such as the weight of the structure and filling material, and the soil pressure acting on the walls, two different types of accidental loads were considered: a load that models the presence of a tight crowd (of 6 kN/m^2) in the central region of the square, and a traffic load for bridges of category II on the square's ends, where roadways are located.

The analyses have enabled calculating the stress field and then assessing the structure's safety. The results are also reported in terms of the line of thrust, a diagram which allows evaluating the static safety of a masonry vault graphically (Figure 4). Indeed, a line of thrust that is well contained within the arch's ring is an index of static safety [27], [32]. Safety checks aimed at studying the structure's behaviour at its ultimate limit states are being implemented in the NOSA-ITACA code. They are based on the partial safety factors method [12] expressed by the inequality $E_d / R_d \leq 1$, where E_d is the design effect calculated by applying the design loads to the model, while R_d is the design strength, which depends on the materials' mechanical characteristics, the section's geometry and appropriate safety coefficients (Figure 5 shows the ratio between the design value of the applied moment M_{Ed} and the design value of the moment of resistance M_{Rd} , both calculated per unit length).

4. Conclusion

A new software tool for assessing the static and seismic vulnerability of age-old masonry structures, the NOSA-ITACA code, has been presented. This software stems from integration of the finite element code for nonlinear analyses, NOSA, and the open-source graphical user interface platform SALOME. The NOSA-ITACA code models masonry by means of a nonlinear elastic constitutive equation that takes into account masonry's different behaviour in tension and compression. The SALOME tools for pre – post processing operations allow users to easily define the model geometry and loads and visualize the results of the analysis. An application of the code to the "Voltone" in Livorno has been presented, and the structure's mechanical response to permanent and accidental actions assessed. This case study, conducted in collaboration with the Municipality of Livorno, provides an opportunity to validate both the models proposed and the calculation tool developed and highlights the important role played by mathematical models and numerical tools in assessing the mechanical behaviour of historical masonry constructions.

Acknowledgements

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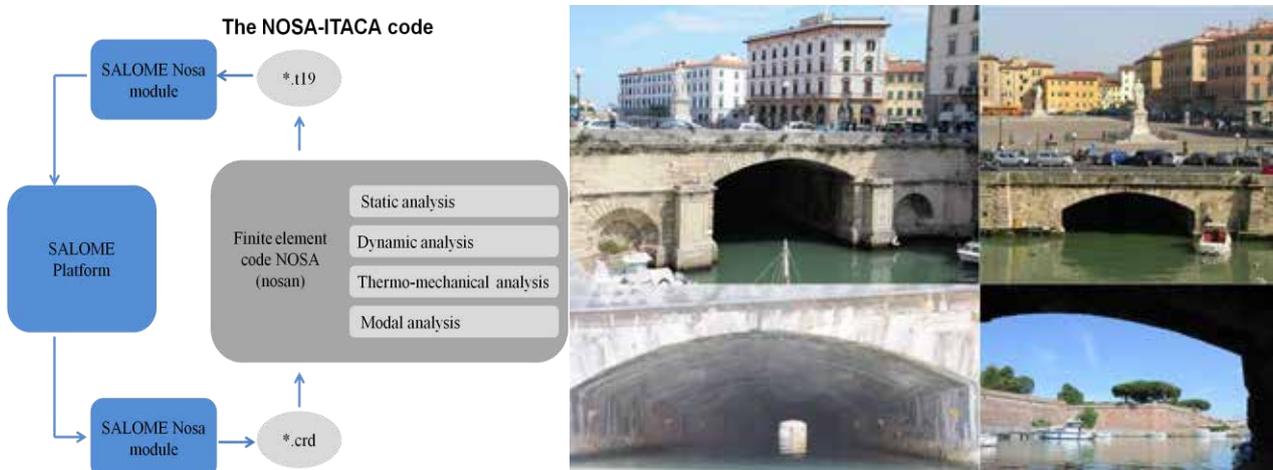


Figure 1: The NOSA-ITACA code.

Figure 2: The “Voltone” in Livorno.

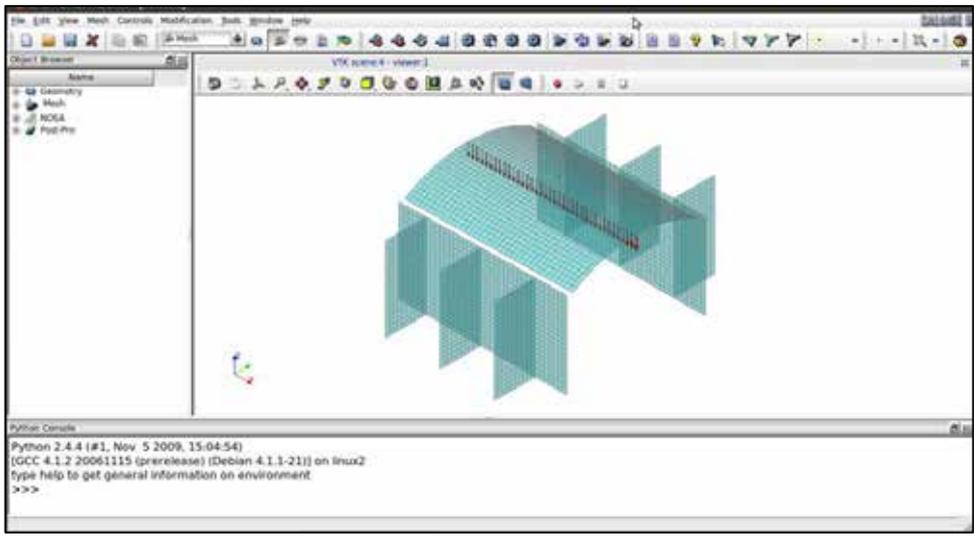


Figure 3: Mesh generation via NOSA-ITACA.

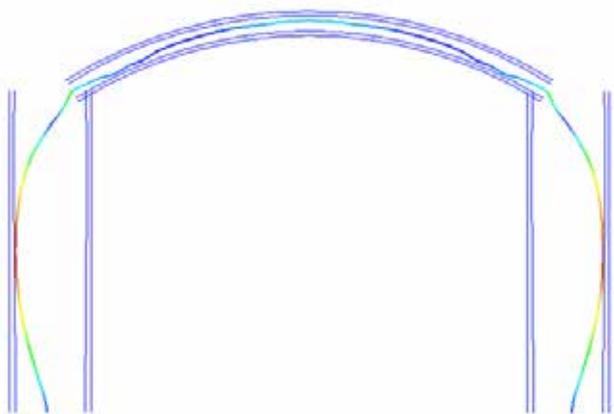


Figure 4: Line of thrust in a transverse section of the “Voltone”.

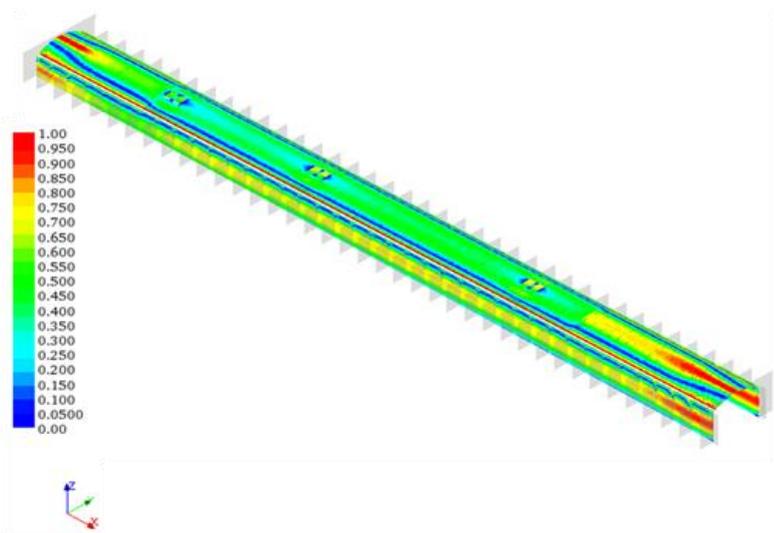


Figure 5: Example safety check: ratios M_{Ed} / M_{Rd} in the vault and lateral walls.

ARTifact Conservation: Representation and Analysis of Spectroscopic and Multispectral Imaging Data Using Augmented Reality

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Abstract

This paper presents an augmented-reality technique for the visualization of diagnostic imaging and analytical diagnostics data, creating a contextualized data analysis workflow. A mobile device with see-through video serves as the interface that intuitively combines the physical artifact with multispectral imaging and spectroscopy data, strengthening the analytical process carried out during conservation efforts. An improved workflow for the acquisition of point-based X-ray Fluorescence (XRF) spectra is proposed and demonstrated, using the sensing capabilities of the mobile device. The presented, contextualized data analytics approach enhances the retention of important metadata, while streamlining the collection and comparison of key datasets routinely used for material identification.

Keywords: *Augmented Reality; Visualization; Spectroscopy; Multispectral Imaging; Art Conservation*

1. Introduction

X-ray fluorescence (XRF) spectroscopy has become an important imaging technique and tool, used by researchers studying cultural artifacts. The non-destructive nature of XRF imaging, swift setup, short acquisition times, and ease of use make it a desirable and preferred instrument from a conservation standpoint, encouraging broad adoption by heritage conservation practitioners (Potts, 2012; Mantler, 2000; Ridolfi, 2012). In particular, handheld, portable XRF instruments, which can be easily transported and deployed under most field scenarios and conditions (Shugar, 2013), are now widely used for fieldwork. XRF is an elemental spectroscopy approach and typical portable units can detect elements between aluminum (Al) and lead (Pb), i.e. between atomic numbers 13 and 82. XRF analysis provides a point based elemental profile of the materials present locally, on the surface of the artifact, and therefore adds complementary information to that of multispectral imaging techniques, which probe the optical properties of the materials corresponding to electronic and vibrational characteristics of molecules.

To assess the state of conservation of a historic artifact, a multispectral or “multiband” (MSI) diagnostic imaging survey is commonly performed first, followed by an XRF study carried out on selected points, based on the careful interpretation of the MSI data (Stout, 2012). While the combination of multispectral and spectroscopic data can provide invaluable insights about an artifact, existing visualization techniques for this type of data typically create a disconnect between the data being analyzed and the physical artifact for which it was acquired. This forces the practitioner to either study only one modality or constantly shift between the physical and digital representation of the artifact. These context changes create multiple challenges in regards to data correlation and interpretation, requiring the user to refocus, reacquire features, and mentally map the digital representation back onto the physical artifact and vice versa. A solution to this analysis challenge was proposed by Vanoni et al. who introduced a contextualized visualization technique called ARTifact, using augmented reality to superimpose digital content directly onto physical artifacts (Vanoni, 2012).

ARTifact’s augmented reality, video see-through interface allows the user to explore artifacts *in situ* and maintain an artifact-centric analysis approach streamlining analysis and reducing cognitive load. One of the first capabilities explored with ARTifact was superimposing multispectral data onto artifacts, enabling the viewer to effectively “see what cannot be seen” and perform analysis directly on the artifact. The work presented here focuses on spectroscopic data and its seamless synthesis and visualization alongside high-resolution multispectral data, providing an integrated workflow for acquiring and analyzing artifact-related

information. The presented workflow supports deep space-time exploration, allowing the state of the physical artifact and its digital representation to be recorded and visualized over time, thereby creating the equivalent of a “digital clinical chart” capturing the artifact’s state of health and state of conservation. Since all data is contextualized, the data analysis workflow itself can be recorded and replayed, resumed, or continued at any given time by simply aiming the mobile device at the artifact. A case study demonstrating the contextualized visualization methodology is presented for a painted wood panel of a historic Sicilian cart (fig. 1), dating from the 1920’s and belonging to the collection of master Domenico Di Mauro, a 101-year-old traditional Sicilian cart painter in Aci Sant’Antonio, Sicily.

2. ARtifact Contextualized Visualization Approach

ARtifact utilizes a technique known as “video see-through” augmented reality (AR) in which virtual objects are superimposed in real time onto a live video stream captured with the rear-facing camera available on most of today’s mobile devices, including smartphones and tablets. The video is captured and each video frame analyzed for the existence of a known artifact for which additional data is available. If a known artifact is found, it is flagged, subsequently continuously tracked, and available data augmented on top of the video, based on user definable filters. This means that contextualized data visualization becomes as easy as pointing the mobile device at the physical artifact. Tablet devices with their larger, high-resolution, multi-touch screens, powerful processors, and mega-pixel resolution cameras are particularly attractive for this data visualization approach and are used as the primary interface for the presented work.

3. Technical Approach

In order to superimpose artifact-related data in the correct screen location when looking at an artifact, the tablet must determine its position and orientation (pose) relative to the artifact. This is accomplished via real-time feature tracking of textured planar targets (Qualcomm, 2014), enabling direct tracking of artifacts such as paintings without the need for any additional fiducial markers. By specifying the real-world dimensions of the artifact, ARtifact can perform digital distance measurements and properly scale on-screen overlays such as spectroscopy sample points.

The initial version of ARtifact enabled intuitive interaction techniques for analysis and comparison of multispectral data layers. Any of the available layers can be superimposed on top of the live view of the artifact, providing a sort of “magic lens” that alters the viewer’s perception of the artifact. An on-screen slider allows for varying the opacity of the overlay for comparison of the data layer with the actual artifact. The user can get a better view of the data by using the well-known pan and zoom multi-touch gestures or by simply moving closer to the artifact. For more refined comparison between layers, ARtifact also provides a “wipe-off” mode that gives users the ability to wipe off one layer with their fingers to reveal another (fig. 2). This technique enables targeted investigation of a region of interest without modifying the surrounding data, providing context for the wiped area.

Integrating Spectroscopic Data

Spectroscopic data can now be accommodated within the ARtifact augmented reality application. Initial development focused on loading and visualizing XRF data. The spectra are transferred to the tablet in their raw form as CSV or TXT files and associated with the desired artifact. The real-world location of the sample point on the artifact is also specified, based on a photo taken from the device’s built in camera. With this user-supplied information, ARtifact is able to superimpose circular indicators on the artifact to map each of the sample points acquired (fig. 3). When the user taps one of these indicators, the spectrum data for that point is loaded and displayed on a graph (fig. 4).

Operational Methodology for Point-Based Spectral Datasets

When using a handheld, portable XRF instrument to collect discrete point samples, care must be taken to retain all metadata associated with each site. This typically includes the precise location and size of the spot analyzed, the visual appearance or color of the spot, and the user’s motivation for choosing that spot. The latter is usually based on the reading and interpretation of the multispectral dataset itself, comparing several images to notice critical differences and unique markers. By harnessing the multispectral image data for informed data collection and contextualized visualization, it is possible to create a powerful, optimized workflow. Using the tablet in tandem with a handheld XRF, the user first scans and evaluates the multispectral images, making use of the wipe-off mode to choose the target areas that should be further analyzed with XRF. Once the target areas have been identified, the user can simply annotate them by drawing circles of the relevant spot size, marking the area or point to be studied. Following the pre-selected

map of points to be analyzed, the user can easily co-locate their physical location on the artifact and position the handheld instrument to collect the spectrum. ARTifact will prompt the user to name each spot and the user would give the same name to the spectral data file. With just a simple file transfer the spectra are then available in-app.

4. Case Study: Sicilian Painted Wooden Cart Panel, c. 1920, Aci Sant'Antonio

The Sicilian cart is an ornate and colorful wooden cart drawn by a horse or donkey, native to the island of Sicily. Aci Sant'Antonio played a pivotal role in the development of this fashion, since it was the location of painting workshops specialized in the decoration of the carts. The other important workshops were in Palermo and Agrigento, serving the cart production on Western side of the island. The workshops of the east and west developed different artistic styles, motifs, and colors. The Museum of the Sicilian Cart in Aci Sant'Antonio, Italy has just opened recently in 2014, and the small local nature of the museum means that the artifacts typically would not have the opportunity to undergo scientific analysis by a conservation team, as is standard in larger museums. The collaboration between our research team and this museum represents the first scientific examination on this type of art. The artifact chosen as the subject of our case study is a painted wooden panel from a traditional Sicilian cart, dating back to the 1920's. We have chosen to study this artifact because it is one of the oldest pieces that still presents the original painted layer. Most of the other pieces have been heavily retouched or entirely repainted over the years. The current state of conservation of the panel is fair. It presents some paint cracks from decades of exposure to humidity and temperature change, causing expansion and contraction of the painted layer. The painted surface has been covered with a protective varnish that has yellowed slightly, however, there are no paint delaminations, so the piece is stable enough for analysis and does not require preventative intervention.

We analyzed 18 spots with a portable, handheld XRF instrument, a Bruker Tracer III-SD, with the experimental procedure following that of previously published work (Cosentino, 2014). The goal of the analytical survey was to characterize the palette of pigments used by the artist, and to confirm the presence of original material, avoiding pigments manufactured post the 1920's era. The combination of multispectral imaging with XRF, provides an initial data scaffold for the development of a comprehensive analysis plan and preliminary data for pigment identification.

5. Results

ARTifact provides an agile platform for the collection and retention of diagnostic data important to the assessment of the state of conservation of cultural artifacts, while affording the user the ability to view and interact with these datasets in a contextualized manner through augmented reality. The proposed methodology using augmented reality to read and manipulate multispectral imaging datasets, blending different modes and annotating the images, and designing a plan for the XRF analysis, makes full use of the complementary nature of these two diagnostic techniques. Since these diagnostic exams are accessible, non-destructive, and often the first analyses employed to assess a work of art, it is important that their synergy be maximized. We find that the co-location of the datasets within ARTifact increases the user's ability to retain critical metadata that accompany the spectra, and combine it with key insights based on individual user expertise. ARTifact has been designed to facilitate a methodological workflow for practicing field researchers in both multispectral imaging and XRF of cultural artifacts. Since ARTifact provides a contextualized baseline record, it implicitly also creates an imaging plan for follow-up XRF exams, allowing results to be easily compared and changes tracked over time, establishing a dynamic record of the state of conservation of the artifact.

In our case study, a typical "multiband" imaging analysis was performed, capturing images of the panel in the ultraviolet, visible, and infrared ranges of the spectrum, as well as a false color representation of the infrared channels overlaid with the visible (IRFC). In the infrared reflectography mode (IRR, 0.9–1.7 μ m wavelength) the multispectral imaging survey revealed an extensive underdrawing, which, when rendered in ARTifact, supports direct comparison to the visible layer above. The IRFC image helps to distinguish pigments presenting the same visible color that have different infrared transparencies, such as red ochre and vermilion. The UV fluorescence image reveals the state of the varnish layer.

The XRF survey of 18 spots, focused on characterizing the artist's palette, also revealed some insights into the working style of the artist. A strong presence of characteristic lines corresponding to lead in all of the spectra indicate that the pigment lead white was used extensively to lighten pigment colors. Additionally, in some white and lighter regions studied, we also observe the presence of barium and zinc, indicating the use

of lithopone white. This is especially observed in areas painted a darker color blue, where we did not detect the presence of any elements corresponding to the blue colored pigment. This allowed for higher sensitivity to the deeper ground layer, likely painted with lithopone. It was also demonstrated that the blue color is made of lightweight elements or organic material, not detectable with XRF. Two reds were observed, both through MSI and confirmed with XRF, red ochre (Fe_2O_3) with a strong iron content, and vermilion (HgS), displaying peaks from mercury and sulfur. The yellow pigment was identified as chrome yellow (PbCrO_4) through the observation of strong peaks from both chromium and lead in the points studied. Additionally, green areas were found to exhibit chromium peaks, suggesting that the green was a mixture of yellow and blue pigments. The results from the brown areas studied are also in accordance with this assumption, given that the spectra show key characteristics of the red, yellow, and blue pigments used elsewhere on the panel. Although, due to the complex nature of the painted surface and the limitations of the technique, all of the pigments cannot be confirmed, but we can make the proposition that the Sicilian cart painter likely used only the primary colors plus two types of white paint for his palette. Elements that would be indicative of materials from a later era, such as titanium (titanium white), were not detected.

6. Conclusions

Augmented reality holds great promise for the creation of a new data-driven acquisition and diagnostics workflow, where different imaging and sensing techniques inform each other. An improved workflow for the acquisition and visualization of point-based X-ray Fluorescence (XRF) spectra is presented, using the sensing capabilities of a tablet device to create a contextualized data analysis workflow and augment digital data directly onto physical artifacts. The presented, contextualized data analytics approach enhances the retention of important metadata, while streamlining the collection and comparison of key datasets routinely used for material identification. The presented technique for spectra acquisition and visualization can be broadly applied to other spectroscopy techniques typically applied in non-invasive investigation of cultural artifacts, such as fiber optics reflectance spectroscopy (FORS) (Picollo, 2008) used in the field to study art (Cosentino, 2014).

Acknowledgements

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Figure 1: Portable XRF instrument supported by a tripod, shown here scanning one point on the Sicilian Cart.

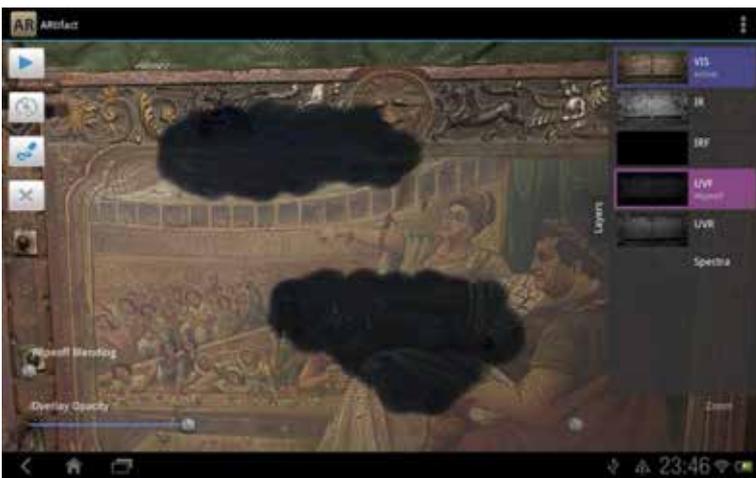


Figure 2: Region of interest analysis comparing a visible light (VIS) image with an ultraviolet fluorescence (UVF) image of the wood panel, allowing the user to literally “wipe-off” one data layer to reveal the next.

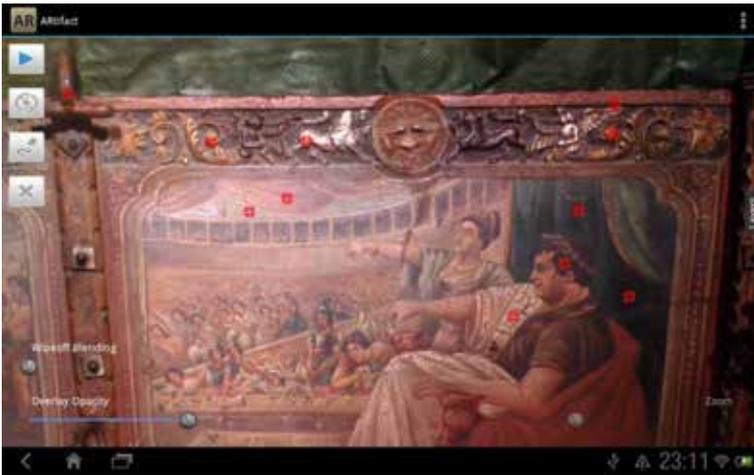


Figure 3: Augmented reality overlay, showing a video see-through representation of the wood panel, augmented with cross-hair markers that are identifying where spectral data was collected.

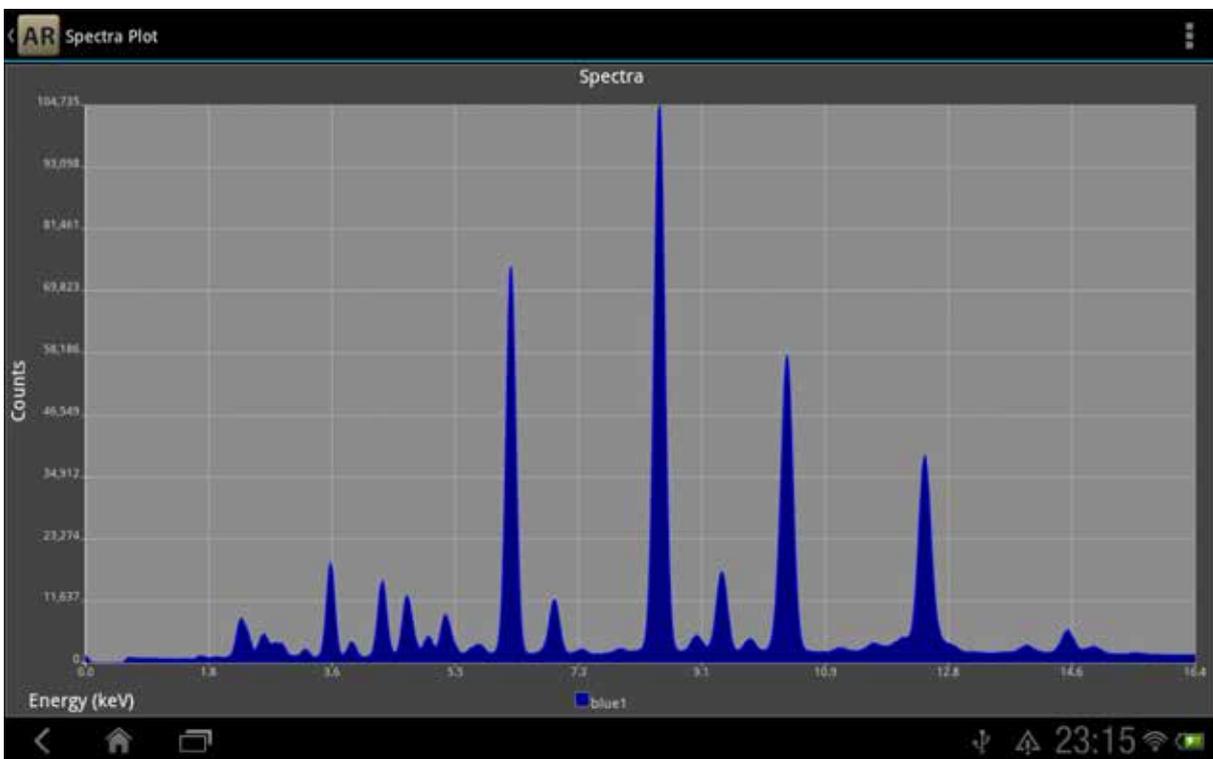


Figure 4: Example of spectra information for a blue pigment sample that can be accessed interactively, while the physical wood panel is being investigated.

Les clés de la connaissance au delà de la « mesure »

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Abstract

La documentation, géométriquement correcte, de l'état matériel d'un site (aussi visuellement séduisante soit-elle) n'est pas suffisante pour apprécier et comprendre pleinement la valeur et la qualité, souvent ignorées, du patrimoine existant – *du monument au tissu urbain, au territoire, partie intégrante de l'identité du paysage alentour* – mais une connaissance ultérieure est nécessaire, qui, partant du relevé, avec des clés de lecture et des comparaisons adéquates, approfondisse l'étude de l'organisme en question au-delà de sa seule image. Comme par exemple dans le cas de la double enceinte des murs de Massa Marittima, cité médiévale de Toscane.

Mots-clés: connaissance, culture, mesure, géométrie

La conservation à travers la documentation

Si pour conserver il faut connaître, pour continuer à connaître il faut savoir comprendre et conserver la mémoire et l'identité intrinsèque du patrimoine.

Elaborer la documentation nécessaire à la connaissance est une tâche complexe mais essentielle pour la tutelle des biens culturels et elle suppose une attention et une habileté experte dans le recueil des données. Il a été amplement démontré que la « connaissance » ne peut se construire de façon suffisamment concrète à travers la rédaction de simples fiches ou d'indications non complétées par des documents « techniques » fiables et objectifs.

Devant un « objet » créé par l'homme les spectateurs intéressés à la connaissance effective et non seulement esthétique, sont conduits à chercher des réponses à une série de questions quant aux motivations et objectifs de cette réalisation.

En architecture, les questions habituelles concernent la signification des choix : pourquoi cette forme, pourquoi ce choix stylistique particulier, quelle relation entre la société et ce résultat, et, affrontant les liens entre architecture et humanité, pourquoi ce lieu, quelles intentions religieuses, connaissances philosophiques, mathématique et géométrie des formes, et enfin quelle revendication d'appartenance. Autant de questions qui devraient trouver des réponses dans la construction de la « connaissance ».

Les enquêtes nécessaires à l'obtention d'une réponse fiable doivent dépasser la connaissance superficielle et préconstituée d'une critique culturellement valable, mais générique, et être soutenues par une documentation exhaustive, vérifiée, et transmissible.

Le relevé intégré

Le procédé de *relevé intégré*, fruit d'un travail entrepris depuis plusieurs dizaines d'années déjà par les spécialistes, pas toujours reconnu à son juste titre dans le cadre institutionnel de la théorie et des chartes de la restauration, grâce à des étapes précises, répond à ces questions ainsi qu'à cette lecture critique particulière successive qui, par l'emploi des justes clés d'interprétation, dévoile les informations contenues dans les données. Ces vérifications peuvent apporter des réponses aux interrogations relatives aux choix de projet non directement observables (dans le cas ici présent géométrie, méthodologie pratique, connaissances astronomiques et militaires, etc.).

Similairement aux méthodologies traditionnelles, l'évolution du concept de **relevé intégré** s'érige aujourd'hui en discipline scientifique reconnue par la communauté internationale. La communication à travers les stricts langages techniques reflète une relation parfois équivoque entre l'information et la réalité.

Un relevé est dit intégré quand il poursuit deux procédures:

- A) Pour relever (directement ou indirectement) il est nécessaire de mettre au point un procédé technique et scientifique utilisant des moyens et des outils innovants adaptés au cas spécifique. Pour ce faire, la quantité et la complexité des données à recueillir et à examiner déterminent le choix des différentes stratégies opérationnelles et des systèmes de relevé.

- B) Pour vérifier et compléter les informations un supplément d'enquête pluridisciplinaire coordonnée est nécessaire, avec la collaboration d'une équipe en mesure de fournir des données et des indications sur différents aspects fondamentaux de l'objet en question.

Depuis plusieurs années, une telle acquisition complexe de données se déroule moyennant l'application de procédures *de relevé, de représentation et de gestion*, caractérisées par un niveau technologique élevé, et avec le support de compétences pluridisciplinaires et scientifiquement utiles à la formation d'une base documentaire complète.

Le responsable du relevé, avec son équipe, doit être en mesure de mener un type de recherche *méthodiquement programmée* et appropriée au processus de connaissance dans son ensemble, de l'approche directe jusqu'à la restitution des données selon les moyens et modalités prédéterminés (Fig.1).

La complexité du relevé intégré

Relever la complexité, c'est-à-dire acquérir la connaissance d'une complexité matérielle, est aujourd'hui une procédure soutenue par des technologies et systèmes indirects d'acquisition des données très différents les uns des autres, et de provenances multidisciplinaires. Au-delà de son image, la valeur du relevé réside dans la substance de ses contenus ; et celui-ci doit réussir à transmettre de façon appropriée le bagage hétérogène, mais scientifique, qui lui est propre.

Le concept de *système*, passant de l'abstraction mathématique à la philosophie kantienne, exprime la capacité de représenter l'unité des connaissances multiples et de les réunir en une idée unique. Pour se transformer en une *information* aux contenus spécifiques provenant d'une analyse approfondie, une connaissance commune chargée d'une importante quantité de données recueillies doit être conduite selon un processus scientifique qui en garantisse la valeur. Et ceci est un concept qui peut bien s'appliquer aussi au problème actuel qui est le passage du recueil des données à la question de leur représentation.

Au concept de *bien culturel*, élargi au *bien environnemental* jusqu'à l'*idée de paysage*, est lié le choix précis de la dimension et de l'échelle des unités ou portions de territoire qui sont objets de recherche afin de choisir et définir les *outils* les plus efficaces pour la connaissance intégrée : du recueil des données jusqu'à leur gestion ultime.

Selon moi, dans ce domaine scientifique, la *représentation* joue le rôle fondamental, qui lui est propre, de *nœud stratégique* qu'il faut délier. De la cartographie jusqu'aux éléments d'analyse de la *forma urbis*, la *figuration* se doit de rendre immédiatement et exactement compréhensible, et raconter efficacement, l'état de fait selon ses justes dimensions, en mettant en évidence *les éléments fondamentaux constitutifs* non grâce à une image finalisée à elle-même, mais à travers un dessin approprié.

Et, pour entrer dans le vif du sujet, à chaque opération de «relevé» correspond désormais une représentation correcte et appropriée, mais il s'agit de représentations qui racontent des méthodologies diverses et qui utilisent des langages souvent techniquement non superposables. Le résultat provient des nombreuses options qui doivent être comparées, adaptées et rendues compatibles pour former la «représentation» d'une *architecture spécifique, de son environnement direct, du paysage alentour* et de tout autre facteur qu'il importe de connaître.

Dans le cas du relevé dit intégré se mêlent les deux types principaux de mesure : la mesure analogique et la mesure digitale qui suivent deux principes différents d'acquisition et d'interprétation, rendus laborieusement compatibles grâce à leur amalgame basé sur la représentation digitale (*vectorielle et raster*), mais leur élaboration reste souvent l'apanage des spécialistes. La compréhension des informations repose sur les techniques et passages successifs des processus d'élaboration ordonnés selon une programmation méthodique finalisée à un objectif précis. Pour chaque représentation (mathématique, numérique et géométrique), doivent être respectées les caractéristiques qui complètent techniquement les contenus, et qui tout en les décrivant contribuent à la possibilité de *contrôle, répétition et vérification* des résultats.

La représentation est par conséquent aujourd'hui, bien plus qu'autrefois, liée à la programmation d'une connaissance qui aurait besoin d'un nouveau *langage de communication intégré*.

Le contrôle de la mesure

Le contrôle rigoureux de la forme exacte à travers l'identification de sa géométrie propre, allant de l'observation visuelle à la mesure en passant par les croquis d'étude, est parfaitement capable de fournir un résultat documentaire de haut niveau fondé sur la localisation des points stratégiques de l'objet, de manière à en effectuer la mesure la plus juste.

Toutefois, le contrôle de la *mesure*, fruit d'une opération – *prendre mesure* – apparemment évidente et univoque, est au contraire un moment controversé dans le processus d'acquisition des éléments concrets de la construction, et par certains aspects, malgré les vérifications, porteur d'ambiguïté. L'ambiguïté des

données numériques ne provient pas des carences intrinsèques des outils et de leur manipulation, ou en tous cas rarement, mais plutôt de l'attitude scientifique plus ou moins consciente de la personne qui opère. Il en découle que la *valeur scientifique* de toute une campagne de relevé et de ses produits ultimes n'est pleinement transmise que grâce à une transposition rigoureuse et vérifiée dans la représentation qui consiste principalement en une **modélisation géométrique** (*bidimensionnelle ou tridimensionnelle*). Ce document, et les mesures qu'il contient, doit être indiscutable, et ce à toutes les échelles de restitution. Même lorsqu'elles mettent en difficulté les opérateurs qui se doivent d'y insérer exactement les mesures en vraie grandeur, les modélisations digitales aident à définir et maintenir à toutes les échelles les éléments de références géométriques que nous appelons «lignes fixes» toujours présentes dans la forme et la structure d'une architecture.

Depuis toujours le «modèle géométrique» substitue la réalité, que ce soit dans le but d'une simple reconstitution tridimensionnelle de l'objet relevé, ou dans la gestion du projet de conservation, ou pour quelque opération de réparation ou vigilance que ce soit, ou dans le but d'une lecture successive et interprétation critique basée sur des spéculations vérifiées.

Dans le relevé, au fil du temps, la codification des systèmes de représentation a orienté l'expressivité dans une direction purement technique, contrôlée par les opérateurs du relevé dans la stricte application du savoir géométrique et des symboles standard. La tendance actuelle est résolument tournée vers la technologie avancée, avec ses nombreux aspects et ses nombreuses options. Le contrôle des systèmes est devenu principalement indirect, et le champ d'application s'est élargi. Les «outils» sont devenus l'intermédiaire incontournable entre celui qui veut connaître et l'objet de la recherche. Le caractère de plus en plus sophistiqué de la technologie, présent aussi dans les opérations de mesure et de restitution des données, avec le nécessaire contrôle des campagnes de relevé à toutes les échelles, créent un domaine technico-opérationnel qui ne peut pas être ignoré par les spécialistes et demande une formation appropriée.

Nous savons bien que la première différence pratique qui se pose ne consiste pas simplement dans la difficulté de savoir employer correctement les «machines», mais dans le fait de se couler dans un nouveau système, lequel interagit et conduit les opérations selon un processus différent de celui qui nous était auparavant familier. Les outils de relevé indirect ont amélioré la mesure topographique par un contrôle visuel piloté. Par exemple en ce qui concerne les

«captures» des lasers scanner quand du seul choix du positionnement on passe aux scansions qui génèrent la visualisation complète du nuage de points tridimensionnel. L'ensemble des points visibles est formé par des entités géométriques de référence sans rapport avec l'objet de l'étude. La vraie «discretisation» en une forme bidimensionnelle ou tridimensionnelle s'opère en un deuxième temps, à la table de travail, et seulement grâce à des logiciels informatiques compatibles avec le système d'acquisition des données utilisé lors de la phase précédente. **Lecture critique des données**

L'élément clé de la compréhension est *l'objet* lui-même, lequel conserve toujours sa valeur et sa fonction de document véritable, analysable et comparable aux documents et archives historiques.

Comprendre les mesures d'un bâtiment ancien, définies dans leur propre unité de mesure, retrouvant la logique et les intentions du projeteur ou constructeur de l'édifice, signifie aller bien plus loin que la donnée numérique: cela signifie entrer dans l'architecture. La forme contient en soi une logique structurelle, géométrique et fonctionnelle liées par des choix dimensionnels que l'on peut définir «mesure» de cette architecture. Le champ des choix des mesures va de l'édifice jusqu'à l'échelle de la cité et à la planification territoriale.

La pensée qui fait de la mesure un des premiers facteurs de vérification n'est pas l'œuvre d'un opérateur isolé mais révèle le savoir de la société d'appartenance. Il s'agit de confronter technique et science, science et art, un domaine plutôt complexe à déchiffrer dans ses articulations diverses.

L'observation critique de l'architecture de la part de l'opérateur du relevé pose le problème fondamental de sa capacité personnelle à effectuer une analyse judicieuse, basée sur de solides notions d'histoire. La recherche appliquée qui permet de comprendre, confronter et restituer le projet original s'avère fondamentale dès lors qu'il s'agit d'un projet de connaissance lié à la rénovation du bien. Outre les données structurelles et matérielles, l'identification des paramètres qualitatifs et morphologiques est nécessaire à la compréhension de l'état actuel d'un édifice et à la reconnaissance de sa typologie et identité formelle. En architecture la *qualité* rapportée à la *quantité* est un facteur inéluctable de comparaison. Le concept de relevé s'élargit au fil des compétences spécifiques jusqu'aux questions de projet, de thématisation, de diagnostic, auxquelles il doit fournir des informations fiables, des documents compatibles et homogènes dans le souci d'une collaboration efficace et interdisciplinaire.

Cas d'étude: Massa Marittima (Fig. 2)

Dans le cadre d'un programme pilote tel que celui du relevé et de l'étude morphologique et historique des murs d'enceinte de Massa Marittima, l'évaluation du sujet et le modus operandi choisis en conséquence ont contribué à la définition d'un modèle d'intervention scientifiquement correct, approprié et productif appliquant les systèmes informatiques innovateurs largement utilisés au moment de la mesure et de la restitution du «bâti»³⁰.

Il est donc facile de comprendre combien l'effort déployé dans la phase d'élaboration des données recueillies sur les murs de Massa a été soutenu, afin de rapprocher des domaines théoriques et applicatifs conçus et développés indépendamment les uns des autres, dans le but d'une collaboration et d'une médiation filtrée entre homme et objet construit.

De par les méthodes adoptées, des points de convergence ont été trouvés, et les possibilités d'aide réciproque entre les diverses techniques d'approche ont été effectivement expérimentées. La représentation a été la vérification finale de cette intégration aussi bien dans la transcription graphique bidimensionnelle des projections orthogonales des images, que dans les représentations virtuelles tridimensionnelles ou la documentation analytique des points mesurés.

Le projet de relevé global des deux enceintes de murs de Massa Marittima promu par la Région Toscane entendait analyser et «relire» tel un texte littéraire la structure aujourd'hui conservée, témoignage non seulement de la nature des murs et de leur précieux appareil de pierres, de la conformation du tracé et des tours, mais aussi de son indissociable rapport avec le contexte environnant. Le travail déployé par l'équipe florentine a été préparé en vue du choix de la méthodologie. Les possibilités de connaissance et d'approche directe consenties mais aussi bloquées par un contexte particulièrement difficile de par sa monumentalité et sa spécificité, ses dimensions et ses rapports inhérents avec ce que l'on définit comme *le dedans et le dehors* d'une ville, ont orienté les choix des procédés pratiques et analyses documentaires vers une séquence pilotée et établie. (Fig.3)

Il convient de rappeler que l'enceinte murale se développe sur un parcours de 2.600 m environ et dessine un périmètre assez irrégulier marquant nettement la frontière entre la vieille ville et la ville nouvelle (Fig. 4). La campagne de relevé et de mesure a été conduite selon trois systèmes opérationnels coordonnés entre eux: une campagne de levé topographique (Fig.

5) avec stations totales géoréférencées dont le réseau de points a servi de base et référence fondamentale pour toutes les autres mesures, directes ou indirectes, une campagne de relevé utilisant deux scanners laser 3D (Fig. 6) tout le long du périmètre des murs, complétée dans les parties les plus complexes par une acquisition mono photogrammétrique, et enfin une campagne de relevé manuelle avec lasermètres et appareils photo digitaux pour acquérir des données analytiques et graphiques (Fig. 7). Les acquisitions, élaborées par secteurs, ont servi de base scientifique à la production des représentations bidimensionnelles (imprimées ou digitales), à grande et petite échelle, et des modélisations tridimensionnelles qui constituent un matériel utilisable pour toute opération à venir de vérification, contrôle, sauvegarde, de tout le périmètre d'enceinte et alentour³¹.

Les opérations qui ont guidé la recherche et les conclusions finales sont regroupées en quatre thèmes et représentées à des échelles différentes:

- a) le paysage. analyse et représentation du paysage et relation du contexte avec le périmètre des murs. (Fig. 8))
- b) architecture et pans de murs, analysés d'une part par lecture directe et croquis d'étude, pour en décoder la stratigraphie et les caractéristiques matérielles, et d'autre part par acquisition de mesures pour recueillir objectivement dimensions et proportions.
- c) principales émergences monumentales: portes, bastions, le «*Cassero*», relevés en détail lors des campagnes de relevé direct et indirect. (Fig. 9)

³⁰ La communication des connaissances nécessaires à l'architecture et aux lieux anthropisés (les méthodologies d'enquêtes pluridisciplinaire appropriées et actuelles, les relevés intégrés, la connaissance scientifique du patrimoine construit, à toutes les échelles, la mémoire des motivations et des fondements de projet, philosophiques, sociaux, matériels et immatériels) est l'apanage des experts, avec la capacité et possibilité pour les destinataires de cette documentation d'en décoder les contenus à différents niveaux.

³¹ Le relevé des murs de Massa Marittima a été réalisé sous la direction scientifique de l'auteure, en sa qualité de Professeur de 1^{ère} classe en Relevé de l'Architecture à l'Université de Florence. L'équipe de travail était composée, comme pour beaucoup d'autres campagnes de relevé, de chercheurs et enseignants florentins spécialistes, de doctorants de l'Ecole Nationale de Doctorat en «Sciences de la Représentation et du Relevé», et d'experts requis pour les diverses disciplines relatives au travail en question.

d) apports pluridisciplinaires: expertise géologique, diagnostic de structure, étude iconographique, et observation objective de l'état de fait. Toutes connexions et vérifications. (Fig. 10)

Ainsi qu'on peut le voir sur le schéma du modèle, on a complété les résultats obtenus sur le terrain par une vaste documentation historique, iconographique et archives, qui a permis de connaître, interpréter et vérifier les données du relevé. Cette démarche d'analyse a accompagné toute la durée de la campagne de relevé et a permis d'effectuer des contrôles entre les acquisitions de la connaissance directe et ce qu'il était possible d'apprendre par les sources documentaires ainsi que les nombreuses études conduites par des chercheurs locaux passionnés.

En outre le matériel suivant a été classé et consciencieusement archivé:

- fiches d'échantillonnages des maçonneries et appareils
- fiches du matériel iconographique
- croquis d'étude précédant la mesure pour en établir la cohérence et la pertinence par rapport au modèle géométrique de l'objet
- compte-rendu technique sur les procédures suivies et les outils adoptés, sur les normes et symboles graphiques, nécessaires à créer les conditions de la transmission correcte des documents définitifs en vue de leur utilisation future.

L'utilisation future du matériel hétérogène produit est assurée par la mise au point d'un système d'archivage informatisé adapté à une consultation de type traditionnel.

En outre une *base de données de gestion* élargie à toute la documentation a été proposée et prédisposée.

Le matériel produit (iconographique, technique, graphique et archives) a fait l'objet d'expositions et séminaires thématiques. La Région Toscane a en outre publié les résultats de toute la recherche dans un volume édité par l'auteure du présent article³².

¹ ³² E. MANDELLI (ed.): *Le mura di Massa Marittima, una doppia città fortificata*, Vol. pagg.207, 2009, collana *Toscana Cultura I*, Pacini Editore, Pisa, ISBN 978-88-6315-133-6.

Volume publié par la Région Toscane, qui en plus d'une vaste documentation photographique et de tout le corpus de représentation des relevés effectué, fournit un compte-rendu technique et critique du travail accompli. En outre il cite tous les participants qui se sont succédés avec leur diverses fonctions et devoirs durant toute la durée du relevé (5 ans au total). Il contient aussi une vaste bibliographie générale sur le relevé intégré, une liste exhaustive des publications et textes historiques sur la ville de Massa Marittima et sur le territoire environnant de la *Maremma*.

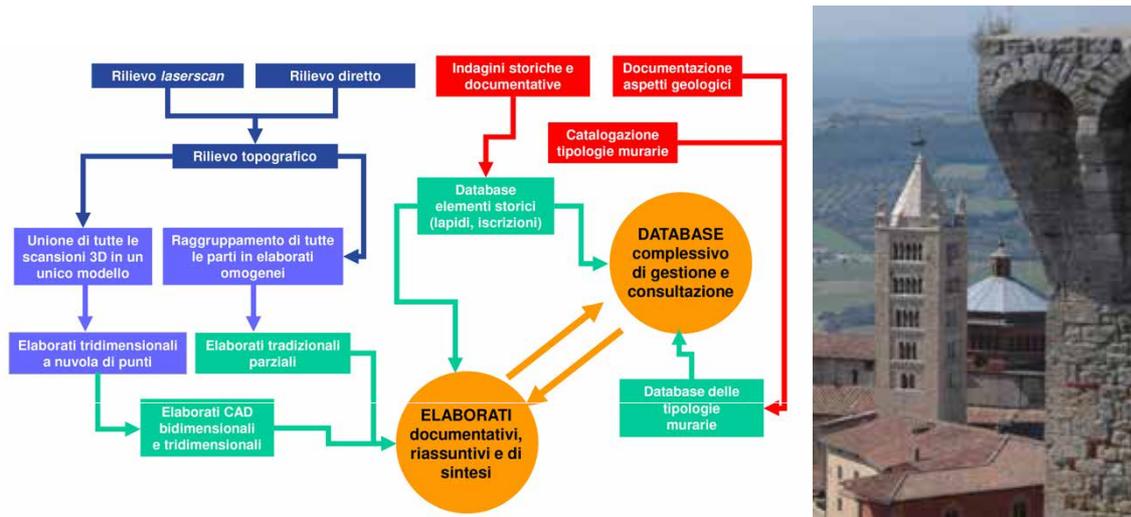


Fig. 1 Schéma du procédé de relevé intégré adopté à Massa Marittima.

Fig. 2 Photo - Vue de Massa Marittima.



Fig. 3 Planimétrie de la Maremma Toscana.



Fig. 4 Relevé planimétrique du terrain adjacent aux murs avec leur destination actuelle.



Fig. 5 Campagne de levé topographique effectuée avec deux stations totales : canevas constitué d'un polygone principal fermé encerclant les murs, relié au polygone créé pour le relevé de la vieille ville, et trois autres polygones fermés, toujours reliés au premier, avec restitution à l'échelle appropriée, altimétrie et profils, capture des mires pour la restitution photogrammétrique. Et autres polygones ouverts selon besoins.

Fig. 6 Campagne de relevé avec deux lasers scanner, tout le long du périmètre accessible et ou dégagé de la végétation.

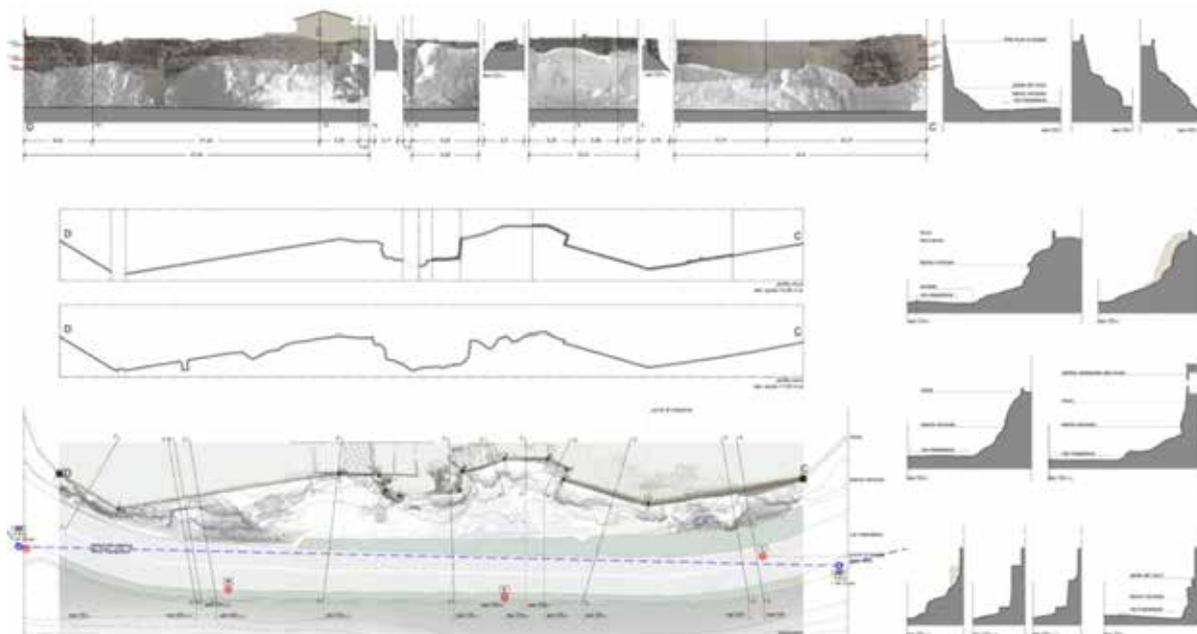


Fig. 7 Modélisation numérique et graphique des données acquises par les lasers scanner.



Fig. 8 Le paysage



Fig. 9 Campagne de photogrammétrie des élévations dégagées, pour échantillonnage. Exécution liée au relevé topographique. Orthophotographie des élévations.

Fig. 10 Echantillonnage des types d'appareils de pierres relevés et fichés.

Development of Decision-making Indicators Helping the Management of Interventions in Cultural Heritage

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Abstract

When developing conservation interventions to preserve/rehabilitate cultural heritage elements, several restrictions must be dealt with. Such restrictions are related to the safeguarding of the heritage's cultural value and significance that has to be weighed against safety and durability needs, as well as against duration and budget constraints of the intervention. To assist in the decision-making process, an index is proposed that weighs qualitative and quantitative criteria influencing the type of intervention, as well as the characteristics of the cultural heritage element under analysis.

Keywords: *Decision-making Process; Conservation; Cultural Heritage; Managing Interventions*

1. Introduction

The conservation practice of historic and heritage concrete constructions from the early 20th century is currently facing new challenges associated to the need for their consolidation, conservation and repair. Natural deterioration caused by the aging of building materials and their exposure to severe environmental conditions has led to a significant increase of the vulnerability of these constructions. Nevertheless, there are other important sources of degradation threatening these constructions such as inappropriate or careless interventions being carried out throughout their service life or the simple lack of maintenance and neglect.

Given that many of these constructions are relatively recent, the need for conservation interventions is a concern that is now starting to appear. Since the approach for interventions in 20th century constructions should be different than that usually utilized in older constructions, one currently witnesses a lack of professional experience and know-how in their repair that must be overcome. These aspects are particularly relevant when dealing with decorative elements made of reinforced concrete.

To help in the decision-making process about what type of intervention needs to be carried out in such decorative elements, an adequate balance of several constraints must be sought. To assist in this decision-making process, a methodology is proposed which consists in the development of an index I_T that gauges several criteria influencing the type of intervention. The referred index weighs the influence of several qualitative and quantitative criteria which are graded according to the characteristics of the cultural heritage element under analysis.

The development of this index is presented herein for the decision-making process related to the conservation interventions of reinforced concrete decorative elements of building façades. An application of the proposed approach is then presented for the reinforced concrete decorative elements of the façades of the early 20th century Teatro Nacional de São João (National Theatre of São João), in Porto, Portugal. A detailed analysis of the selected criteria is presented and the advantages of the proposed procedure for the development of a sustainable conservation plan are also addressed.

2. Concrete degradation and other issues to account for when defining preservation operations for decorative elements

Reinforced concrete, which is made by cement and steel, forms a composite material with a reduced lifespan, when compared to that of natural and traditional construction materials such as stone or timber. There are several concrete degradation sources and mechanisms that are specific of historic constructions, such as the quality of the materials and workmanship used in the construction or the issues related to its poor

consolidation during its placement in forms¹. However, the more important concrete degradation processes are those also found in modern constructions. Such concrete degradation processes can be generally aggregated according to the following categories²: physical (caused by natural thermal variations such as freeze-thaw cycles, or artificial ones, such as those produced by fires), mechanical (abrasion, erosion, impact, explosion), chemical (attack by acids, sulfates, ammonium and magnesium ions, pure water, or alkali aggregate reactions), biological (fouling, biogenic attack) and structural (overloading, settlement, cyclic loading). With respect to the visual indicators of these degradation processes, those most affecting the durability of concrete elements are cracking, spalling, and disintegration, each occurring in several different forms³.

Among the various degradation causes, the corrosion of embedded steel reinforcement is perhaps the most severe problem for reinforced concrete elements⁴. Normally, the embedded steel reinforcement is protected against corrosion by being buried within the mass of the concrete and by the high alkalinity of the concrete itself. This protection, however, can be destroyed in two major ways. First, by carbonation that occurs when carbon dioxide in the air reacts chemically with the cement paste at the surface and reduces the alkalinity of the concrete. Second, chloride ions from salts combine with moisture to produce an electrolyte that effectively corrodes the reinforcing bars. Chlorides may come from seawater additives in the original mix, or from prolonged contact with salt spray or de-icing salts.

Regardless of the cause, corrosion of reinforcing bars increases its volume and causes expansive forces within the concrete. Cracking and spalling of the concrete are frequent results of this expansion phenomenon. Rust stains on the surface of the concrete are another indication that internal corrosion is taking place. Ultimately, steel corrosion will reduce the safety and stability of reinforced concrete elements, by reducing the effective area of the steel reinforcement, which may then lead to their collapse. Since the origin of this deterioration usually starts from inside the concrete element, available repairing approaches are seen to be considerably intrusive. Therefore, this particular source of degradation is especially difficult to address when dealing with the repair of reinforced concrete decorative elements or sculptures where conservation operations could destroy their authenticity (fig. **Errore. L'origine riferimento non è stata trovata.**).

Therefore, the problems related to the conservation of decorative elements raise important questions associated to the safeguarding of the heritage cultural value and significance that have to be weighed against safety and durability needs. During the decision-making process about what intervention has to be carried out to preserve, rehabilitate, or restore degraded cultural heritage elements, an adequate balance of the existing constraints must be found. Some of these constraints can be seen to involve:

- Durability requirements
- The influence of the type of intervention in meeting the deadline of the conservation project
- The risk associated to the collapse and fall of the element
- The authenticity of the element
- The repetitiveness of the element
- The evolution of the state of degradation of the element over the past years
- The potential for replacing the element

To assist in the referred decision-making process, the index I_{TI} presented in the following becomes particularly useful when there are a large number of decorative elements with similar characteristics and intervention decisions need to be made individually. To account for the previously referred constraints, the proposed methodology weighs the influence of several qualitative and quantitative criteria associated to the state of conservation and characteristics of the cultural heritage element under analysis.

3. The proposed intervention index I_{TI}

The proposed index was developed in order to establish a quantitative measure that would recommend either the in situ repair or the replacement of a given decorative element under analysis. This index weighs the influence of several qualitative and quantitative criteria which are graded according to the characteristics and the level of degradation of the element being analysed. This index was developed such as to account for several restrictions that may control the type of admissible intervention. As referred in the previous Section,

¹ (Gaudette and Slaton, 2007).

² (Bertolini et al., 2004).

³ (Mailvaganam, 1992).

⁴ (Page, 2012).

some of these restrictions are related to the safeguarding of the heritage's cultural value and significance that have to be weighed against restrictions related to safety and durability requirements, as well as against duration and budget constraints.

The proposed intervention index I_{TI} is quantified for each individual decorative element and reflects the weighted combination of seven criteria (C_1 to C_7) according to:

$$I_{TI} = \frac{\sum_{i=1}^7 C_i \times w_i}{\sum_{i=1}^7 w_i} \quad (1)$$

where C_i corresponds to the grade assigned to the i th criterion and w_i is the weight factor of the i th criterion. Some of the selected criteria are graded directly while others depend on the value of auxiliary parameters (P1 to P9). A description of the selected criteria, of the information and parameters considered for their quantification, and of their weight factors is presented in the following:

- C_1 – Durability of the decorative element: The grading of this criterion combines information about the level of cracking of the element (P1), the existence and location of the reinforcement (P2), the level of corrosion of the reinforcement (P7), and the amount of repair required by the element (P8). The weight factor w_1 is considered to be 5.
- C_2 – The influence of the type of intervention in meeting the deadline of the conservation project: The grading of this criterion combines information about the size of the element (P3), the difficulty of making a cast of the element to replicate it (P4), the difficulty of fixing this replica to the façade (P5), and the amount of repair required by the element (P8). The weight factor w_2 is considered to be 5.
- C_3 – The risk associated to the collapse and fall of the decorative element: The grading of this criterion depends on the life-threatening hazard due to the fall of a decorative element and on the possibility of observing the state of conservation of that element from the ground. The weight factor w_3 is considered to be 5.
- C_4 – The authenticity of the decorative element: The grading of this criterion depends on the decorative element being authentic or not (i.e. the decorative element is a replica or it has been previously repaired). The weight factor w_4 is considered to be 4.
- C_5 – The repetitiveness of the decorative element: The grading of this criterion depends on the number of times a given decorative element is repeated on the cultural heritage property being analysed (P6). The weight factor w_5 is considered to be 3.
- C_6 – The evolution of the state of degradation of the decorative element over the past years: The grading of this criterion reflects the evolution of the state of degradation of the element based on the known state of its conditions some years before. The weight factor w_6 is considered to be 1.
- C_7 – The potential for replacing the decorative element: This criterion depends on information about the level of cracking of the element (P1), the level of corrosion of the reinforcement (P7) and the amount of repair required by the element (P8), and its grading combines data about the size of the element (P3), the difficulty of making a cast of the element to replicate it (P4) and the difficulty of fixing this replica to the façade (P5). The weight factor w_7 is considered to be 5.

By combining the grading of the several criteria using Eq. (1), the intervention index I_{TI} is then obtained. The index ranges between 0 and 3 and if a value lower than 2 is obtained, the decorative element under analysis is recommended to be repaired and consolidated. Otherwise, the replacement of the element by a replica is suggested.

4. Case study: the São João National Theatre

The São João National Theatre is a National Monument located in the city of Porto, Portugal. The construction of the current building theatre started in 1910 under the direction of architect Marques da Silva, the most important architect of Porto at the time, after the original building was destroyed by a fire in 1908. The style of L'Ecole des Beaux-Arts in Paris, where Marques da Silva studied, is clearly found in the São João theatre's architecture.

The Beaux-Arts architecture expresses a neoclassical architectural style that involved sculptural decoration along conservative modern lines and employed French and Italian Baroque and Rococo formulas combined with an impressionistic finish and realism. An abundance of balustrades, statues, columns, garlands, pilasters

between doors and windows, and grand staircases is typical of this architectural style. In the case of the São João National Theatre, these decorative elements exist in all the façades (with a total area of approximately 4,800m²) and are made of reinforced concrete (fig. 2). Some of the decorative elements having vegetal and geometrical patterns are seen to be repeated throughout the façades.

A few years ago, the façades of the São João National Theatre began to exhibit severe signs of deterioration due to the long-term weathering of the concrete surfaces, the corrosion of steel reinforcement and the fall of pieces of mortar (the latter enforced the need to install façade nets to prevent such pieces to fall over the pedestrians). The development of a conservation project for the façades was therefore urgent. Considering the previously referred degradation issues related to the steel corrosion and concrete spalling, the conservation and preservation of such rich and dense array of decorative elements presented numerous issues and several intervention options not easy to choose from.

Besides the severe cracking and spalling levels found in the concrete due to corrosion of the reinforcement, significant damages were also found to be related to bird dropping deposits and to the presence of black crusts. In order to illustrate the state of degradation of some of the reinforced concrete elements of the theatre façades, fig. 3 presents some examples of damaged reinforced concrete decorative elements of the façades of the São João National Theatre.

To adequately plan and prepare these interventions, a survey of the damages and degradation levels found on the façades and their decorative elements and sculptures was needed. A first assessment of their state of degradation was carried out before the cleaning operations of the façades took place, which resulted in an incomplete characterization of the elements' condition. A reliable assessment was only possible after the cleaning operations (fig. 4). In addition to the damage survey, several concrete samples were taken from the façades for laboratory analysis and testing in order to determine the components and mix proportions of the original concrete, thus enabling the development of a repair mix with properties that would be compatible with those of the original concrete.

The cleaning operations also revealed that a conservation intervention had been previously carried out on the façades in the mid-20th century because some decorative elements exhibited additional layers of mortar over the original ones, which altered their original volumetric proportions. In other cases, by visual observation and by comparing the several types of mortars, it was possible to conclude that some of the original decorative elements were replaced during that intervention. Given these aspects, the current intervention project foresaw the possibility of making casts of original elements to replace similar ones previously intervened in the mid-20th century. These replaceable elements are those exhibiting a current state of degradation that implies a level of repair incompatible with the simultaneous upholding of their authenticity and of their safety against falling.

Given the large number of decorative elements and the difficulty of balancing all the factors that influence the type of intervention to be carried out in a given decorative element under analysis, the intervention index I_{TI} was therefore used to provide quantitative information that would help in the decision-making process. Even though the fundamental purpose of the intervention was to replace as few elements as possible, the main purpose of the results obtained by the proposed index was to identify which elements exhibited the need for a more severe repair intervention along with a higher potential for replacement.

5. Application of the intervention index I_{TI} to the São João National Theatre

To apply the proposed methodology, a preliminary identification and numbering of the individual decorative elements was necessary. This operation was carried out by the team of conservators, architects and engineers involved in the project. In some cases, this identification was not a simple operation due to the high level of interconnection between consecutive decorative forms (fig. 5). In these cases, individual elements were selected based on symmetry and repetitiveness criteria.

Although the proposed index establishes a set of objective criteria to characterize a given element, the grading of some aspects sometimes involves a certain degree of subjectivity. Grading the difficulty of making a cast of the element to replicate it (P4) or defining with absolute certainty the authenticity of a decorative element (C_4) are examples of factors that may involve some degree of subjectivity. The cleaning operations of the façades are also decisive in the results of the index. As previously mentioned, a reliable assessment of the state of degradation of the decorative elements was not possible before such operations exposed the true state of the elements which was, many times, hidden below several layers of dirt, black crusts or paint. Finally, it is referred that when defining the value of the index I_{TI} , criterion C_6 was assessed based on the evolution of the state of degradation of the decorative element since 1995 when the state of

conservation of the façades was surveyed and conservation interventions were carried out in some parts of the building.

In order to illustrate some of the results obtained after applying the proposed methodology to the São João National Theatre, fig. 6 presents the value of I_{TI} for seven reinforced concrete decorative elements. As can be seen, the replacement of elements 3, 6 and 7 is suggested by the results. For the case of element 6, and comparing with the result obtained for element 5 (which similar to element 6), the “replacement” result given by the index is because this element exhibits a high level of degradation with severe steel corrosion and concrete spalling, and more than 75% of its volume requires consolidation. On the other hand, element 5 presents no steel corrosion, no spalling and less than 25% of its volume requires consolidation. With respect to element 7, the decisive characteristics for the “replacement” result are its level of steel corrosion and concrete cracking, the fact that it requires the consolidation of more than 50% of its volume and the fact that it is not an original element. In terms of element 3, aside from its high level of cracking and of needed consolidation, the fact that it is a small element easy to replicate is also a decisive factor to obtain a “replacement” result.

6. Final remarks

The conservation practice of historic and heritage reinforced concrete constructions from the early 20th century is different than that usually utilized in older constructions. The current lack of professional experience and know-how in their repair is particularly important, namely when dealing with decorative elements in reinforced concrete. The fundamental purpose of an intervention is to maintain as much of the elements as possible, involving repair and consolidation operations that will safeguard the elements' authenticity as much as possible. Aside from the need to safeguard the cultural value and significance of the heritage, other important issues must also be weighed, namely those related to safety and durability, as well as to the intervention's duration and budget constraints.

Given the difficulty of balancing all the factors that influence the type of intervention to be carried out, especially when there are a large number of decorative elements with similar characteristics and intervention decisions need to be made individually, an intervention index I_{TI} was developed to help in this decision-making process. Even though the fundamental purpose of the intervention is to replace as few elements as possible, the main objective of the proposed index is thus to identify elements exhibiting the need for a more severe repair intervention along with a higher potential for replacement. These replaceable elements are those exhibiting a current state of degradation that implies a level of repair incompatible with the simultaneous upholding of their authenticity and of their safety against falling.

Although the proposed index involves a set of objective criteria to characterize a given element, the grading of some aspects is sometimes subjective. Furthermore, a reliable assessment of the state of degradation of the decorative elements is not possible before cleaning operations expose the true state of the elements which is, many times, hidden below several layers of dirt, black crusts or paint.

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Figure 1: Examples of reinforced concrete decorative elements and sculptures exhibiting some level of material degradation.



Figure 2: Façades and reinforced concrete decorative elements of the São João National Theatre.



Figure 3: Examples of damaged reinforced concrete decorative elements of the façades of the São João National Theatre.



Figure 4 (continued): Examples of damaged reinforced concrete decorative elements of the façades of the São João National Theatre.



Figure 5: Cleaning operation to remove limewash (left), cleaning operation by micro-abrasion (centre left), example of a decorative element before (centre right) and after (right) the cleaning operation.



Figure 6: Examples of the high level of interconnection between consecutive decorative forms.

1	2	3	4	5	6	7
1.21	1.71	2.48	1.47	1.77	2.52	2.34

Figure 6: Sample results obtained by the proposed intervention index when grading different types of reinforced concrete decorative elements of the São João National Theatre.

Shared Web 3D BIM for Cultural Heritage

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Abstract

The main purpose of the paper is to discuss how to use 3D models in the world of Cultural Heritage by focusing on complex architectures. The experience of survey and modelling of the main spire of the Milan's Cathedral is described. It is as an example, how a detailed real based 3D model is created and used as base for an information system (BIM) that is now at disposal for the maintenance works of the cathedral. The interesting case of study is the chance to present common problems, adoptable solutions and to discuss about the use and implementation of this kind of system for CH.

Keywords: BIM; Cultural Heritage; 3D Modelling

1. Introduction

“Heritage information –the activity and products of recording, documenting, and managing the information of cultural heritage places- should be not only an integral part of every conservation project but also an activity that continues long after the intervention is completed. It is the basis for the monitoring, management and routine maintenance of site and provides a way to transmit knowledge about heritage places to future generations. Today the world is losing its architectural and archaeological cultural heritage faster than it can be documented. Human caused disasters, such as war and uncontrolled development, are major culprits. Natural disaster, neglect and inappropriate conservation are also among the reason that this heritage is vanishing. Although we should strive to preserve as much as possible of our architectural and archaeological cultural heritage, we cannot save everything. One of the options available to heritage managers and decision makers is to document this heritage before it is lost.” (The Getty Conservation Institute, Los Angeles, 2007).

One of accessible technology for this purpose is the “digital 3D model”. It is expected to become the representation of the future, because it is valid in any contemporary field of study. A virtual 3D model can be extremely significant in the field of Cultural Heritage because it is a complete representation of the “object” that can be analyzed and studied in its entirety, without any effort of abstraction.

This aspect is nothing new, it has always been clear and used also in ancient times, just think of the three dimensional representation with physical maquette used in the times of the Renaissance. It was always considered a preliminary model, also called the “model form”, namely a physical three-dimensional representation of the outward form of an object, realized in order to better evaluate the quality or aesthetics. Nowadays we have at disposal digital technologies that greatly increases the potential of the three dimensional representation. 3D models are not static representation but are **dynamic and eternal**, because forever upgradeable and modifiable in the future. It is **“for everybody”** because can be “quite easily” created, visualized and used by different operators and this can be done **“from everywhere”** because a digital 3D model can be easily transported and, for example, shared online. For these reasons, digital 3D models add big chance in the process of knowledge, providing new possibilities on the way to study, manage, monitor, visualize, conserve and valorize a cultural heritage object.

2. From 3D model to BIM for Cultural Heritage

The three main steps in the 3D processes for Cultural Heritage are *Survey*, *Model Construction* and *Fruition*.

The main task of the survey phase is the recording and the processing of a large amount of 3D (possibly 4D) multi-source, multi-resolution, and multi-content information (Remondino, 2011). Now there are all instrumental technologies able to provide accurate 3D measurements. Important changes have been reported on the “measuring side” of the global survey process, mainly due to the innovation of the measure technologies registered in the last years. Recently, laser scanners have become increasingly efficient in terms

of point acquisition speed, portability, user friendly and cost. In addition, many current software allow to navigate huge point clouds and to make accurate measurements in real time without any additional post-elaboration even by using consumer category PC configuration (Fassi, 2013). New developments and innovations can be highlighted about close-range photogrammetry elaboration processes, thanks to the introduction of new cheap and/or free software and algorithms based on a “structure from motion“ approach (Vergauwen, 2006). Web application as for example ARC3D, Microsoft Photosynth, Autodesk® 123DCatch, or software as Agisoft Photoscan, Photomodeler Scanner, Iwitness and Visual SFM (Wu, 2013) are getting quite common also in the world of Cultural Heritage and allow to process the data in an autonomous and user friendly mode. This kind of software allows the fully autonomous three-dimensional reconstruction of objects from images, providing automatic tie-point detection for exterior orientation parameters computing and giving back, without any operator intervention, a dense image-matching type point cloud and, in some cases, the textured surface mesh model. Automatic image orientation and point extraction algorithms come mainly from the computer vision field: actually, they are, de facto, a kind of hybrid between specific photogrammetric software and powerful automatic modelling package.

If the first survey step, has achieved an advanced level of technology that allows speed and completeness, we encounter the first problems addressing the remaining two-step, that are the 3D models generation work-flow and the fruition of the model.

The main issue is the type of 3D models normally used in “designing professional software”. Point cloud and mesh are formats useful as starting points, usable by surveyor but unusable by generic professional involved in cultural heritage processes, if not for mere display purposes. Normally it is necessary to extract a parametric model from the accurate surveyed models (Points or mesh). A parametric model (in all its forms) is nowadays the only typology that can be readable and usable by most operators. This is feasible in case of simple linear object, even if post-elaboration, features extraction, segmentation and models simplification are required steps to ensure the result. That is why the generation of high quality 3D models is still very time-consuming and expensive. The continuous improvement of technologies, methodologies and tools to build detailed reality-based 3D models is actually highlighting the need to provide effective segmentation methodologies and automatic or semi-automatic procedures able to speed up the modelling phase. This aspect becomes extremely important in case of complicate objects as, for example, for archaeological sites. Here it is hard or even impossible to create a parametric model of an object that is composed of parts of different disordered shapes. It is possible only, as in the state of art, simplifying extremely the model to the point of erase and give up all those elements that really describe the shape, geometry, composition, static, constructive and environmental characteristics of the object. (Bianco, 2013)

In order to solve this problem, the segmentation of artefacts should be, ideally, fully automatically performed. However, this is a very challenging task. In fact, fully automatic procedures, that could be general enough for the wide ranges of cases, are maybe impossible to be implemented for cultural heritage goods. We are convinced and conscious that, even if best solution is ideally the automatic one, the intervention of expert operators is generally mandatory in order to iteratively refine the segmentation and the parameterisation of a cultural heritage object. For this reason, the future research should be dedicated to find some semi-automatic or automatic procedures, which do not have the presumption to solve the problem in general, but will help the manual modelling in the case of stone architectonics/archaeological objects.

The last and most ambitious research task is the third phase, the fruition of the model. That means to deal with these subtasks:

- The management and conservation of the achieved 3D (4D) models for further applications;
- The visualization and presentation of the results to distribute the information to other users allowing data retrieval through the Internet or advanced online databases;
- Digital inventories and sharing for education, research, conservation, entertainment, walkthrough, or tourism purposes.

One of the methods is to create an informative system that is able to share information and 3D digital models to operators. Similar system are called BIM (Building Information Modelling) in the world of industry and constructions.

National Building Information Model Standard Project Committee defines BIM in these terms: “*Building Information Modeling (BIM) is a digital representation of physical and functional characteristics of a facility. A BIM is a shared knowledge resource for information about a facility forming a reliable basis for decisions during its life-cycle; defined as existing from earliest conception to demolition.*” (NBIMS, 2014). That means a BIM is an integrated system for design, representation and long-term maintenance of the built environment.

A BIM software combines the three-dimensional or multi-dimensional digital representation of the object with a set of information stored in a database (spatial position, technical characteristics, material properties, phases of construction, maintenance etc. ...) realizing a sort of "Geographic Information System" of a building. A BIM is the process of creating and managing the "model of information" and may refer to the entire building life cycle (project - implementation - maintenance).

For these reasons, a BIM strategy can be the ideal fruition method for the 3D model applicable to historical heritage. Some initiatives have emerged in the last years, as Historic Building Information Modelling (HBIM) that adapts BIM philosophy applied to historical heritage buildings. HBIM (Murphy, 2013) is a recent solution that enables three-dimensional parametric representation, and allows the user to manage data on historic architectural elements, within a common software environment (Dore, 2012). However, compared to the study and use of BIM systems in construction industry, little progress has been done yet in the use of this type of approach in the field of Cultural Heritage. This is probably due to different reasons.

The first is the different starting point. A BIM normally originates from the construction of the building or even from the time of its design; on the contrary, a system for cultural heritage is located in an intermediate moment of his life. In BIM for CH the starting point is not the idea of the project, but detailed knowledge of the object already exists. Therefore, an accurate metric survey and a "real-based" 3D modelling are necessary: it is a complex, oft time-consuming additional operation. Normally, in fact, a Cultural Heritage is a complex building, rich in decorations, ornaments and elements that require considerable efforts in order to measure and to reconstruct virtually in the model.

Furthermore, the historical buildings go through both deep architectural and use changes and readjustments. Very often the modelling effort is tripled: it is mandatory a model representing the status, one or more that show how it was like and how it will be after the conservation and maintenance works. The measure of the geometric form is not enough anymore, it becomes essential to create a "complex integrated system" that collects all the 2D and 3D metric data and all the existing documentation of the historical modifications. The fourth coordinate is indispensable.

Another reason is the attitude of the segment operators, strongly bounded to traditional processes and products in the study applications and in the knowledge of an architectural and/or archeological heritage. There is also a sort of "fear" of some operators which are afraid to be replaced by the technological development. We have to disseminate and implement a new attitude in the CH field of application: a BIM system for the cultural heritage must not replace the operator intervention but should empower him with a tool to collect, classify and make available data in various forms.

Finally, the lack of capital and the technical complexity of certain systems –survey or modelling or visualization ones - make often these new techniques not attractive to the segment operators.

Several properties characterize a BIM, improving the classical approach. "A basic premise of BIM is collaboration by different stakeholders at different phases of the life cycle of a facility to insert, extract, update or modify information in the BIM to support and reflect the roles of that stakeholder (NBIMS 2014)". To do this, the system must promote a "shared representation" of the information contained or linked to the model. The information must be understandable, usable and editable, and based on open and recognized standards. In addition to the technical aspect, we should also be particularly careful to the methodological-didactic aspect, to foster the sharing process, in order to let the experts understand the potential of a BIM system compared to a traditional way of working in 2D.

These are some fundamental methodological principles of a BIM, intended as 'modus operandi' of a community of actors who want to make efficient use of a shared system:

- adapt the existing ways of working orienting them to the new type of process, but at the same time adapting the process to the working traditions of the various segments (flexible system);
- training of operators for use BIM;
- provide hardware and high-level network resources to be able to use the system to its fullest potential;
- total cooperation among the technicians who use the BIM (levels of access depending on their role and responsibilities).
- create easy to use system to which the various operators may be easily able to interface;
- be or use low cost or free systems to simplify the deployment in environments widely known as not being rich.

3. The case study: the Main Spire of the Milan's Cathedral

Politecnico di Milano 3Dsurvey Group (ABC department) conducts the presented study case in the last five years for the Milan's Cathedral. It is a first try to create a complete high resolution and accurate model of the main spire of the cathedral and use it in a sort of BIM, created ad hoc to improve the facilities and the maintenance operations conducted by the Veneranda Fabbrica. (Fassi *et al.*, 2011; Achille *et al.*, 2012)

The survey operations

The Main Spire survey has been conducted with a multi-scale and multi-data approach. Multi-data means using various measurement sensors, depending on the necessity and used individually or simultaneously. The multi-scale concept, instead, is the integration of objects detected in different scales for different purposes or needs in the model. The use of different technologies is imposed by different factors characterizing the Spire, such as the material, the survey complexity due to the restricted spaces or to the element elevation, to the cable-stayed scaffolding and to the presence of a restoration site. The most used technique is the photogrammetry, both as regards the construction of simpler and more linear parts of the structure (image modeling), and as the decorated part (image matching). The choice to use the photogrammetry as the main survey method is made to direct the research toward a low cost process. Besides the geometric survey, it has also been led a photographic survey describing every single element of the steeple, pointing out the conservation status and the small details hard to model and to represent graphically. Furthermore, the working phases and the restoring activities in progress of the single parts have been documented in the ad hoc implemented WEBBIM system.

The creation of a 3D model

The need for an accurate metric, detailed and real-based model of the main spire and the requirements to create a simple to use system have oriented also the choice of the modelling software. The one selected is Rhinoceros. These are two reasons for that choice:

- the modelling must be real-based, therefore the software should be able to allow the operator to upload the measurement data coming from different equipment and to model according to the desired tolerance.
- it is easy to learn, it is a tool familiar enough, not altering the operators' *modus operandi*, and puts them gradually closer to 3D modelling processes;
- the last version of Rhino allows the operator to create advanced scripts in C language and then to build customized tools for the interface between the modelling software and external systems.

In this way Rhino, which is not a BIM software in itself, becomes part of the Building Information Modelling system, in the most correct meaning of the term. It is important to underline that the final model of the superior spire describes geometrically every single objects composing the spire, every quoin and marble tile. Every decorative element and sculpture has been modelled individually as a comprehensive element. It has been paid specific attention to the relationship between the elements, reproducing the topologic characterization of each part.

The WebBIM System

The realized BIM (Fassi, Parri, 2012) system conceptually consists of two macro entities, BackOffice and Front Office which are the management, creating and compiling entities of the system (BO) and the part aided for display and use of the data (FO). The system is composed by four main modules: i) the 3D modelling and managing software, ii) the online viewer that allows navigating and exploring the object's virtual model and to consult the added information, iii) a database that contains all the information related to the objects and iv) a photographic catalogue with the images of the objects and the working phases on them.

The unique ID assigned to each modelled element assures the link and communication between these entities. The BO user has read/write access to any type of data. It is implemented inside the modelling software including scripts that enable the management and the real-time updating of the model displayed in the FrontOffice. Specifically, Veneranda Fabbrica's technical office is the BackOffice user, which is responsible for creating and updating the 3D model and for validating the data integrated by third party from the FO.

FrontOffice is where users can interact. The FO part enables the visualization of the 3D model on the WEB, the consulting and updating of information and of the photographic catalogue with different authorizations for read/write access of the information. This part has been developed in the WEB. The use of WEB technology and free browsing ensures the low cost essence of the system and allows access to multiple users (usability), guarantees the interoperability of the different actors (participation) and ensure the update and the immediate synchronization of the data entered in the system. In this way the system, with appropriate restrictions can be opened to a wider, non-specialized, audience, adding the "disclosure" feature, which is

crucial in the world of cultural heritage. In this sense, the web visualization encourages both the professional and non-professional to use of the system.

The most useful functionalities have been currently implemented for “Yard Applications”, namely to handle typical operations such as the replacement of marble blocks, the exit and entry of the “pieces”, the manufacturing type, the features of the replaced parts etc... Using the system, the yard operators are able to i) visualize the 3D model and navigate into it in a simple way; ii) make “spatial” type queries on the virtual model that allows both to visualize the elements and the automatic calculation of areas and volumes; iii) realize different type of queries: selection queries to research those elements that belong to a defined category, update queries and table creation queries in order to add different operations on the elements; iv) consult and update the photographic catalogue that describes the element and the interventions on it.

A database is built for each 3D element. It contains all the description features at a certain initial time t_0 , at the beginning of the survey work. For each element, it is possible to create multiple records, named “interventions”, related to interventions applied over time to each marble block (the fourth coordinate is given!). In this way, it is possible to build the interventions history.

The system has been designed with a simple and immediate interface, that gives the opportunity to consult the model, to remove and add information, decide and plan the intervention strategy directly on site, replacing the traditional “pen & paper procedures”.

4. Conclusions

The work introduced synthetically here highlights the “system” created ad hoc to visualize and use the tridimensional model of the main spire in a simple and immediate way using the web. It is one of the first examples of the use of the WebGL technology for professional purposes and in particular in the field of restoration. It is actually tested and used daily by the Veneranda Fabbrica of Duomo.

The remarkable interest for this project has propelled the idea of improving and engineering the system and especially adapting it in order to be used by other actors. It is important to underline some key aspects that make the system useful and attractive for different stakeholders in the world of cultural heritage:

- “the ease-of-use of the system”, that can be used by the final user without the aid of any software with fee;
- the data enter and consulting is simple and intuitive;
- ad hoc choice of the modelling software, even if requires some preparation and exercise, doesn't need the BO user to have a dedicated modeling competence.

Nowadays, little progress has been done in this field, even at the research level, if not focusing on the aspect of survey and rendering of 3D data. Few examples of BIM for cultural heritage are limited to describe survey procedures and the render the 3D data. It is necessary to focalize the research attention to create and to develop methods and algorithms able to speed up the modelling phase, until today the big bottleneck of the process workflow, and share this data to a wide circle of users who need to use it without being information technology or computer graphics experts.

3D-BIM have big potentiality in the cultural heritage field, where the “objects” are expected to live forever and where the management processes, continuous into the future, require collaborations across disciplines, technologies and sectors, such as history, archaeology, cultural studies, anthropology and other areas of humanities and social science. We have to work both from the technological aspect to develop technical instruments, but also culturally to introduce this type of 3D thinking in the common practice of Cultural heritage knowledge and preservation.

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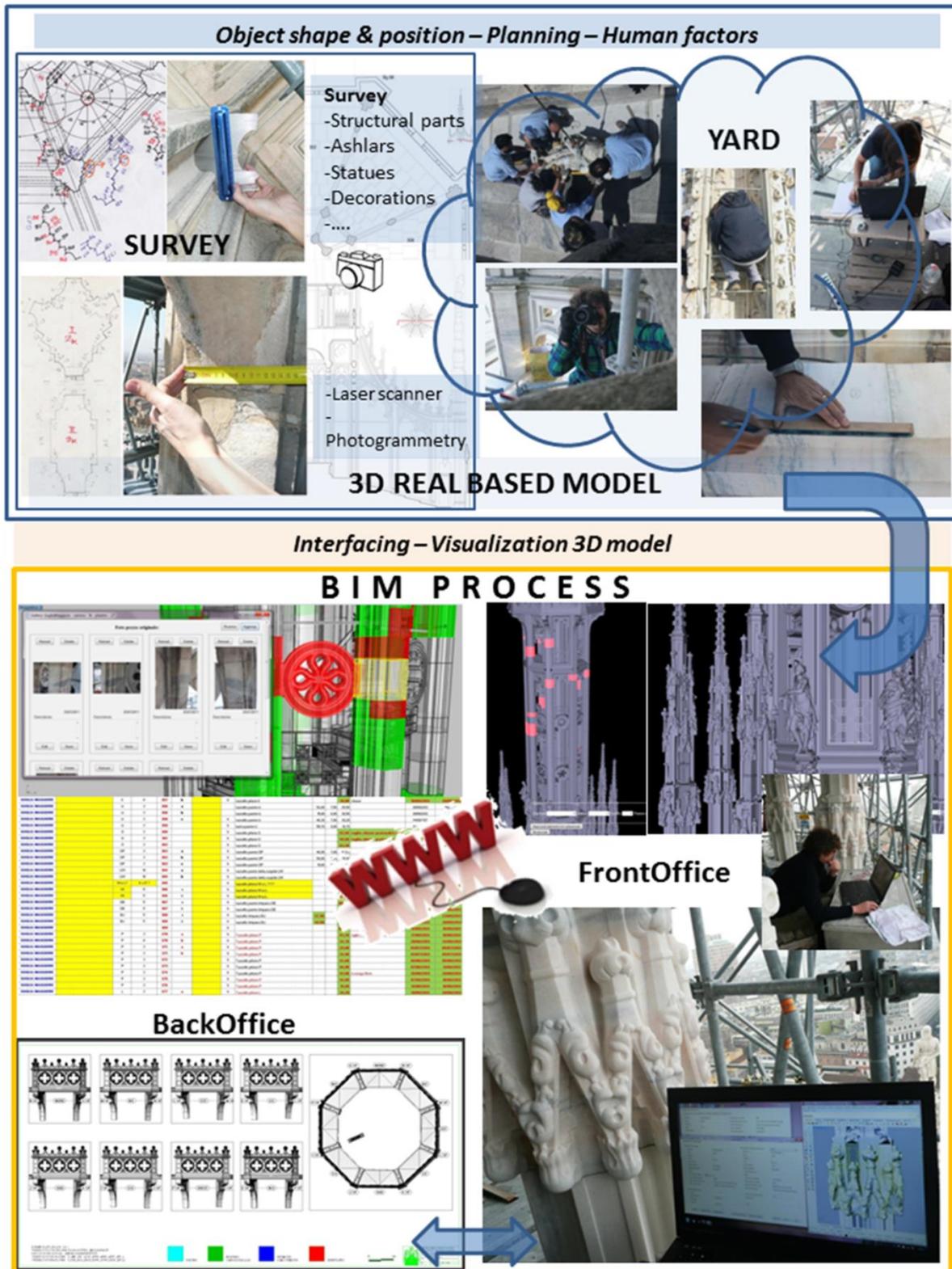


Image 1: Operating problems and strategies of survey. WEBBIM: select all elements and visualize yard data and photos of the element to determine its state of conservation before and after restoration.

Earthquake, Survey and Advanced Representation: Knowledge, Restoration and Enhancement of the Architectural Heritage in the City of Ferrara, World Heritage Site

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Abstract

The recent earthquake that occurred in the Emilian territory has left many open questions that, soon after the first procedures for safety measures, required to be followed by a research method and knowledge based on surveys, the fundamental activity that leads towards all operations of restoration, consolidation and regeneration. The research group here presents a few study cases still in progress, drawing out the attention on the potential of an integrated approach to the use of original and advanced methods, processes and techniques.

Keywords: *Earthquake; Ferrara; 3D Survey; Museums; Multimedia*

1. Integrated, advanced and scientific surveying*

The diction *architectural surveying* is commonly associated to the practical measuring operation of a building. It is still necessary today to point out that surveying is not a simple reading and translation of metric data, but should seek representation by a graphic transcription of the global knowledge of the work, obtained through integrated studies, methodically planned and conscious of the constructive reality, capable of capturing its shape, special, dimensional, perceptive, technological and constructive values. It is an act of critical reading to be conducted rationally and scientifically, with complete consciousness of the building that is being surveyed, of its *visible and invisible parts*.¹

Following these general principles of the discipline, our research group has used widely diffused instrumentation and advanced techniques (laser scanner, total station, Leica 3d disto and fotomodelling) in an integrated manner on artefacts affected by the earthquake. We aimed to elaborate a three-dimensional model, scientifically queried about both the quantitative data, for example, the extrapolation of the geometry of space and of their measurements, using both qualitative characterization of material surfaces subject to degradation and collapse. In this case, the new fotomodelling technologies have shown themselves to be especially effective, since from simple digital photographs it was possible to obtain the spatial position of the pixel of the "n" frames taken of the object. The result is the creation of a three-dimensional cloud of point, like that produced by a laser scanner, from which you can then switch to the *mesh* and the complete model with *orthorectified* texture, exportable in many digital formats. The use of software like *Agisoft PhotoScan*®, in analogy to what usually operates on point clouds taken with a laser scanner, allows us to overcome the problems of projection on the geometrical plane of representation of elements belonging to different floors and complex surfaces, including ruined frescoed vaulted ceilings.

2. Surveys and emergencies: The case of Santa Maria della Consolazione Church***

The Santa Maria della Consolazione Church of Ferrara, among the last works attributed to Biagio Rossetti, was built in the first fifteen years of the XVI century under order of Sigismondo and Ercole I d'Este. It was later annexed to the neighboring convent occupied by the Congregation of the Servants of the Observance.

Laser scanner surveys*** - The integrated survey of this article is a good example of documentation of an architectural monument of value through the use of advanced technology to extract metric/geometric characteristics and subsequently convert them into digital data. The building was closed to the public for two years because of serious damage reported during the earthquake of 2012. It needed an accurate measurement campaign that, in addition to providing the usual dimensional data, would accurately highlight the failures

¹ Docci, Maestri, 2009 pp. V-VI; Mandelli, 2009, pp. 175-180.

and injuries flocked to the structures by the many earthquakes, in order to put in the technics in the condition of drawing up a focused and effective consolidation and restoration plan.

The building, part of a larger architectural complex, is made up of a 18.5 m wide main body of the Church, which is spread over three aisles, with a total length of more than 53 m and an internal height that exceeds 18.5m in the presbytery. The considerable size of the building and the particular static conditions following the earthquake necessitated a targeted planning of the relief operations. Having to occur in a very short time and in a situation of risk associated with the instability of the structures², the survey has seen the main use of *laserscan* equipment (fig. 1). The choice of a measurement system of an indirect type allows also the surveying of all those inaccessible areas because of distance or danger - that a direct survey would not have been able to capture with the necessary accuracy and precision. The *laserscan* technology, allows the extrapolation of a large amount of data in extremely short times, able to describe all parts of the building in maximum detail.

For the survey of the Santa Maria della Consolazione Church³, a Faro Focus 3D *laserscan* station was used, with an accuracy of 2 mm, a range from 0.6 to 130 m and an integrated 5 megapixel digital camera. This allowed us to acquire a model of the entire building in a single day of scans, returning a dense and complete *PointCloud* including the most affected and inaccessible areas of the building. The measurement campaign was carried out through the placement of 52 stations. 27 were used to document the external elevations and the front of the cloister while 23 were placed internally to adequately describe the spans and the presbytery, minimizing the possible occlusions. Two were placed in the attic to delineate the trend of the extrados of the vault placed to cover the nave. This was carried out with the aid of a *set* of 12 spherical *targets* in the *scanner*, strategically positioned during scans to ensure the necessary overlapping, which allowed the subsequent alignment of individual clouds through automatic recognition. The recording carried out in Faro Scene has produced .fls files exported in .ptx format, subsequently imported in Cyclone (Leica Geosystems HDS), where it was possible to interact with the complete *PointCloud* model, extrapolating *screenshots* and *slices* able to describe maps, elevations and vertical sections⁴ in detail (fig. 2).

The quality of the cloud thus obtained, in addition to allowing the detection of collapse and degradations – has made the necessary interventions of consolidation, restoration and careful planning of the monitoring of structures feasible. It will also allow us to subsequently analyze the artefact various times, freeing the operator from the obligation of repeated visits, without affecting the scientific nature of the entire operation. By examining the *PointCloud* model, it is possible to extract any kind of significant section designed to document details of degradation, comparable to details found in a phase advanced study, or directly measure portions of the architecture within the same three-dimensional virtual operating system. More specifically, the subsequent requests for the delivery of a diagram that would document the progress elevation of the floor in each bay and of a report that would contain the lesion present on the arch of the apse in detail have been fulfilled in a very short time. This has been done without further direct measurements from the site, thanks to the direct interaction with the cloud of points.

Data integration and comparison with image-based modeling tools** - The laser scanner survey returned geometrically rich and extensive data, describing the architectural object in all its parts. However, we choose to operate on some points, and on considerable details, using the current techniques of *structure from motion*. The aim was to integrate color data⁵ and facilitate the reading of the lesions (as in the case of the apse half-dome) or, locally, to document in greater detail morphologically complex organisms located in parts of the church made dangerous by the earthquake (as in the Baroque altarpiece located on the bottom of the apse). Furthermore, it has been possible to make a geometric comparison (*qualify*) between two models, the one

² A small portion of the intrados of the vault of the nave has collapsed during the survey. The scans realized on the same day, before and after the collapse, allow the documentation of the two different conditions of the church.

³ The team is composed of: Prof. Arch. Manuela Incerti, Ph.D. Arch. Gaia Lavoratti, Ph.D. Arch. Stefania Iurilli, Eng. Piero Lusuardi, Dr. Anna Tonelli, Dr. Carlo Alberto Bozzi.

⁴ In particular, for each section (horizontal or vertical) a slice of 10 cm of the point cloud has been extracted in correspondence of the cutting surface. The slice, re-imported in Autocad, has allowed the exact reshape of the section profile through a simple interpolation of points. For those parts in view, however, the method has been brought out through the importation and re-design in Autocad of high-resolution screenshots of the cloud, realized with Cyclone through the use of reference planes with a grid size of 1 meter.

⁵ The integration was necessary because, given the state of emergency of the survey, the different laser scanner shootings were carried out over an entire day, in different lighting conditions (natural or artificial) depending on the time of day; as a consequence the acquired color data appeared not homogeneous and affected by the presence of artificial lights and headlights.

extracted from photomodelling operations and the one coming from the elaboration of laser scanner data⁶; this procedure is useful to establish methodological protocols to control the reliability (and thus the integrability) of different data, coming from differentiated tools and techniques

In the case of the apse, the starting point is constituted of a set of 16 photographic shots (resolution 3872x2592) taken by a Nikon D700 digital camera mounted on a tripod. Particular attention has been dedicated to both the lighting conditions of the object and the quality of images, which needed to be correctly exposed, sharp in outline and noise-free. The ideal area for positioning the camera, corresponding to the one around the high altar, was not accessible because of the high risk of collapse of the vault above. It was therefore necessary to shoot from positions external to that area. Moreover, given the obvious inability to climb in altitude, the shooting point is always constrained to a plane, that of the floor, placed at a fixed height compared to the object that has to be measured. However, this did not affect the correct alignment of the photos, which returned a 5,800,000 polygons mesh, perfectly continuous and connected unless the inevitable occlusion zones above the molded cornices⁷. The comparison between the two models has provided a measure of the average distance and standard deviation that are nearly identical, both equal to 0.11 cm, with a maximum distance measuring 1,53 cm; the gap between the two surfaces is almost reduced to zero if we only consider the longitudinal section of the shell. This is even more interesting when we consider the size of the measured object (diameter of the apse half-dome 9.86 m) (fig. 3). The integrated survey returned a single output reference model, useful for extracting, in a first phase of graphic elaboration, all the plans and sections required by the client. It actually represents an examinable database of informations, attesting to the state of the building prior to the restoration planned for the current year.

3. From surveys to multimedia communication. The case of Palazzo Schifanoia*

In recent years, research on current methods of media communication based on the use of interactive virtual spaces has paved the way for the adoption of new systems to support visits to sites of cultural interest and museum spaces. The largest and most important museums of the world are replacing traditional audio guides with multimedia movies and innovative interactive guides, allowing use of content to be more engaging, effective, intuitive and customizable. Following the earthquake of 2012, Schifanoia Palace, a small but prestigious structure and Civic Museum of Ancient Art in Ferrara, has been closed to the public. Still today, the Salone dei Mesi is the only accessible room. In synergy with the recovery operations of the building, a project for the creation of a museum using digital representation as its main instrument for communication of possibly complex scientific content was developed. The building has been subject to heavy changes that, over the centuries, have completely altered the nature of the Este townhouse, founded around 1385 by Alberto d'Este, originally surrounded by an elegant Renaissance garden.

The research project, supported by an agreement stipulated with the Civic Museum of Ancient Art⁸, concerns the creation of multimedia products aimed at solving the problems of the informative apparatus, already recognized and reported by the manager himself. For example, in the famous Salone dei Mesi, both the controlled lighting of the surviving frescoes (for reasons of preservation) and the height of the painted scenes (6 meters) constitute a limit to the viewing of the famous cycle that covers the walls.

For these reasons, a 4 phase program was developed. This program includes the execution of digital models of the building obtained from the recently integrated surveys⁹. Virtual reconstructions will provide information on the history and architecture on the system thanks to reproductions and high-definition images of the painting cycles or of less accessible decorations. The highly detailed textured models, initially non-interactive, can now be followed on navigable screens on tablet devices over the network or during the tour route. They can be used as the basis of augmented reality projects that can contribute to a revival in the museums of Ferrara. In the definition of the communication format, particular attention has been paid to the needs of the young audiences in order to facilitate their approach to cultural issues that often do not arouse particular interest. Speed, immediacy and multitasking characterize the cognitive approach of the youths: the

⁶ The common nature of the output data produced by both laser instrument and SFM techniques allows to work both meshes within the same 3D workspace, providing to properly align the models in respect to an identical reference system.

⁷ Given the homogeneous shooting conditions the same occlusions are also detectable on the laser scanner point cloud.

⁸ Director of the Civic Museums: Angelo Andreotti. Research Team: Angelo Andreotti, Marco Bertozzi, Manuela Incerti, Stefania Iurilli, Giovanni Sassu. Scientific coordinator Manuela Incerti. The first phase of the multimedia project described above has been completed and handed over in July 2014, the following are working progress.

⁹ For the survey see (Incerti, 2009).

success of communication, even in the case of layered and not ephemeral content, is for this reason always subject to the quality of engagement achieved.

Four interactive "stories" for Palazzo Schifanoia** - If survey, intended in a scientific and integrated sense, must tend to the overall knowledge of an architectural object, it is equally important that this knowledge finds a clear and coherent synthesis in the post-production phase. This is an essential condition for setting a dissemination process that aims to reach the final user in an effective way. In this sense, it is necessary that both the metric and perceptual data output show an high quality. The narrative program built for Palazzo Schifanoia opens with an initial multimedia product, an animated sequence lasting about 7 minutes that chronologically narrates the transformation phases of the building from its foundation to the present day. The animation shows the volume of the building as a set of 3D diachronic models, which are gradually enhanced with increasing detail drawn on the available historical sources. Iconographic sources, materials and historical documents supporting it accompany each transformation. The models allows a comparison between the architectural solutions at different eras, communicating the historical and critical criteria used in the analysis of the artifact in a simple way (fig. 4).

The second multimedia product focuses on the most valuable area of the of the Este building: the *Salone dei Mesi*, commissioned by Borso d'Este around 1470 and characterized by a complex iconographic program with an astronomical and astrological theme. The model describes the original space, with a different access via a staircase, a large central fireplace and a dimming system of painted wooden panels that has disappeared today. The virtual reconstruction of the original access from the garden staircase will restore the vision of the room as it was at the time of Borso: the visiting experience thus opens an emotional comparison between past and present. The visual impact of the spectacular entrance to the salon offers multiple opportunities for exploration: the original access, rather angular, is opposed to the current nineteenth-century conception, where short side entrance includes the room in a visually monumental, symmetric field framed by a central point of view. The third phase is still focused on *Salone dei Mesi*, and it will illustrate different points of view and symbolic meanings of the frescoes, while the fourth phase involves widening the experience through the introduction of interactivity. Models, initially shown in animated clips, will become explorable, immersive and accessible through tablet devices, using *I-Visit* technology or exploration devices like *Oculus 3D*.

From a strategic point of view it is essential that, in the general visit of the palace, the viewing of information takes place inside the *Salone*. The experience gains value from being able to compare past and present, the visible and what has now disappeared, and to discover, thanks to the narrative patterns, hidden meanings and secret paths, as in the case of the painted perspectives.

Digital museumification and filing**** - Multimedia museumification brings together state-of-the-art technology with the historical object being described, thus anticipating the interaction between the communicative equipment and the area housing it by means of a careful design project connecting the site with virtual guides.

The various possible approaches differ depending on the content (strictly linked to the functionality of the guide itself), the size of the asset being exhibited and its nature (a tangible or intangible asset). One can therefore find large touch-screens containing databases of works where the visitor can freely cross-search information relating to history, iconography, authors, etc. (Uffizi Gallery in Florence), just as one may also find the same large interactive screen positioned in front of a single artwork (as is the case with the *Polyptych of the Misericordia* by Piero della Francesca in the Museo Civico of Sansepolcro). The latter will be positioned so as not to interfere with the viewing of the work, but rather to provide information – to those interested – regarding the restoration of the work, the technical and scientific procedures involved, and the views and comments of scholars and critics. Using multimedia devices to present a very large cultural heritage site whose characteristics are tangible, environmentally large-scale and to a certain extent also emotional, is of course a very different matter. The full-immersion experience proposed at the Museo delle Alpi (Alps Museum) at Forte di Bard in the Val d'Aosta succeeds very effectively in keeping together historical architecture and technology in order to describe the intangible dimension that makes this mountain chain so unique.

It is hoped that these virtual devices never actually substitute the asset itself, but rather accompany the user's knowledge of it; that they are not the object of attraction, but are used to enhance awareness through multi-level study and investigation according to the interests of the user. Moreover a keen design sensitivity favoring the integrated enjoyment of the asset together with the multimedia explanations relating to it (fixed or mobile, contemplative or interactive) should be a prerequisite for contemporary promotion appropriate to the value of our country's cultural heritage.

The acquisition of knowledge takes on a different nuance when the asset, as in the case of Palazzo Schifanoia, has suffered a trauma (an earthquake) that has temporarily compromised public access to parts of it. Areas off limits by force majeure will nonetheless be virtually represented inside the museum system to ensure “integral” viewing of the building.

To this end, UNESCO took part in the Fourth Session of the Global Platform for Disaster Risk Reduction held in Geneva in May 2013. The theme of the Conference was “Invest today for a safer tomorrow”. UNESCO confronted this issue by discussing the use of science and technology within policies and practises regarding the risk to the cultural heritage. On that occasion the clear “disconnection” between science, politics and practice was underlined, and it was acknowledged that dialogue between the parties was the element that needed attention in the near future. There was also debate on the need to foster the resilience¹⁰ of communities toward natural disasters, climatic changes and environmental upheaval, in order to deal with the consequences with less “damage”. It was underlined that this improved capacity is based on a discerning knowledge of cultural assets and on the awareness of their importance, to which are tied both the development of public/private synergism and the guaranteed conservation of cultural assets during post-trauma recovery.

A proposal was advanced for a conscientious programme of documentation and sharing of cultural assets in digital form for the creation of a virtual international register. This archive would make it possible to maintain records of the life of the assets in an evolving way, i.e. allow an in-depth analysis *in itinere* on the basis of previous data, pursuing the idea of continuous knowledge by means of subsequent integrated research investigations.

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¹⁰ In ecology resilience is the speed with which a community (or an ecological system) returns to its initial state after having been subjected to a disturbance that has removed it from that state. The distortions can be caused either by natural events or by anthropic activities. Usually resilience is directly proportional to the variability of environmental conditions and to the frequency of disastrous events to which a species or an ensemble of species adapted itself (Enciclopedia Treccani).



Figure 1: The church of Santa Maria della Consolazione in Ferrara. From left: isometric view of the point cloud model obtained by matching 52 scans in Faro Scene and then importing the whole model in Cyclone; the laser scan station Faro Focus 3D used for the digital survey; the nave during the surveying operations.

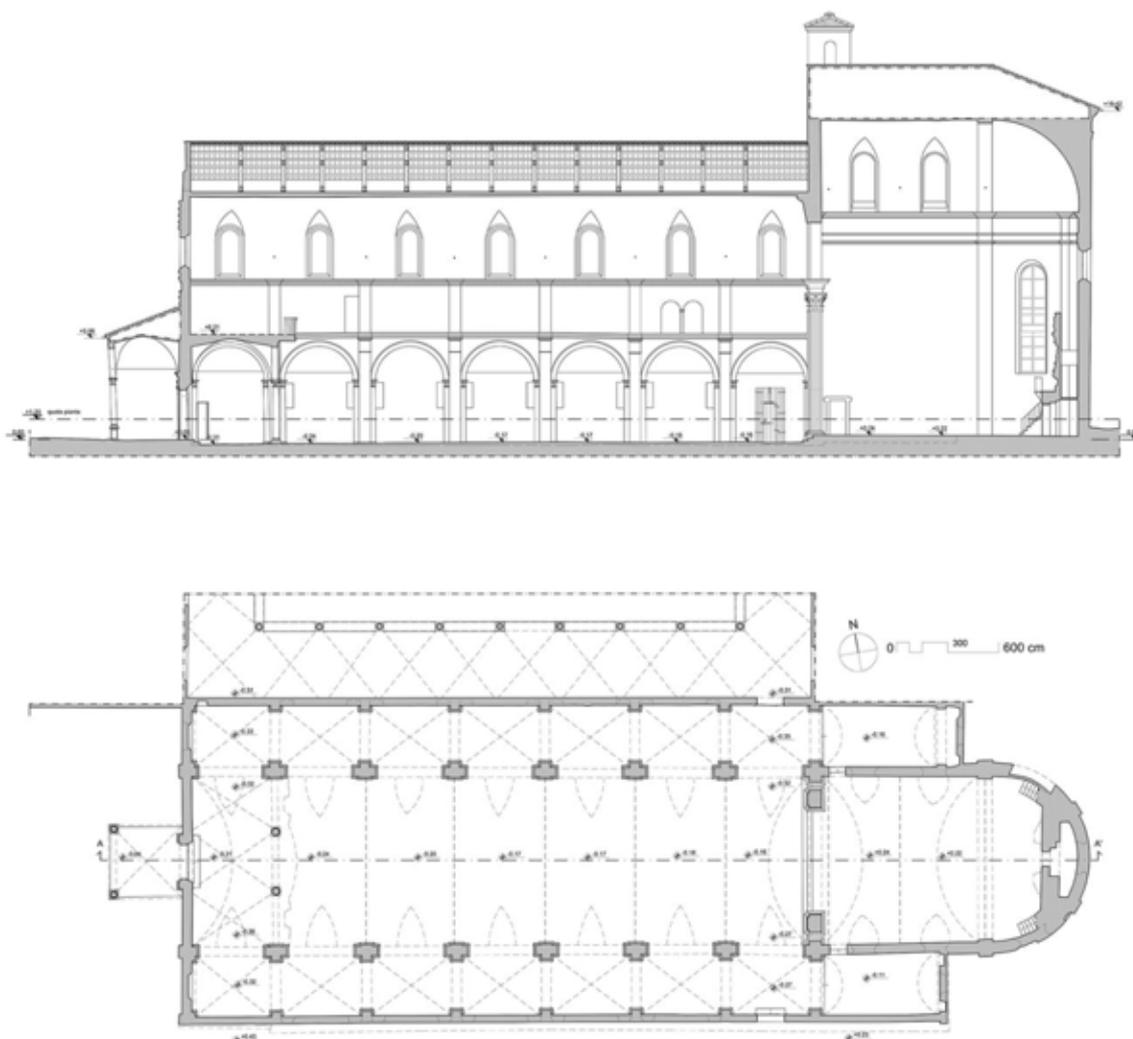


Figure 2: Santa Maria della Consolazione. Plan and longitudinal section obtained by redrawing in Autocad 10 cm thick slices extracted from the point cloud (sectioned elements) and high-resolution screenshots based on a reference grid (projected elements, grid spacing 1 meter). The graphic processing of the data provided the realization of three graphic plates containing 2 plans, 3 cross sections, a longitudinal section and 3 fronts in 1:50 scale.

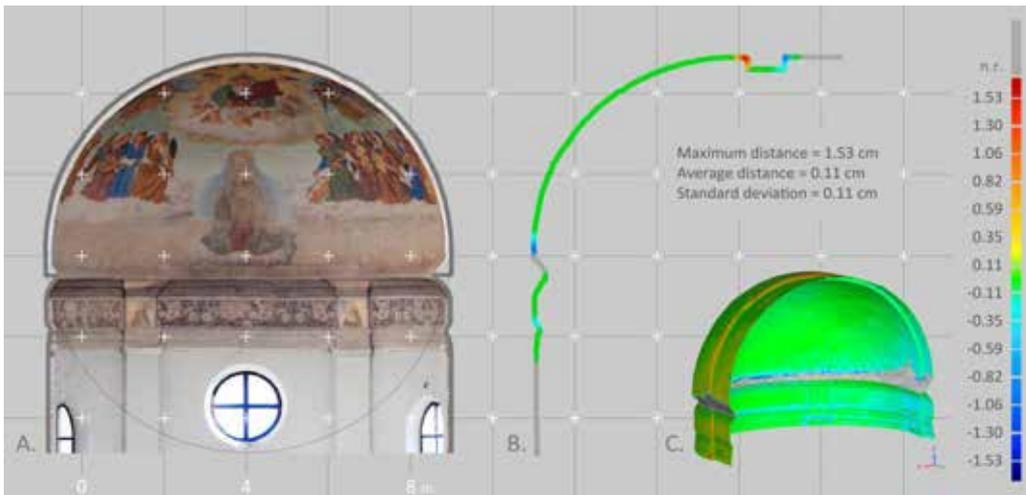


Figure 3: Santa Maria della Consolazione. Geometric comparison between the 3D meshes of the apse half-dome (SFM model and digital scanning model). From left: cross section of the textured SFM model (A); Result of qualify: graph of the distribution of the error on the cross section (B); results of qualify on the three-dimensional model of the object (C).



Figure 4: Palazzo Schifanoia, Ferrara. Some frames taken from the first informative-educational video made for the multimedia program of the museum.

Methodology for Global Comparative Analysis

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Abstract

A challenge for World Heritage identification is to develop suitable methodology to identify ‘outstanding universal value’ on a comprehensive, consistent and comparative basis. The world’s industrial heritage is one of the site categories that are currently under-represented in World Heritage. This paper presents a World Heritage identification case study based on a global evaluation of wood, one of the world’s important materials and industries.

The paper reports on a trial of comparative analysis that includes a quantitative analysis component. The heritage potential of each candidate site is scored, including the qualities of authenticity, integrity, protection and management, as defined by UNESCO. A description of each heritage quality provides the basis for allocating each score of potential. It is also possible to record the basis for the decision that underpins each score.

Keywords: *Comparative Analysis; World Industrial Heritage*

1. Introduction

This paper outlines a generic process to find the highest rating site for an outstanding universal value. For World Heritage such an assessment requires global comparative analysis. A review of process options arose from assessing the World Heritage potential of Taiwan’s Alishan Forestry Railway. A process was sought that considered all vital contributory factors but was also manageable and transparent. In considering scale and distribution for forestry railways for example, ~10,000 once existed in 52 countries. An issue is collating and assessing such potentially vast data. Could a simplicity lie within such complexity?

Review of options led to a process with a crisp focused logic and impeccable source. It utilises the World Heritage criteria wording: outstanding universal value¹¹. English language syntax places these three key words in the reverse order to the logic of their consideration. Placed sideways these words create a high-level three-phase process to logically investigate world heritage potential, Figure 1.

The process was piloted assessing the World Heritage potential of Art Deco Napier¹², followed by a major investigative study of the Alishan railway. It was further refined and tested on case studies of Tāmaki Makaurau World Heritage¹³ and bridges at Simpson Reserve¹⁴ and Owharoa. The latter two tested the process applied to local sites of modest heritage value. This work improved the investigative questions for each process phase. Figure 2 is a high-level summary of the generic process. This paper provides some detail of the process as applied to the Alishan railway.

The Alishan Forestry Railway is a purpose-built narrow gauge industrial railway opened in 1912. It supplied Taiwan Cedar logs to a sawmill Chiayi City, claimed to be the largest in Asia when built. The railway comprised a 72 km main line connected to a lengthy network of logging branches. To reach the forests in the rugged Central Range the steeply-graded main line featured spectacular railway engineering including a four-level spiral. The Alishan operation featured the world’s most advanced technology of the time for the harvesting, transport and processing of logs. Much of this technology survives today. The railway has gradually transitioned to carrying tourists not logs.

¹¹ UNESCO.

¹² Mahoney, 2012.

¹³ Mahoney, 2013.

¹⁴ Mahoney, 2014.

2. Phase 1: VALUE

Construct the strongest argument for value

2.1. Introduction

The value under consideration is termed the test value. For World Heritage consideration, the test value must be as high as possible. Heritage values are carried by the attributes of a heritage site. This section constructs the argument that links the test value to the attributes of the site. Reflections on the application of the process to the Alishan railway are in sections marked *italics*. Where a site has several values this process could be re-run for each value.

► *The **test value** investigated in this paper is Alishan as a **forestry railway**. Alishan could subsequently be investigated as a mountain railway or a tourist railway.*

2.2. Choose Criteria

From the World Heritage criteria choose the one that might yield the best result. The process can be re-run for other criteria.

► *Alishan is assessed for **Criterion 4**: an outstanding example of a technological ensemble which illustrates a significant stage in human history.*

2.3. Scope Value

Create the structure of a supreme value; the highest-level value that links to test value.

*The **supreme value** linked to forestry railways is **Global Wood**. This encompasses the history of wood in all times at all places for all purposes, and includes all activities involved, from the tree that grows in forest through to the completed wood product in human use*

2.4. Maximise Value

Maximise the supreme value in time, place and theme¹⁵.

► *Since the beginning of time, and in all parts of the world, wood has been harvested, worked and used by humans for a very wide range of purposes.*

2.5. Model Value

Present a visual value model that links the supreme value to the test value via a hierarchy of levels. Each level is a sub-set of the supreme value. Cite the source of the model or the sources used to create one. Show the proximity of the supreme value to the test value by mapping the link between them. Note that introducing each subset dilutes the supreme value.

► *A model for Global Wood was created, Figure 4. The 1st value sub-set of three eras reflects a common approach in industrial archaeology practice¹⁶. The 2nd value sub-set of four process elements reflects a structure found in university text books. The link from the supreme value to the test value is mapped as: Global Wood Industrialisation era Harvest Forestry railways. Checking for value dilution, just two subsets link the test value to the supreme value.*

2.6. Argue Value

Construct a value argument for each subset in the link from the supreme value to the test value.

► *The **industrialisation era** of wood is significant for transformation: 1-supply and consumption greatly increased; 2-cost of production greatly decreased (~90%); 3-wood became globally traded; 4-standardised products evolved; & 5-high technology products emerged (text book sources used).*

***Harvest** of wood is a significant process element that links trees to processing. Harvesting often involves distinctive purpose-designed technology and is a major investment. It typically constitutes half the cost of production. Text books and the industry itself regard harvesting as a major element.*

***Forestry railways** were a key element that transformed the **industrialisation of harvesting** by offering: 1-low log transport costs per unit; 2-high volume log supply logistics; 3-dependability in all seasons & 4-versatility in many terrains (text book sources used).*

2.7. Review Value

Demonstrate that test value is substantive rather than a fine distinction.

► *Are forestry railways a distinctive major railway type or just another railway label? Text books show that the business investment model for forestry railways was the opposite of that for regular railways. This gave rise to distinctive forestry railway engineering that pushed the world's railway technology to its limits. This was especially so in mountain terrain, as at Alishan.*

2.8. Values in Attributes

Link the value argument to attributes carried by the site.

¹⁵ LeBlanc, 2007.

¹⁶ Hudson, 1979.

- ▶ Text books show that distinctive forestry railway engineering is found in two groups of attributes:
 1. Construction attributes: the distinctive civil engineering features
 2. Operations attributes: the distinctive mechanical engineering features

3. Phase 2: UNIVERSAL

Demonstrate the meaning of the value in the largest context possible

3.1. Contextual scale

Establish the contextual scale of the test value. Examples are geographic extent or geo-cultural area.

- ▶ *The contextual scale of forestry railways is their global extent.*

3.2 Quantitative evidence

Provide quantitative data that demonstrates the universal qualities of the test value.

- ▶ *The scale of global adoption of forestry railways demonstrates universal value: 10,000 once existed; aggregate length 100,000+ km; found in 52 countries on all continents; era lasted 150 years.*

3.3 Qualitative evidence.

Provide qualitative information that demonstrates the universal qualities of the test value.

- ▶ *Quoted authoritative statements on the extent and role of forestry railways in specific countries.*

3.4 Other evidence.

Provide any other evidence that demonstrates the universal qualities of the test value.

- ▶ *Strong images demonstrate the values, see examples in Figure 5.*

3.5 Conclusion.

How strongly does the evidence demonstrate the universal qualities of the test value?

- ▶ *The global scale of quantitative, qualitative and other evidence collectively demonstrates the universal value of forestry railways.*

4. Phase 3: OUTSTANDING

Demonstrate that this site rates highest when compared to others

4.1. Build Process

The process must equitably compare the relative strength of all the candidates: all candidates are compared by the one criteria and process. The comparison is of the relative strength of the test value at the candidate sites. Comparisons can be qualitative or quantitative. A quantitative approach is to use a scoring system that is applied to elements that constitute the test value of the site.

- ▶ *Alishan used quantitative comparison with a scoring system. The world's best sites were selected as the candidates for comparison. They were selected on their potential to score highest. The candidate that on comparison did score highest is the best of the world's best.*

4.2. Candidate Sites

The sites to be compared are a small group that are the best of the world's best. Select the sites that have the potential to score highest in a comparison. Suggested group size is eight to ten sites.

- ▶ *Potentially these sites are distributed around the world. The big challenge was to locate and understand the best comparable sites in the rest of the world. This required international collaborations with subject matter experts.*

4.3 Elimination

In order to identify a group of the best eight to ten sites, all other weaker sites have to be eliminated from consideration. An example of an elimination method is to develop and apply eligibility rules. The eligibility rules must be demonstrated to relate strongly to the lead value.

- ▶ *Two eligibility rules were applied to all of the estimated 10,000 forestry railway sites:*
 1. *Demolished forestry railways were not considered, leaving 57 candidates*
 2. *An assessment by a country that identified its best forestry railways was reviewed and accepted for each of Russia, Romania and Hungary, leaving 8 candidates**These eight candidates are to be tested by global comparative analysis*

4.4. Comparison Framework

The heritage values to be compared and scored in a comparative analysis are those held by the attributes identified in section 1.8. Clarity must be provided on how to allocate scoring consistently across sites. Consider scoring the components of UNESCO Outstanding Universal Value.

- ▶ *Distinctive forestry railway engineering carrying the heritage value is found in 2 attribute groups:*
 1. *Construction attributes: the distinctive civil engineering features - 10 points max*
 2. *Operations attributes: the distinctive mechanical engineering features - 10 points max**In addition the other components of UNESCO Outstanding Universal Value were also scored:*

3. *Authenticity and Integrity* - 10 points max

4. *Protection and Management* - 10 points max

Standard questions were developed to foster consistency in the score allocations across sites

4.5. Result

The site with the highest score rates as the best of the world's best

► *Score results for top 4 of the 8 sites compared, noting that 40 is maximum possible score.*

36-Alishan, Taiwan; 34-Viseu de Sus, Romania; 33-Cass, USA; 31-Yakushima, Japan.

4.6 Review Process

With the process run has it produced the best result possible? Should some decisions be reconsidered and the process re-run? For example you might alter the key value or test an alternative key value?

► *Alishan scored highest but not by a great margin. This reflects the high quality of the top contenders, is a good situation. Alishan may carry logs again and this will increase its score.*

4.7. Other Values

The comparative analysis process is run for a specific test value. What other significant values related to the test value got missed in the comparison? If this matters, how might you include these values?

► *Consideration was given to three values not included in the comparative analysis scoring:*

1. *Alishan has the magnificent Dulishan 4-loop spiral, clearly outstanding in the world's 84 spirals*

2. *Alishan has the world's largest fleet of the world's foremost forestry locomotive the Shay*

3. *Alishan blends the worlds 3 three principal forest railway technologies: USA, Europe & Asia*

The other 8 sites were investigated for these three values but only Cass had one of them. It was decided not to revise the test value. But if bonus points were to be allocated Alishan would score 39 and Cass 34. This insight reinforces the status of Alishan as the best of the World's best.

4.8 Review Result

Consider who might get inspired by the test value. If inspiration is limited to a few highly specialised professionals, can you strengthen this value or craft another test value with more universal inspiration? This new test value can be investigated using this process. The results of investigating several values using this process can be compared to determine which of them are the strongest and most inspirational.

5. Conclusion

An argument for the value of forestry railways, embodied by Alishan, constructed by investigating the world's forestry railways using this process. 292 words

Alishan is an outstanding example of a forestry railway technological ensemble which illustrates the industrialisation of wood, a significant stage human economic history, World Heritage Criterion 4.

The global history of wood encompasses all times at all places and all purposes, and includes all the processes involved, starting with the tree that grows in forest and resulting in the completed wood product in human use

Since the beginning of time, and in all parts of the world, wood has been harvested, worked and used by humans for a very wide range of purposes.

The first era in the history of wood, of at least 10,000 years, saw the emergence of hand tools and craft skills. During the following era 1600 to 1960, wood was industrialised globally and the full range of manual tasks and craft skills associated with wood were progressively mechanised and radically improved.

Industrialisation is a significant stage in this history because it was a period of transformation: supply and consumption greatly increased; cost of production greatly decreased; wood became globally traded; standardised products evolved and high technology products emerged.

Forestry railways in their timber harvesting role were a key element in this transformation: achieved low transport costs per unit volume; enabled high volume log supply logistics; was dependable through seasons and was versatile in many terrains.

The business investment model for forestry railways was the opposite of that for regular railways. This difference gave rise to distinctive forestry railway engineering that pushed the world's railway technology to its limits. This was especially so for forestry railways in mountain terrain.

The distinctive forestry railway engineering that carries these values is found in two groups of attributes: the construction attributes - the civil engineering features and the operations attributes - the mechanical engineering features.

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This process evolved over seven years interaction as a tutor on the UNITAR training course: Management of World Heritage Sites, 5 days long, offered in Hiroshima each April. Francois LeBlanc of Parks Canada initiated this approach. Development was greatly helped by participation in the Australian National University Advanced Professional Development Course offered in Port Arthur, Australia, enabling discussion with Michael Pearson and Sharon Sullivan. The process was tested by World Heritage work and research and development project work undertaken for the Department of Conservation in New Zealand and the Bureau of Cultural Heritage in Taiwan. Colleague Dr Sven Schroder is a valued mentor in this development, along with Duncan Marshall of ICOMOS Australia, and Professor Alex Yen of China University of Technology, Taiwan.

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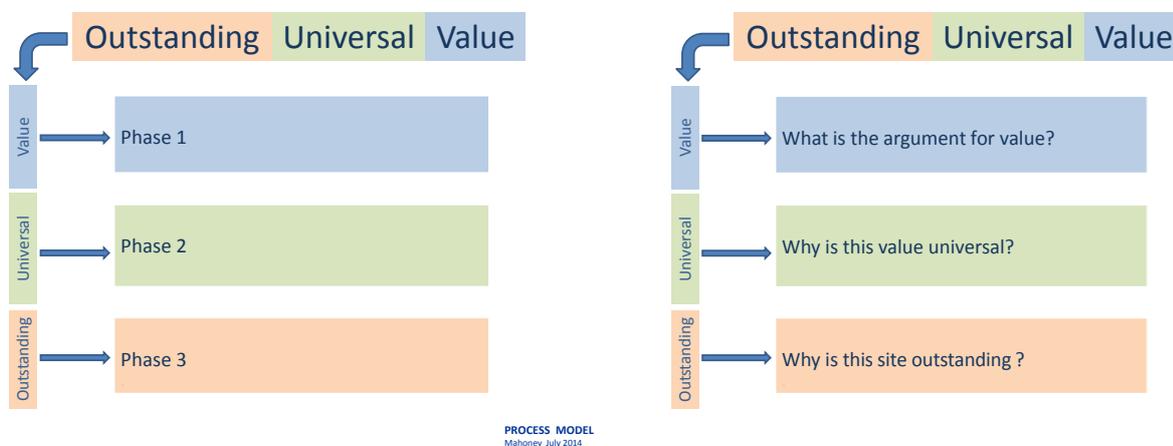


Figure 1: Investigative process derived from World Heritage Criteria.
 Figure 2: Key logic steps of World Heritage investigative process.



Figure 3: Elements of the Alishan Forestry Railway include a magnificent forest setting, a fleet of specialised Shay logging locomotives and log wagons, and trains for tourism, as seen in 1963.

Global Wood Model

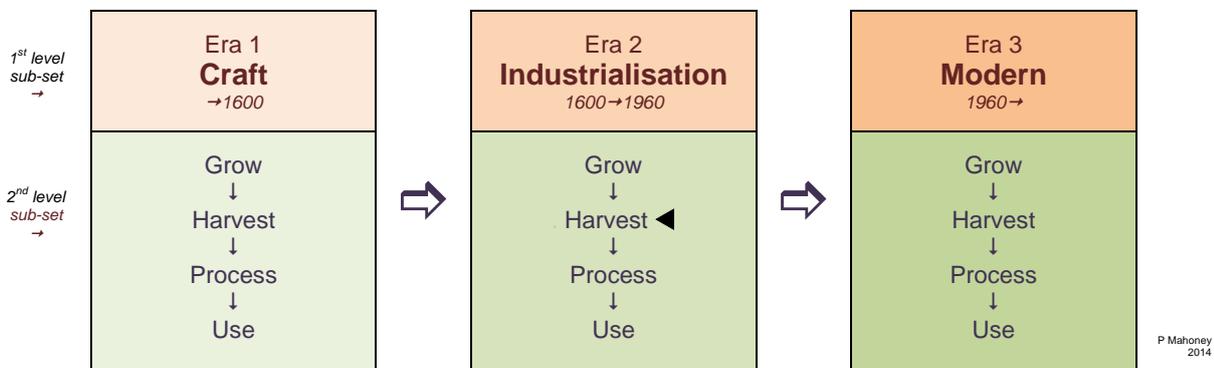


Figure 4: Model representation of the value Global Wood. Forestry railways are part of the era of industrialisation and are a major transformational element within the harvesting phase noted.

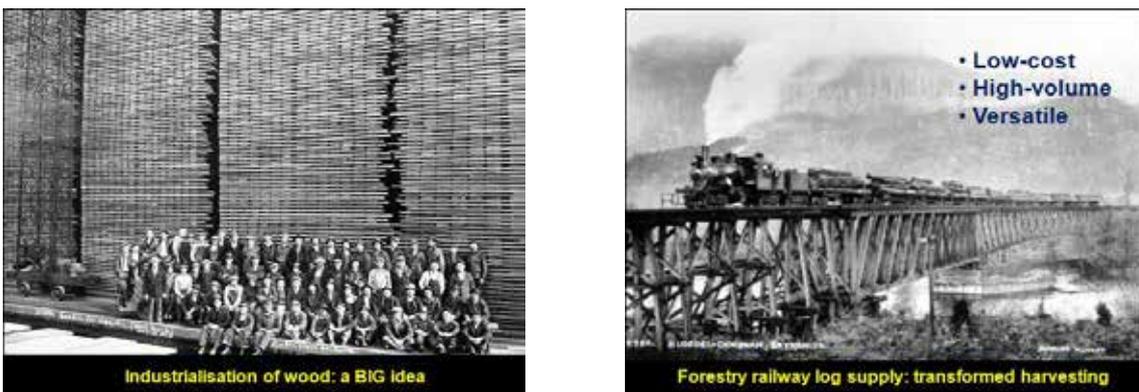


Figure 5: Examples of images that provide compelling evidence of values and also assist understanding of the attributes that hold the values.

Image copyright permission notes:

Figure 3: Image by late Charles Small, courtesy John Agnew, Auckland, NZ.

Figure 4: Images by late Darius Kinsey, courtesy Whatcom Museum of History and Art, Bellingham, USA.

Structural Characterization of Elements of Rammed Earth

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Abstract

Seismic structural performance of adobe buildings is not properly represented by design criteria of regular seismic codes, which establish a spectral analysis basis. A proper characterization of the non-linear behavior of adobe structural elements subjected to severe earthquakes is carried out for determination of the vulnerability of adobe buildings under severe earthquakes. New Chilean Norm NCH 3332 *Retrofitting of historic earth buildings – Requirements for the structural design planning*, introduced a seismic demand C factor, developed by a theoretical basis and judgment criteria.

Keywords: Adobe; Non-linear; Behavior; Seismic; Coefficient

1. Introduction

The structural performance of adobe buildings is not properly represented by the design assumptions of seismic design codes, which establish a spectral analysis basis (e.g. Chilean NCh 433 and other related). Characterization of the non-linear behavior of adobe structural elements subjected to severe earthquakes is needed for the determination of its performance under strong motion and hence the vulnerability of adobe historical buildings.

Regular engineering criteria, summarized in Chilean code NCh 433, are intended for reinforced concrete, reinforced masonry, as well as steel structures. Such criteria, applied to adobe structures result in the noncompliance of structures with a documented well behavior during exceptionally severe earthquakes, resulting in a poor qualification of the structural parameters that control the structural comportment of this construction archetype.

To achieve this end, the new Chilean Norm NCh 3332 *Retrofitting of historic earth buildings – Requirements – Requirements for the structural design planning*¹, included an evaluation of a seismic demand factor: C, modified by different conditions. In this paper we develop the theoretical basis for the background of this concept.

2. Characterization of the Material

Adobe properties differ significantly from regular standardized construction materials, being necessary a proper evaluation of the response during severe earthquakes. The characterization of the material has been developed by testing several samples^{2,3,4}, allowing the development of a stress–strain curve of unreinforced samples, as the maximum values of stresses and deformations that the material can develop before collapse. Well known is the material reluctance to develop tensile stresses, especially during several loading cycles, which is one of the characteristics of the seismic demand, recorded in different severe intensity earthquakes in Chile⁵. The material tensile strength has only been considered for the first few cycles before crack formation through the adobe element section, according with tested moment curvature curves⁶, which show significant differences in the adobe samples behavior, even for reduced values of tensile strength. For severe intensity earthquakes, which contain several cycles, the material tensile strength disappear in the first mayor cycles of an earthquake, changing the adobe elements moment – curvature, making the structural elements

¹ (INN, 2013).

² (Torrealva, 2009).

³ (Solis et al., 2010).

⁴ (Islam et al., 2006)

⁵ (Boroschek et al., 2010).

⁶ (Solis et al., 2010).

stability being developed by the compression allowable stresses which are variable through the analysed element height, width, and the resultant compression forces.

The material properties considered in the analysis are exposed in Table 2.1 (tab. 2.1), which include the characteristic dimensions of the adobe sample used in this study, while figure 2.1 shows the stress-strain relation for adobe samples in compression (fig. 2.1), which shows a top compression value of resistance before beginning of material degradation, and a sectional view of the considered adobe sample. Typical moment-curvature graphics before and after crack appearance are exposed in figure 2.2a and 2.2b (fig. 2.2a, fig. 2.2b). Tensile stresses are observed for first few cycles, regularly before the arrival of peak acceleration on the different analysed records. Methodology to obtain moment-curvature relations, based on basic principles of mechanics, has been compared against published tested values⁵. Computations take into account the adobe element thickness as a key structural parameter, thicker adobe elements have higher axial compression forces, which acting over a thicker element, provide a higher stability, allowing an increased resistance against out of the plane rocking. Care must be taken to the important thickness difference between tested samples and adobe elements considered in this study, being necessary in further research to corroborate the values obtained by actual testing of adobe full size walls.

As well as the quake progress, adobe elements are subjected to several load/unload cycles, following the degradation of the material compression strength at the non-linear range of deformations, as well as the element moment capacity, which is attenuated by the wide thickness of adobe elements used in Chile. Typical thickness values of unreinforced adobe walls are between 50 cm and 70 cm, with a typical height of 4.0 – 4.5 meters. The use of wide adobe walls are imposed by the occurrence of several severe earthquakes that destroyed most of ancient Chilean constructions, damages of different earthquakes are well documented in several books and reports⁷. For the purpose of this study, a 60 cm thick, 420 cm height, 100 cm width unreinforced adobe wall has been considered, configuration widely found in Chilean one-story earthen constructions (e.g. PAC school).

The material characteristics described here are used in the deformation computation and displacements developed by the archetype adobe element, by moment-curvature numerical integration. Typical distribution of curvature is strongly dependent of the compression axial force acting over the element transverse section. In general, compression axial force is provided by the weight of the wall and by supported roof members. The distribution of moment through the wall height has been obtained by a linear elastic model, which accounts the continuous distribution of the mass through the element height. Figure 2.3 exposes the curvature distribution over the height of an adobe element, showing an important strains concentration over the element base (fig. 2.3). Out of plane rocking is one of the predominant failure modes reported for adobe walls, that corresponds to the rotation of non-restrained adobe elements, leading to the collapse of the element. Determination of moment-curvature relation allows the computation of the lateral displacement capacity of an adobe element, a key parameter to evaluate the vulnerability under lateral cycled loads, associated with earthquake demand.

Accordingly, the quantification of a structural moment deformation capacity relation (fig. 2.4), based on a moment-curvature relation, allows performing time-history analysis for different strong motion records. The structural deformation capacity of the adobe members in actual structures is improved by the presence of members at the top of the wall, as truss structures, that allows the redistribution of load to perpendicular restraining elements. Redistribution of load are not considered in the displacement capacity of adobe members, as not all Chilean structures contain proper horizontal rigid planes which form a diaphragm incorporated in the lateral structural system.

The analysis is also conditioned by the material degradation at the non-linear deformation range, which needs to be properly evaluated, modifying deformations and displacements developed by the element under similar demands.

3. Seismic Coefficient Proposal

Results of this analysis provide a comprehensive background to understand the behavior of the material and its systems, making possible to numerically compute (characterize) this comportment through a C coefficient, which relates the weight and vertical forces with horizontal overall element demand.

For evaluating adobe wall vulnerability, nonlinear analysis has been computed for previously described adobe elements, by a set of records obtained from Llolleo 1985 and Maule 2010 earthquakes^{8,5}. Maule 2010

⁷ (Miranda, 1923).

⁸ (NOAA, 1996)

earthquake was characterized by a proper number of stations, reflecting different characteristics that since has been studied extensively. Both earthquakes affected numerous adobe structures built in central Chile. A set of corrected records are considered in the development of this study, in which are detailed the stations and the components considered in computations (tab. 3.1). For Llo Lleo 1985 earthquake, stations placed in Llo Lleo and Viña del Mar had been selected. For 2010 Maule earthquake, Concepcion and Maule station had been selected. Several reports⁵ shows the components of acceleration recorded from different stations during both earthquakes. For analysis purposes, only horizontal components have been analyzed, although high values of vertical acceleration had been recorded in several stations. Record selection has been based on judgment, intensity, availability of documented adobe structures, and epicentre distance. Considerations must be given to the extremely severe nature of Chilean earthquakes, reflected on the damages observed in modern reinforced concrete code designed structures, the high value of peak accelerations measured in several station and the long duration of the shake. Chilean earthquakes represent a serious vulnerability source for adobe buildings, having in consideration the occurrence of relative recent non measured stronger earthquakes, as Valdivia 1960.

Records are individually scaled referred to their spectral linear response, fitting the spectral acceleration to the prescribed value in the design spectra defined in Chilean seismic code, as a tool to avoid extreme values that can affect the proper evaluation of the seismic demand considered over analysed adobe elements.

It has to be noted that proper behavior of well-conserved adobe constructions has been extensively documented, including massive structures such as San Francisco church in Santiago, built in the XVII century. Structures with poor conservation measures suffered severe damages, leading to the collapse of several adobe buildings.

Computations follow Newmark time history analysis method⁹, in which dynamic analysis consider the nonlinear branch of the adobe element response. The nonlinear branch of the response is associated with the damage of the element. Considering the nonlinear branch of the response is a measurement widely employed in seismic codes. Damage of structural and non-structural elements could be no tolerated in high value heritage constructions. Numerous techniques have been elaborated to avoid this element incursion in the nonlinear branch^{10,2,3,6}.

The analysis of the different characteristics described in this report, specially the nonlinear branch of the response of an adobe wall, allows a force and displacement quantification acting during the earthquake action. Table 3.2 (tab. 3.2) shows the displacement values obtained at the top of the analysed adobe element. By comparison, adobe element deformation capacity, characterized in figure 2.4, is sufficient to sustain the induced demands by the different records. Figure 3.1 (fig. 3.1) shows the response over the time of an adobe element subjected to Concepcion longitudinal acceleration record. The values of deformation at the figure are close to collapse, even for well conserved adobe walls. This confirm the necessity of a continuous evaluation of adobe structures, and the implementation of conservative measurements in behalf of the security of the structure.

Based on the damage observation of the Maule earthquake results, and the theoretical study here exposed, a C coefficient has been specified in code NCh 3332¹. Considering a coefficient $C = 0.12$, which is the demand associated for regular heritage constructions, with a higher occupancy category, applied over the adobe element total height, result in the demands described in figure 3.5, which are close to the moment capacity of the wall determined from the analysis detailed in section 2.

Regular NCh 433¹¹ seismic code, associated with reinforced concrete, reinforced masonry and steel structures, prescribe seismic demands estimated in three times higher those of NCh 3332, which are detailed in table 3.2. (Tab. 3.2). Previous engineering practice, of applying without mayor hesitation the seismic demand specified in NCh 433, result in many out of code buildings that had to be intervened with criteria elaborated for other materials with different behaviors.

As a result of field direct observation during Llo Lleo 1985 and Maule 2010 earthquakes, and engineering analysis, the proposition of a C coefficient contained in NCh 3332 is given as a tool for the determination of the vulnerability of adobe buildings under seismic loads associated to severe strong motions, that, in combinations with other well-known practices¹⁰, are intended to safeguard the heritage contained in adobe buildings, as well as their inhabitants.

⁹ (Chopra, 1995).

¹⁰ (Tolles et al., 2002).

¹¹ (INN, 2009).

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Material	Stress MPa		Density gr/cm ³	Dimensions m		
	Compression	Tension		Height	Thickness	Width
Adobe	1,10	0,20	1,60	4,20	0,60	1,00

Table 2.1

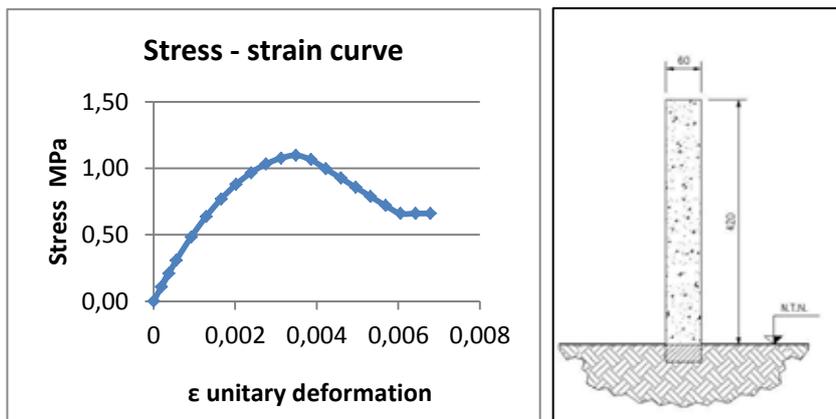
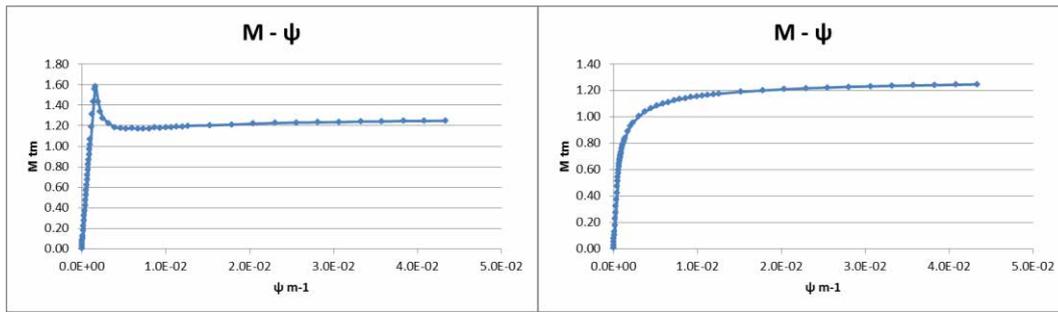


Figure 2.1



Figures 2.2 a) Left. 2.2 b) Right.

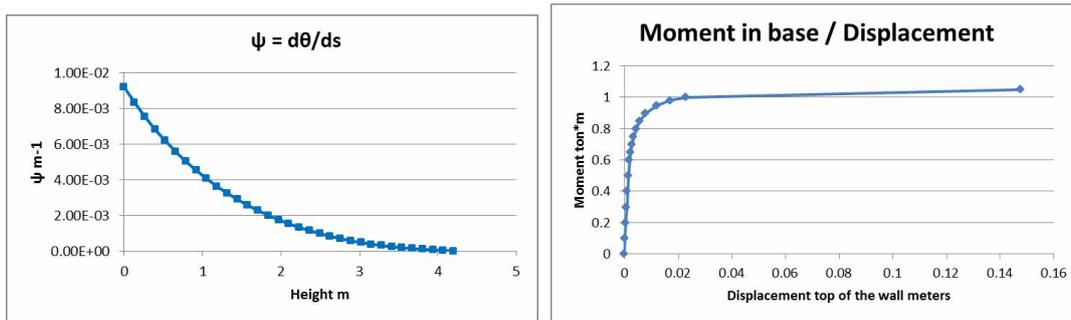


Figure 2.3 and Figure 2.4

Earthquake	Station	Record	Direction	Peak Acceleration cm/s ²	Maximum displacement cm
Llo Lleo 1985	Llo Lleo	chi01.055.100	100°	436.8	8.95
		chi01.057.10	10°	698.2	9.06
	Viña del Mar	chi01.059.290	290°	232.7	5.58
		chi01.061.200	200°	355.6	4.22
Maule 2010	Talca	talca1002271chan1	L	462.2	4.13
		talca1002271chan3	T	407.5	4.77
	Concepción	concepcion1002271chan1	L	393.2	11.40
		concepcion1002271chan3	T	280.4	4.78

Table 3.1

Figure 3.2

Element	Nch 3332		NCh 433	
	Moment t·m	Shear t	Moment t·m	Shear t
Adobe wall	1.02	0.040	3.1	0.13

Table 3.2

Uses of Augmented Reality for Architectural Conservation Case of Msfau Findikli Campus Example

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Abstract

In past 20 years, advances in ubiquitous computing have made a substantial impact on daily life and continue to inspire with wearable and cloud computing. These events had effects on our culture while transformed our daily life into as the digital information embedded. This work is another effort to understand how this new era changes users and conservation professionals' perspective in relating, understanding, and making decisions about cultural heritage and their environment using AR (Augmented Reality).

Keywords: *Augmented Reality; Digital Heritage; Mobile Applications; Double Palaces*

1. Introduction

Augmented Reality environments makes it possible to experience both physical and virtual space simultaneously. With this opportunity of hybrid experience different "layers" of a "real" space can be superposed and this makes it possible to experience the implicit information attached to space.

When constructing an interpretation using this tool, superposition of visual, audio and written information as various layers from different timelines (within context of the principles of The ICOMOS Charter for the Interpretation and Presentation of Cultural Heritage Sites) presented new possibilities for conservation of tangible and intangible heritage and how to carry them into future.

Authors are carrying through a research project in Double Palaces (which was used by various purposes through time and currently Mimar Sinan Fine Arts University Findikli Campus), order to test this projections and construct possible methods of interpretation and presentations.

The project's focus is to determine the effects of augmented reality tools in the spatial perception of users, its effect on user's conception of space and it's usability in architectural conservation using data provided from users.

2. A Multi Layered Architectural Heritage; MSFAU Findikli Campus – Double Palaces Example

Seafront Double Palaces were built by Garabed Amira Balyan between 1856 and 1859 for the daughters of Abdülmecid, Cemile and Münire Sultans. Cemile Sultan Palace is located on the Findikli side Münire Sultan Palace Karaköy is situated in the Karaköy side¹.

Cemile Sultan Mahmut Celaledin Pasha married and lived here until 1884, afterwards the palace was used Sultan Abdülaziz's daughter Nazime Sultan and her husband Dervish Pashazade Ahmet Pasha.

After the fire of Çırağan Palace in 19 January 1910, Cemile Sultan Palace, which was bought from inheritors and served as Ottoman Representatives Assembly starting from 1913 until the last meeting of the Meclis-i Mebusan in January 12, 1920, has hosted meetings. The building was used as a Liberty Court before moving on to the Fine Arts Academy².

In 1926, by Atatürk's will and with the approval of the Assembly of the Turkish Republic palace was assigned to Sanayi-î Nefise Mekteb-î Âlisi and started the palaces transformation process of becoming an educational facility. In this process, first of all that the north side sofa, divided into two and dedicated to painting workshops, and to receive more light, windows groups located on the facades dual and triple were combined to one (image 1).

¹ (Tuğlacı, 1981):

² (Tuğlacı, 1981) (Karakaya, 2006):

Side sofa on Münire Sultan Palace was separated and dedicated to the library. Main Hall on the second floor which was used as a courtroom and before then was the Assembly Hall, turned into the Conference Hall³.

The fire that took place on April 1, 1948, damaged not only the palace, but caused the loss of archives and works which was production of prior era since the foundation of the Academy. After fire, the job of overseeing the renovation project was appointed to a commission established from the members of the Department of Architecture, and project prepared by Eldem and Handan was accepted by majority of and has been applied⁴. Eldem and Handan's work also had the traces from Le-Corbusier and A. Peret leading architects of the era.⁵ April 23 in 1953, the Academy was re-opened for education.⁶

The second of the double palaces is the Münire Sultan's Palace. After the death of Princess Münire Sultan in 1862, the palace was first assigned to Sultan II. Mahmud's daughter Adile Sultan and afterwards Saliha Sultan daughter of then Sultan Abdülaziz's.

After the proclamation of the Turkish Republic palace served as III. Corps, later used as the Headquarters of İstanbul Military Command. In 1943-1952, building transferred to the Ministry of national education used as İstanbul University, Faculty of letters, and finally until 1970 served as Atatürk high school for girls (image 2).⁷

Parallel to the expansion of students and academic staff Cemile Sultan Palace's Capacity now used as "Academy" was not able to respond to the numbers. In addition in 1957, when expanding Meclis-i Mebusan Street, street expanded to premises of the academy, some of the external buildings were lost. Therefore the Academy management began to work for the addition of Münire Sultan Palace to Academy. following the applications Münire Sultan Palace was passed to the Academy of Fine Art in 1969.⁸

In start of 1970's between Münire and Cemile Sultan Palaces, a dining hall was built near the Taut Atelier and in the same year, another commission was formed from the instructors of DGSA Architecture Department and S.H. Eldem's which was a very similar project to Cemile Sultan was projected and built. 21 November 1975 building has started to serve as a part of Academy.

Simultaneously an auditorium and an administrative building was built, which designed by S.H. Eldem, between meclis-i mebusan Street and Münire Sultan Palace. As the unification of the palaces required the re design of the connection of two buildings, library block was built.

Although Münire Sultan Palace was used for different functions, including educational uses, spatially the building weren't changed drastically until 1975. Design principles of renovation project prepared by Prof. Sedad Hakkı Eldem is very similar to the renovation project of Cemile Sultan Palace after the fire of 1948. The design was prepared for building techniques of modern era which required the dismantling wooden parts of the building, this radical decision was a result of the concerns a future fire.⁹

Transformation project, have preserved the character of coastal palaces, specific to the building, a cross-like central hall at the ground floor, two floors with high ceilings total of three floors. The building is divided into two by the middle sofa situated at the buildings entrance, leaving a two storied space on the ground floor made it possible for a monumental entrance hall. Continuation of middle sofa plan in the renovation project also made it possible for the continuation of the authentic arrangement. Like all other coastal palaces and mansions, interior opens up to both land and sea.

The primary point of the design is, as built in the Cemile Sultan Palace, combination of vertical and horizontal spaces resulting in a depth of perception. These spaces were used to convey light inner sofas.

However, complete removal of wooden construction and authentic details and ornaments, made this transformation controversial, discussions continues between former users of Atatürk School for Girls and conservation specialists. The ferro-concrete system built chosen in consideration the risk of fire nowadays again under another intervention in consideration of risk of an earthquake the changes are being made in order to comply altered building codes.¹⁰

³(Aysel, 2012).

⁴(Eldem & Handan, 1954).

⁵(Aysel, 2014).

⁶(Aysel, 2012).

⁷(Türkmen, 1999).

⁸(Türkmen, 1999).

⁹(Türkmen, 1999).

¹⁰(Aysel, 2013).

3. ARcademi, Multi Layered Heritage Experience

Augmented Reality as a section of Virtual Reality was a promising field of work since early inventions of Head Mounted Displays though in these last few years as ubiquitous computing evolved, augmented reality is much closer now for living up to expectations. Cumulative knowledge linked to space became virtually tangible through these techniques with a better story telling.

As a part of project in order to add the layers of perception, previous functions and spatial changes made in the Mimar Sinan Fine Arts University Findikli Campus have been gathered from archives and documented. In the light of gathered data, augmented reality scenarios and experiences are constructed within the ARcademi AR exhibition (images 3-5).

ARcademi involves data from different timelines gathered from books, university archives and other works about the heritage. The data gathered classified in the manner of both time and place and then created 20 scenarios to cover the life span of the buildings and their environment. Gathered data also included a social narrative to Mimar Sinan Fine Arts University Findikli Campus, which was previously National Academy of Fine Arts. This gathered data also tells another story of intangible heritage expanding more than 120 years of education in fine arts and architecture were intentionally left for a designated experience.

In this study, In order to facilitate AR environment, Metaio AR design environment was used (Metaio Creator, Junaio, Metaio Toolbox, etc.). Using this AR environment also made it possible to for use to develop the experience in both Android and IOS platforms which was essential for reaching a broader audience. The 3D reconstructions were made in sketchup. Other software used to manipulate images were Photoshop, Autocad and Kubit Photoplan. Also audio narratives added to enhance the experience.

Although Metaio AR design environment hold lots of choices to develop an AR experience and very robust when compared to industry standards, AR developing is still a job for experience involving some coding, data manipulation and understanding attributes of the spaces (changes in day light, color, shapes, size, etc.). Choosing the right trackable type for AR environments proved to be a bigger problem than expected. Especially the properties of light changed through the day and interior lighting made it difficult for creation of trackables. Therefore we used a rather conventional method of image tracking, which gave a clue for the visitor for an AR experience.

4. Method for Evaluation: Techniques of Evaluating AR Experiences

Evaluating AR environments as a subset of virtual environments can be measured with a sense of 'presence' which can be described as the level of sensation 'being there'¹¹.

To this time the initial testing is completed and experience will be available at 1-30 November 2014. In this phase of data gathered from visitors evaluating the perception and conception of exhibition spaces which will be conducted concurrently with the exhibition. In guidance of this data the effect of spatial perception on conservation process will be determined.

Champion (2011)¹² classifies the types of Evaluation AR experience as expert testing, content and media comparison studies, physiological testing, task performance, surveys/questionnaires and Ethnographic evaluation. These evaluations varied according to the intention and properties of AR experience. Expert study was carried out among the specialist had prior knowledge of the Mimar Sinan Fine Arts University Findikli Campus and its past. Media comparison study was also bound by the AR environment capabilities of Metaio environment therefore comparisons were made between possibilities of the environment and authenticity of data without compromising user experience. Task performance evaluation which could be useful for evaluating the experience was not available because of the limitations of interaction in the chosen Metaio environment.

A questionnaire for visitors is prepared gathering the demographic data, occupations, their prior knowledge of VR-AR environments and ubiquitous computing. The involvement of the experience will be measured through users' reaction to the experience. Questions designed to get the answers from users to scale the gain of the experience and if this changed their perspective to the environment. Mainly Likerd scale (from 1-4 1 being least) used for measuring the emphases. Questionnaires will be conducted after the experience with and without social interactions (with a group and individual experience). The social media posts of the visitors will also be an addition to questionnaire for evaluating the experience.

¹¹ (Champion, 2011).

¹² (Champion, 2011).

5. Research Results

Beside the important task of dissemination of implicit spatial information with the masses, this tool can also be considered as a new tool for conservation specialists to experience the different layers of heritage simultaneously concerning a conservation decision. The presentations of heritage and heritage sites using this tool also has a potential of improving information flow between conservation specialists, non-specialist interest groups and masses.

Although the initial testing is concluded following conclusions can be made. The mere existence of the AR system and availability of different media embedded in a spatial guided system will open debates of conservation among students of architecture faculty and all of its users. Especially for the structures just like Double Palaces, which changed its purpose of use over time and still maintaining their use this method has proven its' use. This technology has its' use for presenting another along with current state of spatial properties. This attribute creates possibility of different interpretations of a heritage therefore creating a shared holistic interpretation of space.

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Image 1: Cemile Sultan Palace seaside façade (photographs from 1940's, after the fire, after the renovation and current state).



Image 2: Entrance of MSFAU Fındıklı Campüs, (photographs from before (below) the renovation and current state (above)).

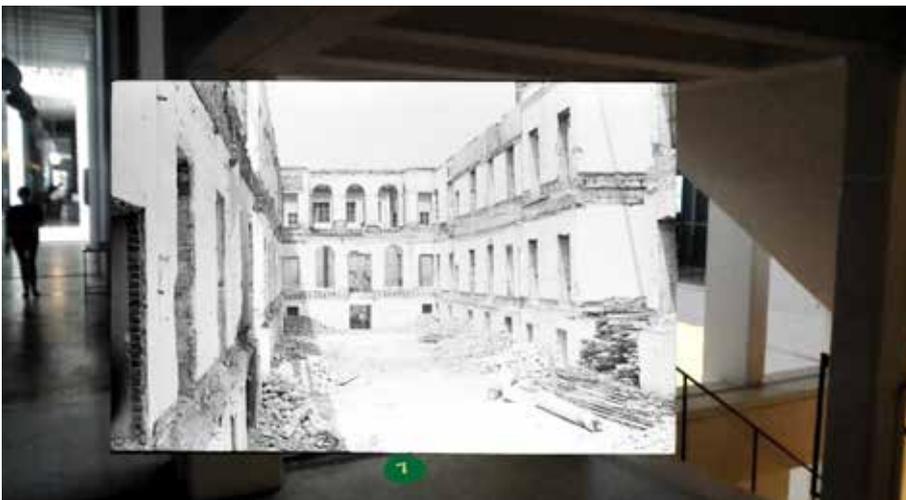


Image 3: ARcademi AR experience, Image from Mönire Sultan after demolition embedded to current space.



Image 4: ARcademi experience view from entrance to up.

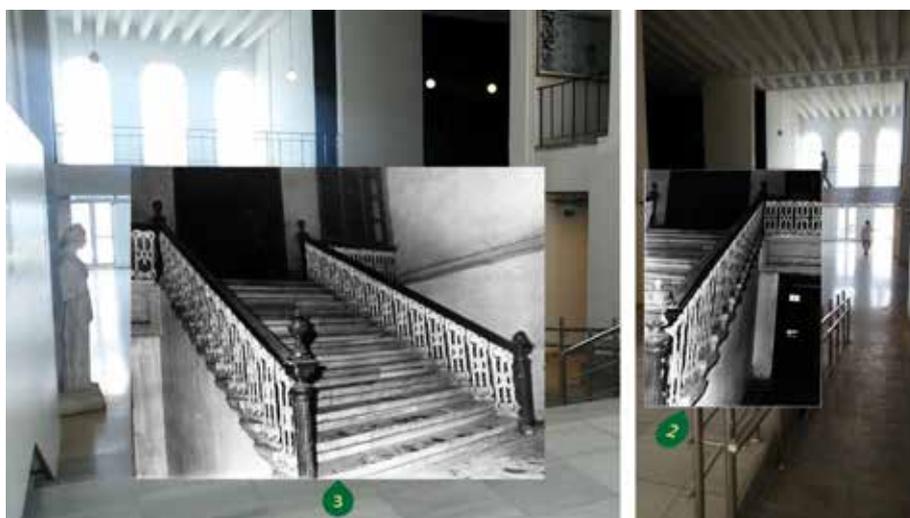


Image 5: ARcademi experience view from entrance.

Inhabitants Values within a Built Conservation Area: Case Study of the Darmo Settlement, Surabaya, Indonesia

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Abstract

Mostly conservation process of a built heritage area seen through the expert's perspective: architects and urban planners. A research on inhabitant value toward their heritage area is considered rare. Scholars mentioned that inhabitant awareness is a tool to a successful conservation program. Therefore this research aims to explore the inhabitant's values.

This case study is about the Darmo Settlement. The historical area was built in around periods 1940 in Surabaya City, East Java Province, Indonesia. Many old buildings within this area have been changed into modern, the function also changed from residence to commercial. This paper explores the inhabitant's value within their residential area. It is found that inhabitants appreciated architectural value, showed aspects attachment to place and neighborliness.

Keywords: *Attachment to Place; Neighbourliness; Heritage Values*

1. Background

This paper shows inhabitant perception of heritage area. The research was carried out in the Darmo settlement, a designation area to explore inhabitant opinion within their place which can be assumed as reflected human value within. Research in inhabitant perceive on built heritage area is rare. Mostly research theme in built heritage shows in assessment on physical aspect and landscape. Conservation of built heritage area preserve quality and character of the place which mostly decided by architect, city planner and government. These aspects within the areas are buildings, street pattern, trees (Larkham, 1996; Pendlebury, 1999). Preserving the built heritage areas need to engage the inhabitants (Worthington, 2007; Rodwell, 2007). It raised a question what about the inhabitants opinion. These questions are how people opinion toward the designation within their area?

How do inhabitants perceive their area? Are they appreciate the built heritage values which expert mentioned? Are they also interested in heritage buildings, old trees, and other possible aspects within the area? Are there another factor contributed to their awareness? This paper analyses a case study in a designated heritage areas in Surabaya, Indonesia. Literature in the research field of heritage area, management of the area and inhabitant attitude toward heritage area is based on Western scholars (Fielden, 1999; Halbwegs, 1930; Hayden, 1995; Jokilehto, 2005, Worthington, 2007; Rodwell, 2007). Further research on valuing housing heritage is conducted by Peter Malpass in Gibson and Pendlebury (2009).

This research is held in Surabaya City, the capital of East Java Province, Java Island, Indonesia. The Darmo settlement in Surabaya is a first designated heritage area, it announced in year 2000. The area is chosen because of historic matters; it was built in the period 1950 during the booming market era, in the historic period of Indonesian independence. The area was designed for middle and upper class Surabaya during that time, until current recent time the areas associated with elite Surabaya people. The settlement is extended city area in Surabaya, from the northern part, as booming real estate within in year 1950 (Dick, 2002; KTOMM Bronbeek, 1960). The heritage expert in Surabaya believe that the area is one of the oldest planned residential in Indonesia. Before declared as heritage, Surabaya Municipality had started inventory process and resulted with installation of placate on around 600 buildings in 24 streets in the Darmo area by 2008.

2. Inhabitants values toward the area

The question that arose is that positive feeling toward the area will have an impact toward preservation of a heritage area? The inhabitant feeling in terms of secure, attachment to place, neighbourhoodness

reflected what inhabitant valuing within the area. When starting this research, a question raised why should conducting study on people attitude toward their own area? Do people suppose like the area because it belong to them?

There is a research on inhabitant perception toward their residential heritage area. The research was conducted by Pendlebury and Townshend (1999). It concerned on inhabitant awareness toward an ideas of conservation areas: the purpose, concept and practical implication of their areas. It shows relation between inhabitant age and length of stayed toward heritage area. It continued with an economic value on the designated area which conducted by Ahfeldt *et al.* (2012). This research which was conducted in the same areas shows that inhabitants have a positive attitude toward heritage area. It could result in increasing the economic value of the area. Besides financial aspects, according to some scholars, even further research on the emotional reaction of inhabitants and its impacts on the conservation process could be conducted (Hague and Jekins, 2004).

Scoupe inhabitant in this paper is not only for household, but also for people working within the area. This research observe both of this categories, in order to see the whole experience staying in the heritage area. From this field research survey it is found that both category have interest in the old environment. Inhabitants in show a positive feeling toward the Darmo heritage area, both physical and non physical aspect. Inhabitants express an attachment to place, a neighbourliness, and a feeling secure living in this area. They also appreciated value of building age, building aesthetic, and for most household inhabitant a value of inherited house from two generations.

It is found that most of inhabitant living in the same streets are relative. In this case their bound to the family affects their appreciation to the area. Since most of them have lived there for two generation and spend their childhood here, their attachment to this place contribute to the awareness of heritage.

Senior inhabitants, who are in their 70-80, mostly valued age, beauty and uniqueness in their building and grandeur of the old environment, during interviewed sessions, one resident mentioned: "Yes I appreciate these old of building, it was built in 1923, my parent bought this building in around 1940. I think it is my duty to preserve it. Moreover I know my neighbours for so many years, I think it is very comfortable to live in a secure area like this". The other interviewed senior citizen, he is in 85 years old, he mentioned the environment is much more important compare to the building. "You can have a very beautiful house, but you can not enjoy living in it if your your neighbourhood does not friendly and secure, you will not be able to sleep well and feel peacefully".

Inhabitants who are around 40-50 expressed their appreciation toward their building. They appreciated ages and highlighted the architectural qualities. The building rareness compares to modern one, building's double brick wall which implies to inner building thermal comfort and strength. Problem within their old building mostly are in a maintenance of the infrastructure. The inhabitants mentioned that living in this area is very comfortable. Problem are in taxation. In one part of interviews session they mentioned "I am worried if I can not stay longer and need to move to found a cheaper area. The taxes of this area is quite expensive compare to other area in the Surabaya city, in the Darmo settlement yearly taxes range is 5 million IDR (around 328 Euro) to 20 million IDR (1.315 Euro). The inhabitants appreciated old trees in this area. During the interview this group of ages also share their childhood memory living in this area. When their parents bought these house, what changes into the area from housing to commercial. During the interview focus of these inhabitant in infrastructure within the area, but still they valued the ambient and peace within the area.

The younger inhabitants in around 20-40 years old mentioned that they like to live in this area because the area is nice, they feel comfortable living within this neighbourhood. The architectural quality and spacious home layout is also other supporting feeling in this environment.

Furthermore, inhabitants who work in this area mentioned the atmosphere of this old environment as comfortable with terminology cozy. They also preferred to work in an old building due to the ambient which they called homey atmosphere. During interviewing session they mentioned preference to an older than modern building, because new buildings look the same, no uniqueness and fabric.

Most respondents valued thermal comfort within the area and micro climate in their houses. The daily temperature in Surabaya is around 35 degrees Celcius in dry season (Center of Meteorology, Climatology, and Geophysics at Juanda and Perak, Surabaya year 1997-2011). The glare in a street without trees is also unbearable. The residential area which having a shady environment was perceived as a luxurious, compared to a newer residential area which normally having less trees.

Inhabitants showed a social capital form that was reflected in a communication in the neighbourhood and other social cohesion within them. They were gathering in funeral and social meeting. In a smaller scale streets showed stronger connection. In the Ronggolawe, Anwari, and Mojopahit street inhabitant showed more cohesion compared to larger scale such as Darmo, Diponegoro and Kartini street.

3. Findings

It is found that inhabitants perceived the Darmo Settlement as one of a Surabaya city identity. They recognised their area as part of historical area which need to be preserved. The second finding, they have shown a positive attitude, feeling proud to be identified as the Darmo settlement resident. Living in this old environment neighbourhood associated with a good label of Surabaya citizen. The third finding is mostly inhabitants valued feeling: sense of security, feel part of the community, knowing the people in the neighbourhood.

This outcome of inhabitants awareness are varied: not all of the listed buildings are well maintained.

It is also found that although several owners are refusing the conception of heritage for their properties, they kept their building in well maintained condition. This attitude was based on assumption that conservation policy will affected the property values when they sell them. On the other hand, some buildings are not in a good maintenance, but from the owners mentioned that they were very aware of heritage concept. Should a less maintain building lead to unaware inhabitant attitude? This phenomenon are mostly because lack of resource funding of the owner. Mostly senior citizen who live in the Darmo area are pensioners. They do not have enough allowance for maintain their buildings. Not all of them can have reduced tax support from the Surabaya municipalities, due to the assumption that citizen who live in a prime location of the city are associated as rich. Therefore the inhabitants especially who live in arterial street, should not need any form of support.

Problem occurred when conducting this study is that people refused to engage in the interviews. Mostly the senior inhabitants do not believe the purpose of the interview. One of my respondents mentioned she was worried of a fake research survey. Due to her security, since she was alone in her house. It needed six time to convince her to purpose of this research and finally she shared her opinion. This finding feeling toward strangers was contrary compare to neighbourliness within them. In the case of inhabitants who accepted this survey, they were very open shared their opinion toward their area.

Assumption of lack communication within inhabitants due to high fences within the area can be very wrong. This features has not reflected a form communication within them, the inhabitants know their neighbour. They were also once refusing a large scale of buildings, they were gathering petition to that case. Other interesting finding that when questioned whether they want to participate in a heritage agenda? Not all of respondents shown positive responses, even if their buildings showed a form of an awareness. Therefore a way to deliver a act conservation area need more attention.

4. Conclusion

Inhabitant willingness to preserve the heritage area and live in the old buildings depends on several factors but mostly because of nostalgic matter. Another group living in this area prefers modern building or style. The first group will keep their building with all cost because of their personal interests, but the second type will alter their buildings into a modern one if allowed. Senior citizen attached more to the neighbourhood due to its location. They have better access to the city facilities, their friends and relatives who also living within the surrounding area. For peoples who work in this are, they mentioned that the neighbourhood as a comfortable place to work, it's shady, quite and spacious.

Inhabitant perceived value in aesthetic and uniqueness within their buildings. They mentioned appreciation within the building shape with the term beautiful. Since the designation of the area aims to preserve character which showed in buildings, trees, street pattern and special features, therefore this finding of this paper confirmed that the inhabitants shown awareness of these aspects. They appreciated old buildings, old trees within the area, a historical value within it.

The residents valued age within the area, furthermore they appreciated a memory and history of the area. The willingness to stay in this area due to appreciation of their previous generation. Mostly the inhabitant is the second generation and third generation. Most of the inhabitants also appreciated architectural features in form of uniqueness of the building, age of the building, memory within the area.

In conclusion, it is important to consider inhabitants awareness in a process of built heritage conservation. Furthermore, it needs considering both social and economic living conditions of the inhabitants. Regarding

the Darmo settlement area, the inhabitants value their built heritage area and have the potential to engage in the conservation, as it is reflected in the result of my research.

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Image 1: An example of a building inhabited by 87 years old senior citizen of the Darmo settlement. He mentioned milieu: a cleanliness, a feeling of safety and comfort were very important (2014).



Image 2: Other example of a building inhabited by citizen of the Darmo settlement, the young inhabitant expressed awareness in conservation (2014).

Community Engagement for Jamaican Heritage: Case Study on Caribbean Historic Urban Landscape

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Abstract

This paper shares the case study of three Caribbean historic urban landscapes, Spanish Town (ca. 1519), Kingston (ca. 1692), and Falmouth (ca. 1770s) in Jamaica. It is based on work undertaken since the 1980s in these urban environments, and examines lessons learnt to inform future efforts. Suggesting that the towns survive with major aspects of rich Jamaican cultural industries bringing global attention as host for potential sustainable heritage tourism products, the paper argues that this would only be achieved through meaningful community engagement that should embrace emerging technology.

Keywords: *Youth; Cultural Mapping; Regeneration; Social Threshold; Tourism*

1. Introduction

The historic urban landscape of Caribbean Small Island Developing States involves the intimate dynamics between land and sea, a relationship of harbour and its port town that speaks to adaptability for survival, and resilience especially in climate change. The historical growth and development of Caribbean cities centred on the movement of goods and people during the Atlantic trade of enslavement, which ended in the nineteenth century leaving a footprint of intricate social patterns and complex cultural values.

Declaring historic zones and heritage significance within Caribbean cities demand special handling for the inclusion of other voices, and improved diverse stakeholder engagement. Whose heritage is it? What values should be applied? Which components should be preserved and why? How is meaning appropriated?

The case studies from Spanish Town, Kingston, and Falmouth in Jamaica show regeneration of the urban environment requiring new approaches that are social and inclusionary for communities that co-exist within the city, whether the business sector or the residential living below poverty levels. These experience are showing that preservation efforts to revitalize Caribbean cities would need to bear cognizant of socio-cultural values. Veirier (2008, 6) advocates different approaches of heritage, economic, environmental and sociocultural linked together and complementary to spell long-term success.¹

This paper will review methodologies and their developments. It will examine Jamaican urban restoration interventions since the 1980s, and discuss emerging practice using multi-disciplinary professional teams. The paper will also share initiatives involving youth in heritage.

Founded ca.1520, Spanish Town was called *Villa de la Vega*. By 1534 it became the Spanish capital. Jamaica was the dukedom of Christopher Columbus, and the title '*de la Vega*' still remains with the Columbus family although the English captured the island from Spain in 1655. Located along the Rio Cobre, the town was founded as an approximately one-mile (1.6 km) grid with a central square [*plaza mayor*] settled atop the Aboriginal Taino city in the southern interior of Jamaica (Green, 2012). Its Spanish heritage was subsumed into English developments and the town was named "St Jago de la Vega" (Robertson, 2005). Surviving as one of the oldest continuously inhabited cities in the Americas, Spanish Town holds significance as the legislative seat until 1872 when Kingston became the capital.

Located on the south coast of Jamaica, Kingston was founded after the 1692 earthquake and tsunami destroyed the infamous buccaneer town of Port Royal, the first Jamaican town erected by the English. Two-thirds of Port Royal remains submerged in the Kingston Harbour as archaeological underwater cultural

¹ Laure Veirier (ed.). (2008). *Historic Districts for all, a social and human approach for sustainable revitalization: Manual for city professionals*. Paris, France: UNESCO. Retrieved from <http://unesdoc.unesco.org/images/0015/001583/158331e.pdf>.

heritage on the Jamaican Tentative List for World Heritage nomination (Green, 2013). Kingston is a one (1.6 km) by two mile (3.2 km) grid plan of alternating wide streets, narrow lanes, and a central square [Parade]. It was the largest and most prosperous of the British Caribbean towns maintaining its wealth after the 1808 Abolition of the 'slave trade' because the merchants continued this contraband trading with Spanish territories (Clarke, 2006; Marley, 2005). Nine years after the 1834 Declaration of the Emancipation from slavery, its population was about thirty-three thousand persons "of all descriptions".²

Falmouth, founded on the north coast in the 1770s became in 1795 the capital of Trelawny, a Parish with large plantations demanding enslaved labour. Significant as a prominent trading port for enslaved Africans (Bleby, 1868), Falmouth was the principal port of disembarkation in the Americas between 1792 and 1808 when its harbour teemed with slaving vessels. By 1817 it was the second largest town in Jamaica and the British Caribbean with a six-by-eight-street grid west of a central square connected with a six-by-five-street grid at a diagonal (Green, 2014).

2. The case of Falmouth: Whose heritage is it?

Heritage restoration in Falmouth receives equal praise and equal criticism. I would argue that critical concerns generally stem from whose heritage is promoted. Under the 1985 Jamaica National Heritage Trust (JNHT) Act, a section called the Falmouth Historic District (FHD) with "rich architectural and archaeological heritage" was declared a Protected National Heritage Site in 1996.³

Since 2001, the Falmouth Heritage Renewal (FHR), a US 501(c)(3) non-profit public charity, has been spearheading the restoration of "Falmouth's British Colonial architecture". The FHR tags Falmouth as containing "the largest intact collection of British Colonial architecture in the Caribbean", also "structures followed English design books, were built by enslaved craftsmen who adapted the plans to suit the tropical climate".⁴ The FHR had planned to turn Falmouth into a Williamsburg style living museum with replicas of tall ships in the harbour, trolley cars, and buggy rides to plantations and historical sites of glorious industry, for which Figueroa questions, "what are the great glory days to which Falmouth must return"?⁵

Early historic preservation concepts promoted the historic district requiring management in a curatorial sense as a historic spatial module with the formulation of a correct preservation policy necessitating analysis of local conditions with the objective to maintain the physical and aesthetic integrity, and the well being of the resident population (Fitch, 2001). Gustavo Araoz recognised this type of curatorial intervention by FHR as seeming to be the principal objective, yet cautioned that it may be viewed as "a mere confirmation of the Eurocentric tradition of conserving monuments and sites".⁶

The citizens of Falmouth had already raised concerns that the management systems for the preservation of its historical legacy have resulted in estrangement of the general community and asked for improvement.⁷ By the 2011 opening of the Falmouth cruise ship pier, a US\$ 220-million joint-venture project between the Port Authority of Jamaica and Royal Caribbean Cruise Lines,⁸ the situation seemed to have worsened. While Falmouth has welcomed the most cruise ships and is responsible for 55 per cent of the cruise visitors to the island, local businesses are not getting the expected spin-off benefits.⁹ Highlighting Caribbean scenarios, Araoz elaborated that for any work of this sort to be successful there also has to be a demonstration that the local cultural heritage can bring economic benefits to local inhabitants with a careful balancing act to prevent the local residents from perceiving that their heritage resources and historic commercial districts are off-limits to them, and for the exclusive use of tourists.¹⁰

² "The City of Kingston, Jamaica", *Illustrated London News*, October 14, 1843, 245.

³ Falmouth Historic District declaration. Retrieved from <http://www.jnht.com/download/introduction.pdf>.

⁴ Falmouth Heritage Renewal. "Preserving Jamaica's Past for the Future". Retrieved from <http://www.falmouthjamaica.org/Home.html>.

⁵ Esther Figueroa, "Falmouth on the Verge. Jamaica For Sale", Blog on Monday, February 16, 2009. Retrieved from <http://www.jamaicaforsale.net/Blog/A6392367-29C9-41E2-AE75-5C044B4B65CF.html>.

⁶ Gustavo F. Araoz, President of the International Council on Monuments and Sites (ICOMOS) Keynote Address on June 1, 2011 entitled, "Vernacular Heritage, the Caribbean and Tourism" at the Vernacular Architecture Forum symposium held in Falmouth, Jamaica.

⁷ See p. 52 of Saffron Griffith and Kwame Emmanuel. (2005 January). "Living The Past: Protecting Heritage and Culture: Its Role In the Protected Areas System Plan and Impact on National Development", Report prepared for the National Environmental Societies Trust. Retrieved from <http://www.nepa.gov.jm/publications/reports/PASP/Heritage-Culture-Report-2005.pdf>.

⁸ Daraine Luton. (2013 June 3). "Falmouth needs a facelift". The Jamaica Gleaner newspaper.

⁹ Mark Titus. (2014 March 27). "Falmouth not feeling cruise shipping impact". The Jamaica Gleaner newspaper.

¹⁰ Araoz *ibid*.

Yet, historic preservation with cultural tourism programmes in Falmouth was initiated much earlier in 1988 as a fully engaged community project under the quasi-government agency 'Tourism Action Plan', and described as a pioneering work in restoration laying the groundwork for a number of activities (Pickersgill, 2013). The boundaries of the historic district were identified with local history consideration. Historic Falmouth was recognised as a "Creole"¹¹ town containing a diverse residential mix that included artisans, seafarers, freed people of colour, freed Africans, and members of the plantocracy from which evolved rich Creole and Vernacular architecture (fig. 1). Under this community project was recognised the 'Falmouth House' (Green, 2014), appearing in the late eighteenth century and still evident on the Falmouth historic urban landscape (fig. 2).

3. The case of Spanish Town: What values should be applied?

Spanish Town is a government development area, however has had its historic preservation values affirmed through a process of social engagement. The community response was overwhelming to a guided walking tour initiated in 1982 of the historic core of Spanish Town (fig. 3). Excited children from the Primary School came out in large numbers to see subtle architectural detailing, and best of all to visit the Old Barracks Building (ca. 1791), one of three military buildings of its kind in the world; "As the walking tour was being conducted, the residents began to undertake private initiatives to beautify the environment. Sidewalks were being maintained, gardens spruced up, and even bright curtains appeared at windows" (Curtin, 1996, 6).

The 'Jamaica-Georgian' architecture (Concannon, 1972) was showcased (fig. 4). The Spanish Town Historic District (STHD) was delineated, and the JNHT designated it in 1994.¹² The community learnt about vernacular architecture and began to identify with ancestral craftsmanship, and with the environment as economic and social benefits for development.¹³ A community-based "STHD Preservation Commission" that interfaced on heritage activities was established.¹⁴ On August 1, 1997, the Government of Jamaica re-enacted the 1834 Emancipation Proclamation in the Square, and re-named it "Emancipation Square".

The memory of the guided walking tour remains with teachers and students so that twenty-six years later the cry has come for the historic preservation of the Old Barracks from a local High School desiring it for school facilities. The works will be community-based with students being trained in hands-on heritage research and conservation using emerging technology in association with the University. The Ministry of Education has agreed to this adaptive use of the historic building (fig. 5).

4. The case of Kingston with Port Royal: Which components should be preserved and why?

The Downtown Kingston development area places emphasis on the commercial and major business hubs occupying sections of the historic core of Kingston (fig. 6). Therefore in 2013, the Jamaica National Heritage Trust engaged the author to handle a vision for sustainable urban regeneration of Kingston commencing with stakeholder engagement (fig. 7). A project initiative using the 2011 UNESCO Recommendation commenced, entitled "Declaring the Kingston Historic Urban Landscape and its Environs for Sustainable Heritage Tourism". This involved, (1) defining a concept, including proposed boundaries, (2) explaining the relevant legislation, (3) showcasing the urban morphology, (4) evaluating the outstanding universal value, (5) recognizing social space, (6) acknowledging community social morphology with intangible cultural heritage as Kingston Tourism, (7) integrating community-based management, (8) inspiring a sustainable vision, and (9) suggesting options for smarter growth (Green, Morgan and Robinson 2013).

This process brought together public-private-civil society for team work that included periodically anthropologist, archaeologist, architect, architectural communications specialist, community engagement specialist, environmentalist, geologist / geographer, historian, sustainability expert, sociologist, with urban and regional planner among others for social values analyses to enable historic restoration interventions.

¹¹ The American wife of the Governor of Jamaica, Maria Nugent highlights in her journal 1801-1805 'creole style' for the local houses, and mentions being on the 'piazza' of General Bell's house when she visited Falmouth. See F. Cundall, ed., (1907) *Jamaica One Hundred Years Ago: Reprinted from a Journal kept by Maria, Lady Nugent, from 1801 to 1815*. London: Institute of Jamaica, Adam and Charles Black.

¹² The STHD was declared a National Monument on December 29, 1994; http://www.jnht.com/site_spanish_town.php

¹³ Patricia Green and Andre Minott conference paper (unpublished). "The potential impact of the redevelopment of the Spanish Town Historic District on a heritage tourism product: The historic Civic Square" presented on March 9, 1995 at the symposium entitled "Heritage Tourism and Caribbean Development" held at the University of the West Indies, Mona Campus.

¹⁴ These stemmed from (1996), "Guidelines for the Preparation of a Preservation Scheme Masterplan: The Spanish Town Historic District, St. Catherine, Jamaica, West Indies". UNESCO/ UNDP /IDB Funded Programme for the Government of Jamaica conducted by Patricia E. Green Architects.

Employing technology such as Geographic Information System (GIS), the project produced cultural mapping (fig. 8), and identified urban social space for inclusion in the preservation undertakings (fig. 9). Acknowledging community engagement to establish social morphology with intangible cultural heritage and community-based management, the current work attempts to inspire future efforts in this discipline across Jamaica.

The team recognised that each community has its boundaries and borders that operate as ‘social thresholds’ or gateways across all sectors capable of facilitating, enabling, or closing down activities in the city. Lessons learnt included that some efforts by the business sectors have ignored, to a significant degree, the holistic nature of regeneration that goes beyond economic and physical enhancement, placing human /social /community regeneration to the back seat. They assume that inner-city dwellers are destructive or at best, hindrances to any restoration or development initiative, and thereby have overlooked or marginalised these city dwellers who primarily live below poverty levels. The team advocated consideration of inner-city communities as key stakeholders and activators of the process.

As such, an even greater and purposeful involvement of the community in the planning and management process beyond mere consultation was stressed. Recommendations came that inner-city neighbourhoods should be fully engaged as partners and protectors of Kingston (fig. 10) in order to effect sustainable preservation of natural, cultural and intangible heritage resources.

5. Conclusion: How is meaning appropriated?

The people of Spanish Town and Kingston with its environs are mindful of the turn of events in Falmouth, and anxious that in the resurgence to establish cultural heritage tourism products through the Tourism Enhancement Fund and other local incentives from the lottery, all work should embody local meaning and benefits.

Falmouth’s community is clamouring for conservation practice that is more inclusive to reflect cultural values for sustainability, to showcase community diversity enhancing a tourism product for the benefit of all. Pickersgill 2013 concludes, “it is my hope that Jamaicans will have learnt more about Falmouth and its significant role not only in the development of Jamaica but also within the scope of world economics and politics”.

Local options to Falmouth cruise ship tourism are mounting. One is to exploit Falmouth’s historic thriving economy during the peak period of the trade in enslaved Africans to return it as an important apex in a ‘Triangular Trade’ linking established “dark heritage attractions” in West Africa and in European cities such as Liverpool and Bristol with people making the journey not as captives, but free individuals on a journey of experience (Copeland 2012).

The Member of Parliament has argued before the Legislature that the Falmouth cruise ship pier should belong to the people of Trelawny.¹⁵ The MP also suggested that Falmouth should become the destination port for visits to nearby birthplaces of a number of Jamaica’s infamous Olympian sprint champions such as Sherwood Content for the legendary Usain Bolt, and Refuge in Duncans for Warren Weir. The Mayor of Falmouth remarked, “we have wasted a lot of time, energy and money in the past, but it has got us nowhere; it is more than time that we change the way we do business.”¹⁶

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¹⁵ Luton ibid.

¹⁶ Titus ibid

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Figure 1: “Street in Falmouth” (source: Bleby 1868, pp. 210-211).



Figure 2: The “Falmouth House” as Creole architecture still evident on the Falmouth historic urban landscape (source: Pat Green).

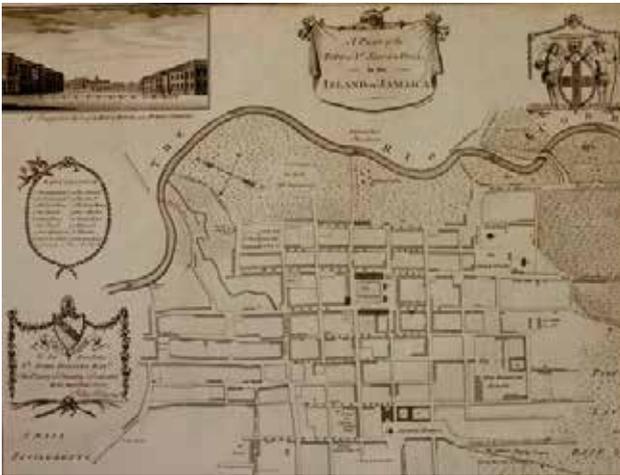


Figure 3: Plan of the town of St Jago de la Vega [Spanish Town] 1786 by Pitcarne (source: V&A Museum, UK).



Figure 4: Creole architecture small house of the “Jamaica-Georgian” style (source: National Library of Jamaica).



Figure 5: Teachers and Member of Parliament inspect ruin of Historic Barracks (ca. 1791) in Spanish Town to provide additional school facilities. Its historic restoration will engage high school students and the community for hands-on training. (source: Denice Ramharrack).

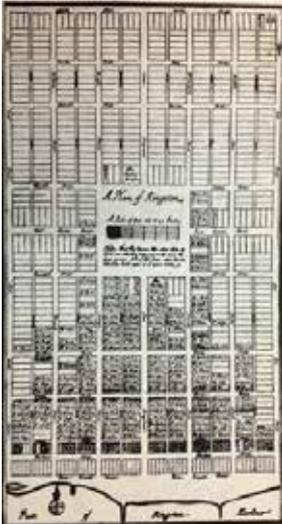


Figure 6: Plan of Kingston 1702 by Christian Lilly (source: National Library of Jamaica).



Figure 7: Stakeholder meeting with the high command of the Jamaica Defence Force and their historians to engage the army over the significance of Kingston as a historic military defence system (source: Carrington Morgan).

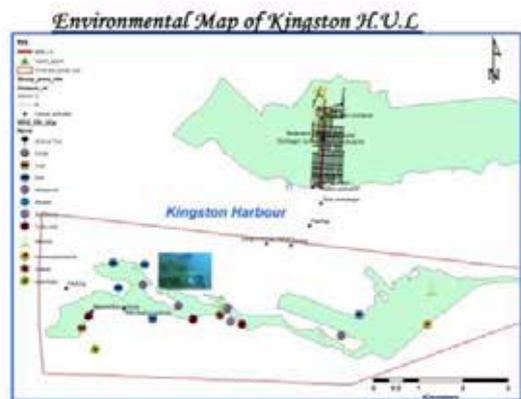


Figure 8: Boundary mapping the Kingston Historic Urban Landscape with the Port Royal underwater archaeology cultural heritage around the Kingston Harbour (source: Patricia E. Green Architects).

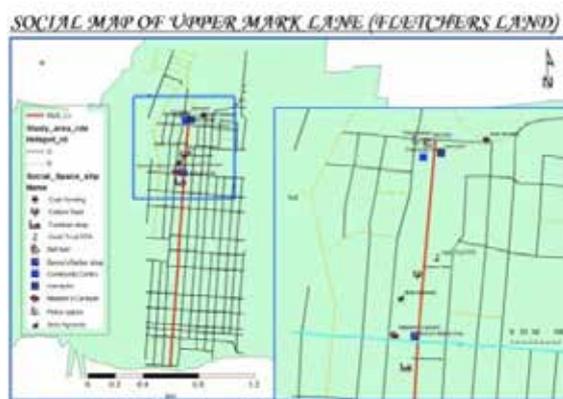


Figure 9: Social mapping a residential 'slice' within the Kingston Historic Urban Landscape (source: Patricia E. Green Architects).



Figure 10: “Raise a Fork and Lift the City” theme for November 2013 eighth annual Restaurant Week (Jamaica) was launched inside Inner-city residential community of Downtown Kingston (source: Restaurant Week [Jamaica] Facebook).

Concepts et méthodologie pour la conservation de l'architecture moderne - Palais Gustavo Capanema

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Résumé

Le projet de conservation de l'architecture moderne pousse à réfléchir sur les limites, les possibilités et les défis d'une intervention dans l'édifice moderne, de manière à garantir l'authenticité du bien et la signification culturelle.

À partir des remises en question découlant d'interventions et de restaurations d'édifices modernes, du support théorique sur la conservation du patrimoine matériel et de l'expérience du service réalisé au Palais Gustavo Capanema, l'on recherche les présupposés conceptuels du projet d'intervention dans l'architecture moderne et la présentation d'une proposition méthodologique.

Mots-clés : *Architecture moderne ; Méthodologie ; Restauration ; Conservation ; Réhabilitation*

1. Introduction

Le projet de conservation, de restauration et de réhabilitation de l'architecture moderne conduit à la réflexion sur les limites, les possibilités et les défis d'intervenir dans l'édifice moderne, de façon à garantir l'authenticité du bien, la préservation de la signification culturelle, la conservation de ses espaces architectoniques, la modernisation des équipements et le réaménagement des installations.

Avec l'éveil du regard sur l'inédit et sur la qualité de l'architecture du XXe siècle, la discussion tourne autour de la protection, de l'identification des valeurs culturelles, de la validation de l'application des concepts et de la production théorique consolidée dans le domaine de la conservation et des recommandations en vigueur, référencées par les entités de préservation du patrimoine, sur la façon d'intervenir dans l'architecture moderne sous tutelle.

Au cours des trois dernières décennies, on constate l'intensification du mouvement en défense de la préservation et de la conservation des attributs de l'architecture moderne, face aux risques de perte de ce patrimoine. En même temps, l'on voit se succéder les discussions sur les nouvelles propositions de conservation à partir des expériences professionnelles dans ce domaine multidisciplinaire en vue de fournir une base aux interventions dans l'architecture moderne.

Un courant a surgi en défense de la restauration, du "refaire", du "reconstruire" et de la continuité de l'exécution du projet original, lorsqu'il n'est pas conclu dans sa totalité. On perçoit ainsi la tendance tant à la relativisation du concept de l'authenticité qu'à l'inobservance de la signification culturelle du patrimoine édifié. La variété de solutions de projet adoptées et les expériences réalisées ont montré des résultats en conflit avec les préceptes de la conservation.

À partir des remises en question découlant d'interventions et de restaurations d'édifices modernes, du support théorique à la conservation du patrimoine matériel et de l'expérience de l'office au Palais Gustavo Capanema, on cherche à élaborer les présuppositions conceptuelles et la proposition méthodologique en vue de l'élaboration du projet de conservation.

Le projet de conservation et de réhabilitation se heurte à la richesse de possibilités et d'alternatives de solutions qui doivent être évaluées en fonction des singularités de l'objet de l'étude et sa signification culturelle. L'objectif des présuppositions conceptuelles consiste à définir les grandes orientations et à conférer de la cohérence aux actions, renforçant ainsi l'identité socioculturelle du monument.

L'explicitation précise des présuppositions stimule la discussion et l'abordage critique conceptuel du projet patrimonial entre les acteurs publics impliqués et l'équipe multidisciplinaire, afin de construire de manière cohérente les objectifs du travail et de définir l'orientation méthodologique et l'élaboration du dessin de la

gestion du processus. Ainsi, on peut souligner : (1) la permanence de la signification culturelle du bien ; (2) la reconnaissance de l'identité socioculturelle ; (3) le respect de l'authenticité du patrimoine moderne; (4) la préservation des valeurs culturelles du monument, reconnues par le classement concédé par le pouvoir public; (5) la préservation de l'environnement et le respect de l'*esprit du lieu* ; (6) l'observance du principe du développement durable du patrimoine culturel ; (7) l'adaptation du programme d'utilisation au monument, en conformité avec la vocation de l'édifice ; (8) le rejet des interventions destructives qui négligent les valeurs culturelles ; (9) le caractère réversible des interventions ; (10) l'intervention minimum ; (11) l'harmonie et l'intégration des nouveaux équipements et composants au monument ; et (12) la distinction claire des interventions contemporaines à l'aide du dessin des détails architectoniques et des spécifications des matériaux avec un regard plus épuré.

Les défis du projet de conservation et de réhabilitation de l'architecture moderne s'inspirent du respect de la signification culturelle et de l'authenticité du bien patrimonial face aux nécessités contemporaines, en ce qui concerne les nouvelles fonctionnalités de l'utilisation des espaces, aux corrections possibles de failles dans les systèmes constructifs, à la substitution de matériaux fabriqués en série, à l'observance des normes techniques récentes, à l'introduction de technologies contemporaines, à la rénovation des systèmes d'infrastructure et à la pertinence des marques du temps écoulé dans l'image de l'architecture moderne.

La proposition méthodologique découle de la nécessité de systématiser la connaissance multidisciplinaire, de conceptualiser le projet et de contextualiser, discipliner et contrôler les interventions sur des édifices modernes, en vue de la conservation et de la réhabilitation du monument. Il ne s'agit pas de méthodes rigides de recherche, mais bien d'un processus d'analyse et d'évaluation pour l'étude et l'élaboration du projet.

L'adaptation de la méthodologie en fonction des spécificités et de la complexité du cas fait partie du processus d'ajustement. Les recherches et l'étude peuvent être simplifiées ou amplifiées selon la dimension et les caractéristiques du bien patrimonial.

2. Méthodologie

La méthodologie adoptée pour l'élaboration du projet de conservation du patrimoine architectonique moderne présente un abordage multidisciplinaire indiquant les étapes de travail, les actions, les procédures de recherche, les méthodes d'investigation et les catégories d'analyse, afin de permettre la connaissance des domaines connexes qui sont en relation mutuelle avec l'objet et le thème central.

Pour structurer le travail, il est essentiel d'établir les objectifs, les politiques d'action, l'orientation méthodologique, le profil de l'équipe multidisciplinaire à choisir, ainsi que l'étendue et les attentes du projet. Pour une plus grande efficacité du travail, il convient d'accorder une attention spéciale au choix de l'équipe qui devra réaliser la recherche, les relevés, les études et le projet. Les caractéristiques de l'édifice sous tutelle, les objectifs de la politique patrimoniale et l'optique du projet orientent la sélection des candidats en fonction de leur profil professionnel et de leur coopération à d'autres travaux.

Après les premières considérations, il est procédé au démarrage du travail de recherche et de l'étude globale sur l'édifice inséré dans le site, afin d'identifier les valeurs qui en ont fait un exemplaire de son temps, en remettant dans le contexte sa fonction socioculturelle. L'identification du patrimoine avec ses attributs sous la perspective d'un projet unique intégré, révèle sa signification culturelle. Pour la compréhension et la connaissance de l'édifice, il importe de considérer ses aspects conceptuels et la conception du projet original, la recherche documentaire et iconographique, la connaissance de la politique de conservation par les organismes de préservation et le relevé architectonique, le diagnostic de l'état de conservation, les aspects socioculturels et physique organisationnels de l'espace architectonique et urbain. Ces données, ces informations et ces études permettent d'obtenir l'interaction des chercheurs et de l'équipe interdisciplinaire avec l'édifice durant le processus d'investigation.

Les données collectées à partir des études sont les éléments auxiliaires qui soutiennent le projet de conservation. Les "critères pour la conservation du patrimoine du XXe siècle" ont été établis dans le Document de Madrid 2011, institué par la Conférence internationale pour le Patrimoine du XXe Siècle (ISC20C) de l'ICOMOS, afin de résoudre les questions relatives à la conservation.

Le fluxogramme présenté à la figure 1 montre, sous forme de représentation graphique et schématique, les procédures d'investigation, les méthodes de recherche, les catégories d'analyse du processus en vue de l'élaboration du projet de conservation et la réhabilitation du patrimoine moderne.

On observe constamment que les travaux de recherche et de relevé des données sont parfois réalisés par les équipes uniquement pour répondre aux exigences des organismes du patrimoine historique, sans que leurs contenus soient appropriés aux propositions d'intervention. Cette attitude dénote une absence complète de compréhension de l'exercice de l'office, des principes et des concepts du projet de conservation.

3. Le Palais Gustavo Capanema

Le Palais Gustavo Capanema, autrefois Ministère de l'Éducation et de la Santé Publique (MES), est un édifice iconique de l'architecture moderne brésilienne, un modèle d'une valeur universelle et a été projeté par une équipe coordonnée par l'architecte urbaniste Lúcio Costa, composée de Carlos Leão, Affonso Eduardo Reidy, Ernani Vasconcellos, Jorge Moreira et Oscar Niemayer, avec les conseils de Le Corbusier.

La conception finale du projet élaboré par l'équipe eut lieu au début de 1937 et le résultat a été acclamé comme la première oeuvre de l'architecture moderne à caractère monumental ayant consolidé les cinq principes de base corbuséens: plan libre, façade libre, pilotis, terrasse-jardin et fenêtres en filière. Cependant, les modifications, les interventions et les ajouts à l'édifice et au paysagisme projeté par Burle Marx, ainsi que l'introduction des oeuvres d'art, ont eu lieu au cours de la construction, culminant avec son inauguration en 1945.

Le Palais fut classé en 1948, trois ans à peine après son inauguration, en raison de son caractère représentatif de l'architecture moderne internationale, du collection artistique qu'il abrite et de l'importance accordée au paysagisme conçu par Burle Marx (fig. 2), qui s'est joint à l'équipe en 1942. L'architecture, les arts plastiques et le paysagisme sont réunis dans un seul projet intégré comme une oeuvre d'art complète.

L'ensemble architectonique présente deux blocs, la lame verticale et horizontale, en forme de T et sur pilotis au centre du patio, ce qui permet la libre circulation du piéton et ajoute le concept d'une place au rez-de-chaussée du bâtiment (figg. 3-5).

Les volumes, correspondant aux salles des machines des ascenseurs et aux réservoirs d'eau, présentent des formes courbes qui composent le couronnement et en font des éléments architectoniques formateurs de l'identité visuelle du monument.

L'originalité de la structure en béton armé composée par des dalles du type piltz-decken est due à Emilio Baumgart, ingénieur qui a calculé les plans et les façades libres, et qui a distribué les piliers modulés en retrait par rapport aux plans des façades, conférant ainsi une plus grande légèreté visuelle aux volumes (fig. 4).

Outre les postulats de l'architecture moderne incorporés au projet et les innovations technologiques dans les installations, l'application des concepts révolutionnaires de l'architecture bioclimatique dans le bâtiment aux dimensions monumentales, visant l'efficacité énergétique et le confort environnemental de l'utilisateur (thermique et lumineux), représenta un nouveau défi professionnel dans l'essai de solutions techniques et des matériaux. Ainsi s'affirme à nouveau le caractère moderne du nouveau siège associé à son efficacité et sa rationalité, sans oublier sa signification esthétique.¹

La solution d'adaptation de l'architecture aux conditions climatiques du local comprend (1) l'emploi des brise-soleils horizontaux sur la façade nord, qui reçoit constamment un ensoleillement intense ; (2) le plan vitré – *curtain wall* – protégé par des persiennes horizontales internes de couleur bleue, pour le contrôle de la luminosité et de l'éblouissement dans les ambiances interne ; et (3) l'installation de fenêtres du type guillotine, qui permettent une ventilation croisée à l'intérieur grâce à des ouvertures pratiquées dans la partie supérieure des fenêtres, comme prévu par Lúcio Costa. Ainsi, la brise fraîche provenant de la Baie de Guanabara circule à l'intérieur de l'édifice.

Les interventions

L'articulation entre Lúcio Costa et les membres de son équipe du projet était faite quand c'était nécessaire pour la réalisation des travaux de conservation et de réhabilitation. Cependant, les interventions n'ont pas toujours été couronnées de succès. Les travaux avaient comme objectif général l'actualisation des espaces, la préservation des caractéristiques et des formes du projet original.

L'intervention actuelle est la première oeuvre importante faite sans la participation des auteurs du projet, en raison de leur décès. Les actions des premières interventions concernent le remplacement des ascenseurs, les services d'imperméabilisation des terrasses supérieures et des terrasses-jardins, la restauration du gneiss des façades et des colonnes, la récupération des terrasses-jardins et la conservation des cadres métalliques, des brise-soleil, des panneaux et des connexions. Les travaux sont effectués par l'Institut du Patrimoine Historique et Artistique National.

Circulation verticale

Les ascenseurs sont obsolètes et, en raison de l'absence d'entretien adéquat, ils sont précaires depuis des années. Plusieurs tentatives d'entretien ont été faites par l'IPHAN. Cependant, aucune société du marché brésilien ne s'est portée candidate à la modernisation de la machinerie et du système, qui maintient les

¹ Segres, 2013, p. 222.

cabines originales avec leurs panneaux en vénitienne qui permettaient l'échange de l'air entre la cabine et le prisme de la salle des machines des ascenseurs. Tout le système a été remplacé par une nouvelle machinerie, de nouvelles cabines et les boutons d'appel. Cependant, les signalisateurs originaux des étages ont été préservés, car ce sont des composants singuliers du bâtiment, même s'ils ne respectent pas les normes techniques actuelles.

Jardins

Les jardins sont les éléments du bâtiment qui ont été les plus défigurés et qui ont perdu le plus leurs caractéristiques du paysagisme au cours du temps. Durant la décennie 1980, les parterres du 16^e étage avaient été retirés en raison des infiltrations provoquées à l'étage inférieur.

Burle Marx a été appelé pour élaborer le projet de conservation et de restauration des jardins en 1982. La recherche documentaire, le plan original, le relevé physique et sa mémoire ont permis d'identifier les tracés et la composition originale de la masse végétale. À partir de ces données et de l'identification des espèces introduites au cours des années, Burle Marx a revisité le projet original, éliminé les plantes qui modifiaient les caractéristiques des jardins et spécifié de nouvelles espèces pour recomposer les espaces verts.

Après les démolitions en vue de l'exécution des travaux d'imperméabilisation de la terrasse, prévues par les travaux de conservation actuels, les tracés des parterres de la terrasse supérieure et de la terrasse-jardin du 2^e étage sont refaits, les plantes étrangères au projet ont été retirées et les espèces dans les pépinières sont replantées, suivant l'intervention des décennies de 1980.

Revêtement de gneiss

Les plaques de gneiss qui revêtent les colonnes et composent les façades sud et nord ont été soumises à des tests de percussion en vue d'identifier les points détachés de la pierre et de réaliser la fixation à l'aide de goupilles en acier. Les pitons ont été colmatés avec de la poudre de pierre, du colorant et de la résine. Il n'a pas été nécessaire de remplacer les plaques de pierre. Seules quelques prothèses ont été exécutées selon la même procédure technique des colmatages des pitons.

Les éléments pierreux ont été lavés avec du savon neutre, en appliquant la méthode de nettoyage la moins envahissante, de manière à conserver l'apparence acquise au cours des années. Seules les parties les plus sales ont subi un nettoyage chimique. Après le nettoyage et le séchage, une solution hydrofuge a été appliquée.

Façades

Le projet de conservation des façades (2013-2014) prend en considération la restauration des systèmes des fenêtres de structure métallique en acier au carbone d'origine belge, le remplacement des carreaux céramique conformément au projet original et la récupération du système des brise-soleil.

Les mosaïques céramique des corps des salles des machines et du réservoir d'eau et de la façade en retrait du 16^e étage ont été remplacées lors des travaux de 1980 et ne sont pas rigoureusement conformes au modèle original. L'intervention actuelle prévoit une nouvelle substitution reproduisant la forme, la dimension et la couleur des originaux. La spécification du matériau a été définie à partir des registres photographiques, des prospections et du matériau original restant.

La restauration des composants constructifs des façades sud et nord à exécuter permettra de récupérer le système de ventilation croisée conçu par Lúcio Costa - un des attributs les plus significatifs du monument. Actuellement, les fenêtres et les brises ne fonctionnent pas totalement et causent une chaleur intense dans les ambiances internes de travail.

4. Conclusion

Le projet de conservation et de restauration de l'architecture moderne invite à la réflexion et à la critique dans la mesure où il se heurte aux nouvelles questions relatives au thème et aux défis de la discipline. Les valeurs de l'architecture moderne ne résident pas seulement dans sa matérialité, mais surtout dans la forme selon laquelle ces matériaux ont été articulés dans la création de l'espace². Ainsi, la conception du projet, la création des solutions, le système constructif, le dessin de ses composants et les matériaux sont les formateurs de son identité.

La controverse surgit dans les soi-disant interventions d'intentions philologiques et dans les opérations réelles de pure reconstitution à la recherche de l'image originale, même au prix de l'annihilation de l'authenticité matérielle de l'oeuvre, de ses valeurs et de son incipient historicité³. Actuellement, la théorie de la conservation se consolide dans la préservation du moderne, quand celui-ci est reconnu par ses valeurs

⁶Moreira, 2010, p. 18.

⁷Salvo, 2007, p.142.

culturelles. Cependant, les particularités conceptuelles du moderne doivent être comprises pour l'exercice approprié de l'office.

La conservation interprète la patine d'un élément comme une action du temps sur le matériau, qui enrichit la signification de l'édifice. Le vieillissement des matériaux dans l'architecture moderne fait partie lui aussi du processus de transformation du bien culturel. Le gneiss des façades du Palais Gustavo Capanema, dont la restauration a débuté en 2013, est passé par un processus de nettoyage couronné de succès avec du savon neutre et un autre produit chimique plus envahissant, restreint aux surfaces plus sales. Cette procédure corrobore l'affirmation selon laquelle les marques laissées par le temps confèrent de l'authenticité à l'image, ce qui permet une lecture de l'édifice, associée à sa conception originale, et réaffirme le caractère applicable de la théorie de la conservation dans le moderne.

Cependant, la substitution prévue des mosaïques céramique par de nouvelles pièces dont la forme, la taille et la couleur sont identiques, en fonction de l'exécution de la nouvelle imperméabilisation, n'enlève en rien l'authenticité du monument si l'on considère que la valeur réside dans la solution du projet et dans le système constructif de l'oeuvre. La mosaïque est un matériau ordinaire toujours en fabrication de nos jours. Son remplacement, en raison des lacunes créées par suite de leur détachement de la surface, ou par les services d'entretien, est un choix sûr. Les corrections de lacunes perceptibles interfèrent davantage dans l'image et dans la perception visuelle de l'architecture moderne que le remplacement complet de leur revêtement.

Le fondement théorique du domaine disciplinaire de la conservation, le support instrumental méthodologique et scientifique, la connaissance des concepts de l'architecture moderne et le travail "corps à corps" avec l'édifice, reconnaissant ses qualités et ses valeurs esthétiques, fonctionnelles, sociales, éthiques et culturelles, aident à alimenter le processus critique de la restauration. La variation des spécificités de l'objet de l'étude modifie la solution du problème sans modifier sa nature ni le mode d'intervention.

Par conséquent, à partir de cette connaissance multidisciplinaire approfondie du bien, la définition de l'étendue des travaux de conservation, de restauration et de réhabilitation est validée, de telle sorte qu'elle rend possible la prise de décision concernant l'intervention adéquate pour cet exemplaire, recherchant l'équilibre et la cohérence dans les actions. Le processus protège les valeurs et évite les pertes des attributs, grâce à la compréhension de la signification culturelle et de l'authenticité du bien patrimonial.

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Figure 2 : Terrasse-jardin conçu par Burle Marx.



Figure 3 : Façade nord.

Figure 4 : Façade sud.



Figure 5 : Colonnes et panneau de carreaux de Portinari au rez de chaussé.



Figure 6 : Salle “jogos infantis”, panneau de Portinari.

Photographies de Nelson Kon en Wisnik, 2001 et Segre, 2013

La restauration des biens culturels : le traitement des lacunes entre théorie et pratique

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Résumé

Il s'agit d'une étude qui a posé la problématique de l'intervention sur un support porteur de valeur artistique et historique et qui a subi une altération qualifiée de « lacune ». A travers cette recherche on a tenté de développer un outil théorique pour l'analyse et l'évaluation des interventions sur un bien culturel. Le corpus ainsi choisi, est composé de deux ensembles de biens culturels par rapport auxquels on a posé la question suivante : est ce que le traitement des lacunes pour ces deux supports suit la même démarche théorique ? On est parti de l'hypothèse que les interventions sur les biens culturels suivent une même ligne directrice opérant par des principes de réflexion et d'action afin d'atteindre un objectif visant le respect de l'intégrité, la pérennité et l'authenticité du bien.

Mots-clés : Biens culturels ; Théorie ; Pratique ; Matière ; Image

1. Introduction

Cet article émane d'un premier essai de recherche³ qui a posé la problématique de l'intervention sur un support lacunaire porteur de valeur artistique et historique; à travers lequel on a tenté de développer un outil théorique pour l'analyse et l'évaluation des interventions faites sur un bien culturel qui a subi une altération qualifiée de « lacune⁴ ».

Pour présenter ce travail on va commencer par exposer un aperçu historique sur l'origine et le développement du thème de la conservation-restauration. Par la suite on va introduire le cas de la Tunisie comme étant le lieu et le support de notre investigation, pour finir par poser notre problématique à travers un ensemble de questions.

Pour répondre aux questions de recherche posées, deux types de biens culturels sont choisis comme objet d'étude à savoir : un échantillon représentatif des édifices de la Medina de Tunis et un échantillon représentatif des mosaïques exposées au musée du Bardo.

A travers les écrits des différents théoriciens de la conservation-restauration, ainsi que les chartes on a identifié un ensemble de critères de référence pour l'évaluation du traitement de la lacune. On a pour cela défini un instrument d'investigation qui nous a permis de visualiser les données collectées, de les analyser pour enfin parvenir à en tirer des conclusions.

2. Etat de l'art de la mise en théorie de la conservation-restauration

C'est à partir du milieu du XIXe siècle que les premières théories de restaurations sont diffusées : Viollet-le-Duc (1814-1879) en France, Ruskin (1819-1900) en Angleterre et Boito (1836-1914) en Italie ; peuvent être considérés comme les précurseurs. Avec leurs collègues et disciples, ils établissent les premiers jalons de la théorie de la restauration. Puis c'est autour du début du XXe siècle que cette discipline s'est influencée par les conceptions de **G. Giovannoni** (1873-1947) ; cependant la figure majeure du XXe siècle reste **Cesare Brandi** (1906-88) qui, dans son ouvrage *théorie de la restauration*, a fondé notre conception actuelle de la restauration.

Ces théoriciens, par leurs écrits ont défini différentes approches qu'ils les ont mises à l'épreuve dans leurs réalisations qui ont marqué leur époque et exercé une influence prépondérante dans l'élaboration de

¹ Unité de recherche : Patrimoine Architectural et Environnemental : connaissance, compréhension et conservation

² Ecole Nationale d'Architecture et d'Urbanisme de Tunis.

³ Cet article fait partie d'un travail de Mastère intitulé « Le traitement des lacunes entre l'intervention sur la matière et son influence sur l'image : Étude comparative entre deux types de biens culturels ». Elaboré par Asma ZARROUK, architecte chercheur membre de PAE3C, et encadré par Fakher KHARRAT, architecte et maître de conférences, enseignant chercheur et directeur de l'Ecole Nationale d'Architecture et d'Urbanisme de Tunis.

⁴ Une interruption matérielle et figurative touchant un bien culturel.

plusieurs projets de restauration. Leur contribution se révèle également importante puisque leurs différentes théories serviront de matière première dans l'élaboration des chartes et déclarations internationales qui apparaîtront à partir du milieu du XXe siècle.

3. Mise en contexte : le cas de la Tunisie

La Tunisie possède un riche patrimoine qui constitue le témoignage d'une très longue histoire allant des premiers temps préhistoriques jusqu'à l'époque contemporaine. Pourtant, et pendant longtemps, ce patrimoine n'a bénéficié d'aucun intérêt particulier, ni d'aucune protection. La prise de conscience de sa valeur est un fait relativement très récent. Ce n'est que depuis un peu moins d'une vingtaine d'années que l'on a commencé à considérer certaines constructions comme étant dignes d'être considérées comme bien culturel et à ce titre pouvant prétendre à une protection spécifique. Et depuis, une multitude de travaux de conservation-restauration s'est succédé pour sauvegarder ce patrimoine du péril. Et parmi ces interventions on s'est intéressé particulièrement à celles entreprises sur les monuments historiques de la médina de Tunis ainsi que les mosaïques exposées au musée du bardo.

Le questionnement de la recherche

Les questions que nous étions amenés à poser dans le cadre de cette étude étaient les suivantes :

- Quels sont les principes théoriques à appliquer pour traiter une lacune qui s'est manifestée sur un support porteur de valeur artistique et historique ? (étude des principes théoriques)
- Quelle est la place de la théorie dans l'application pratique des ces principes d'interventions dans le cadre du traitement des lacunes dans le cadre de l'intervention sur les deux types de biens culturels objet de notre étude ? (évaluation de l'intervention)
- Qu'elle était l'impacte des cette intervention sur les valeurs à sauvegarder pour ces deux types de biens culturels et comment cette intervention est perçue par les différents intervenants ? (le chercheur, les technicien de la conservation restauration et enfin les usagers et visiteurs).

Choix du corpus d'étude

Le corpus est choisi répandant à un ensemble de critères dont le plus important celui qui concerne la présence de la lacune comme étant une interruption matérielle, formelle et figurative et qui a généré un traitement qui a été mené suivant une méthodologie bien déterminée.

Parmi les **monuments d'architecture** nous avons choisi un ensemble d'édifice à intérêt historique à savoir: Edifice 1 : Dar Haddad, Edifice 2 : Dar Monastiri, Edifice 3 : Zaouiya Sidi Kasem , Edifice 4 : Medersa Bokriya

Parmi les **monuments d'art** nous avons choisi les mosaïques et en particulier celles exposées au musée du Bardo : Mosaïque 1 : mosaïque de frigidarium, Mosaïque 2 : mosaïque représentant Venus et les Venationes, Mosaïque 3 : une mosaïque funéraire chrétienne, Mosaïque 4 : mosaïque du seigneur Julius.

4. Les principes théoriques pour un traitement raisonnable des lacunes

A travers nos lectures autour des écrits théoriques des différents théoriciens en matière de conservation-restauration des biens culturels, ainsi que les différentes chartes (Athènes, Venise, Cracovie, Burra ...) et conventions qui sont établis par des organisations internationales tel que : ICOMOS⁵, ICCROM⁶, ICCM⁷ et qui s'intéressent au patrimoine et à sa sauvegarde ; nous avons essayé de dégager les critères qui ont formé les indicateurs à travers lesquels nous avons tenté d'évaluer l'intervention sur les biens culturels dans le cadre du traitement de la matière lacunaire pour enfin établir l'étude comparative objet de notre recherche.

Nous avons ainsi regroupé les critères d'évaluation comme suit :

1^{ère} dimension à mesurer : le traitement de la lacune par rapport à sa consistance matérielle.

Toutes les chartes⁸ concordent pour qu'un travail préliminaire de documentation et de diagnostic in situ se fasse avant toute intervention. Quant à la notion de substitution de la matière originelle par une autre nouvelle, ce fut Camillo Boito⁹ qui en a parlé et a été adopté par la suite par la charte de Venise et la charte de Florence 1981.

Alors que les notions de réversibilité et de la distinction des matériaux et des techniques sont introduites par Cesare Brandi¹⁰ et adoptées par la suite par la charte de Venise.

⁵ [Conseil International des Monuments et des Sites](#)

⁶ Centre international d'études pour la conservation et la restauration des biens culturels

⁷ Comité International pour la Conservation des Mosaïques

⁸ La Charte de Venise, la Charte de Cracovie.

⁹ Camillo Boito, 2000.

¹⁰ Cesare Brandi, 2001.

On a pu ainsi dégager pour les besoins de notre étude les indicateurs suivants :

- La documentation : historique, archéologique et ethnologique.
- Le diagnostic in situ: l'état matériel de l'objet.
- La distinction entre les parties originelles et celles refaites au niveau des techniques utilisées.
- La distinction entre les parties originelles et celles refaites au niveau des matières utilisées.
- La réversibilité de l'intervention
- La compatibilité physico-chimique (ancien/nouveau)
- Réutilisation de matière de récupération.
- La substitution (ancien/nouveau)

2^{ème} dimension à mesurer : la réintégration de la lacune par rapport à l'image en tant que valeur historique, artistique et esthétique.

L'examen théorique nous a montré que les notions d'harmonie vue de loin et de distinction vue de près sont deux critères introduits par Camillo Boito et Cesare Brandi. Alors que les notions de valeurs (d'ancienneté, historique et commémorative) sont plutôt développées dans les écrits d'Alois Riegl¹¹, Françoise Choay¹² et Cesare Brandi.

On a pu ainsi dégager pour les besoins de notre étude les indicateurs suivants

- Harmonie : ancien/nouveau (vue de loin)
- Distinction : ancien/nouveau (vue de près)
- La rupture : Figure /fond
- La valeur d'ancienneté
- La valeur historique
- La valeur commémorative

5. Elaboration de l'instrument d'investigation

Pour collecter les informations nous avons choisi d'adopter les techniques suivantes:

- L'observation directe
- Le questionnaire
- L'interview

Ainsi, à travers l'observation directe, l'entretien entrepris au près les praticiens et le questionnaire auprès des techniciens et visiteurs; nous avons pu collecter des informations qui ont permis l'évaluation de l'intervention de traitement de la lacune.

Nous avons pour cela choisi MATEA (Modèles pour l'Analyse, la Théorie et l'Expérimentation Architecturale), défini par Stéphane Hanrot(Architecte DPLG, HDR, Professeur EAML) comme outil de représentation des données collectées il nous a ainsi permis de visionner les informations collectées et de les analyser.

Nous avons établi une échelle de 5 valeurs dont chacune correspond à un degré d'application du critère d'évaluation sur le bien culturel : 0 = pas appliqué, 1= mal appliqué, 2 = moyennement appliqué, 3 = bien appliqué, 4 = très bien appliqué

6. L'analyse et l'interprétation de l'évaluation faite sur l'échantillon représentatif des édifices historiques restaurés de la médina de Tunis (figg. 1, 2)

Les graphes (tableau 1) représentent la moyenne des évaluations des techniciens de la conservation restauration.

Les monuments analysés ont montré que l'intégration de la lacune ne fait pas référence à une documentation historique et archéologique à cause de la rareté des documents se rapportant aux édifices de la médina et leur historique architectural. Par contre un soin particulier est entrepris au cours du diagnostic in situ. En effet, le monument est considéré comme l'unique document auquel les techniciens restaurateurs font référence au cours de l'intervention.

En ce qui concerne la distinction des matériaux et des techniques entre les parties originelles et celles nouvellement insérées, nous avons pu dégager des différents cas étudiés que ce critère n'est pas pris en considération. En effet, bien que l'intervention ait utilisée les nouvelles technicités et matériaux, un soin particulier est entrepris afin de les dissimuler derrière une composition ancienne.

¹¹ Alois Riegl, 1984.

¹² Françoise Choay, 1999.

Les cas étudiés ont montré aussi que la réutilisation de la matière de récupération est tributaire de l'état de dégradation de la matière récupérée sur site. Étant donné que les interventions s'étalent sur plusieurs années cela a entraîné la perte de la matière d'origine. Ainsi, le recours à la substitution est la solution entreprise pour combler le déficit créé par les dégradations. Cette substitution procède par la reproduction à l'identique du fragment disparu du point de vue matériel et formel sans prendre en considération la réversibilité de l'intervention.

L'utilisation des matériaux et des techniques qui se rapprochent dans leur aspect extérieur de ceux anciens a empêché l'identification des parties originelles de celles reconstruites. Bien que le technicien restaurateur expérimenté arrive encore à cerner ces légères différences et apprécie en même temps l'effort fourni pour dissimuler les interventions; l'utilisateur, en absence de signe bien explicite est incapable d'identifier la partie originelle de celle refaite; de ce fait, il considère le tout comme originel par défaut.

L'important recours à la substitution a affaibli la valeur d'ancienneté du monument. Toutefois, un visiteur qui se trouve face à un décor qui ne lui est pas familier n'est pas en mesure de les identifier, du coup tous les éléments même substitués sont considérés pour lui comme originels.

Ainsi, le traitement de la lacune, en privilégiant le recours à la reproduction à l'identique de la matière originelle, en toute conscience du technicien, a entraîné la production d'une image ancienne appréciable d'un public non averti au détriment de l'authenticité du monument (fig. 3).

7. Interprétation de l'évaluation faite sur l'échantillon représentatif des mosaïques restaurées exposées au musée du Bardo de Tunis (fig. 5, 6)

Les graphes (tableau 2) représentent la moyenne des évaluations des techniciens de la conservation restauration.

La réintégration de la lacune dans le cas des mosaïques opère en l'absence d'une documentation historique et archéologique, toutefois, il se base sur un important examen diagnostique in situ.

L'analyse a montré aussi que l'intervention prend en considération le critère de la **distinction des matériaux et des techniques**. En effet, la matière intégrée diffère de loin du tessellatum d'origine, toutefois elle est bien compatible avec la composition d'origine et laisse le champ ouvert pour une éventuelle nouvelle interprétation de la lacune grâce à la réversibilité de l'intervention. Nous avons pu en conclure aussi qu'il y a eu un faible recours à l'utilisation de la matière de récupération pour combler les lacunes.

Le recours à la différenciation des matériaux et des techniques a permis une facile identification des parties originelles de celles refaites pour un visiteur non expérimenté.

Toutefois, assurer une continuité figurative et toujours appréciable d'un visiteur à la recherche d'une jouissance esthétique. Les visiteurs tout comme les techniciens ont estimé que l'intervention a préservé la mosaïque ses attributs historiques et commémoratifs. (fig. 4)

8. Interprétation de l'étude comparative (tableau 3)

À travers le rapprochement entre les avis des techniciens restaurateurs concernant l'intervention sur les édifices de la médina de Tunis et les mosaïques exposées au musée du Bardo, nous avons pu dégager la tendance générale de l'intervention.

L'intervention au niveau des édifices favorise le recours à la substitution de la matière authentique, ce procédé contribue à l'effacement des traces du passage du monument dans le temps ; par contre l'absence de substitution au cours de l'intervention de traitement des lacunes pour le cas des mosaïques conserve au support sa valeur d'ancienneté.

L'absence du recours à la distinction des matériaux et des techniques a permis d'avoir une parfaite harmonie vue de loin en ce qui concerne l'intérieur du patio. Toutefois, une telle intervention a neutralisé la distinction figurative entre le fragment d'origine et l'entité nouvellement insérée. Par contre en ce qui concerne le traitement des mosaïques nous avons remarqué que le recours à la différenciation des matériaux et des techniques est bien net. En effet, ce procédé a rendu possible la reconnaissance immédiate du fragment authentique sans que pour ce la il faille briser l'unité que l'on tend à reconstruire.

La réversibilité est un critère qui n'est pas respecté au cours des interventions dans le cas des édifices restaurés. Par contre, elle est bien prise en considération dans le cas des mosaïques à travers le recours à des procédés et des techniques qui laissent le champ ouvert pour une éventuelle nouvelle interprétation de l'intervention.

L'intervention dans le cas des édifices favorise la transmission d'une image ancienne plutôt qu'un objet ancien. Par contre l'intervention dans le cas des mosaïques assure la transmission de la matière à l'origine de l'image.

9. Conclusion : vers une nouvelle conception de l'outil d'évaluation

L'application de ce modèle d'évaluation sur ces deux types de biens culturels a montré qu'il y a une tentative de conservation matérielle des biens en procédant de différentes manières qui ne répondent pas toutes aux exigences imposées par les traitées théoriques. Alors que l'entretien avec les techniciens, les usagers et visiteur a montré un grand écart quant à la perception et l'appréciation du monument après intervention.

Ainsi l'intervention, selon le point de vue des différents intervenants (technicien en conservation restauration, usager, visiteur ...), a préservé certaines caractéristiques et qualités de l'objet restauré ; comme elle en a fait perdre d'autres.

Nous avons pu déduire de ca : qu'au-delà des valeurs historiques, architecturales et artistiques attribuées aux biens culturels et qui ont guidé leur conservation, il y a d'autres valeurs à prendre en considération et qui prennent en compte les différents intervenants en leurs rapports avec le monument lui-même. Nous ne pouvons pas penser la restauration des œuvres, et notamment celle des œuvres architecturales sans tenir compte d'autres valeurs telle que : les valeurs d'usage, les valeurs économiques, les valeurs sociales ...¹³

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Figure1 : Le cas de Zawiet sidi Kasem avant et après intervention

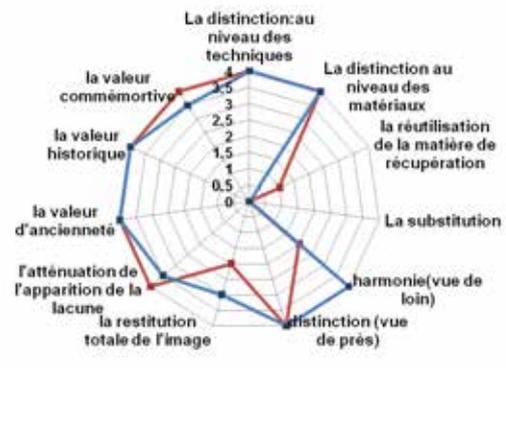
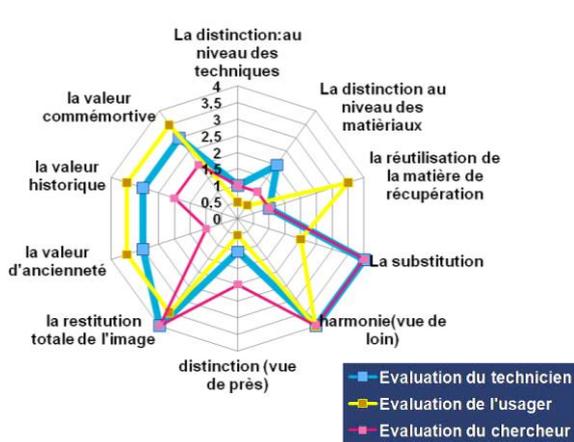
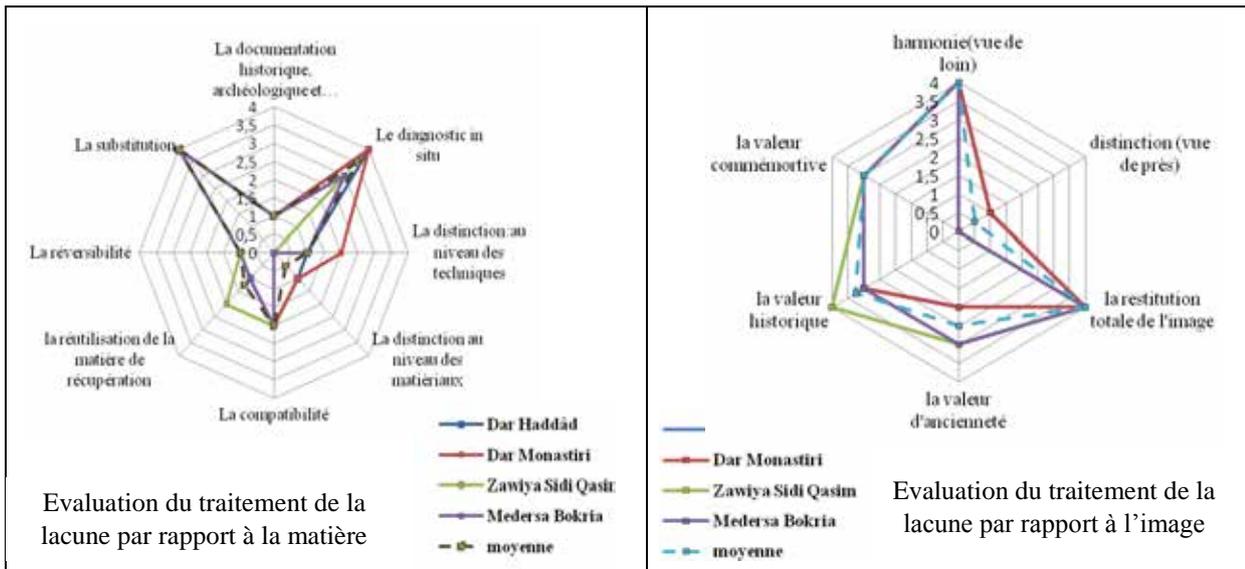


Figure2: Le cas de Dar Hadded avant et après intervention



Tableau 1 : Analyse des édifices restaurées (évaluation des techniciens)

¹³ Un travail de ce type est en cours de réalisation dans le cadre d'une thèse de doctorat à l'ENAU intitulé : **Pour une théorie des valeurs appliquée à la conservation-restauration : création d'un modèle d'aide à la décision**. La recherche est entreprise par Asma ZARROUK sous la direction de Fakher KHARRAT.



— Evaluation du technicien
— Evaluation du visiteur



Figure 5 : La mosaïque de Venus et les Venationes



Figure 6 : La mosaïque du seigneur Julius

Tableau 2 : Analyse des mosaïques restaurées (évaluation des techniciens)

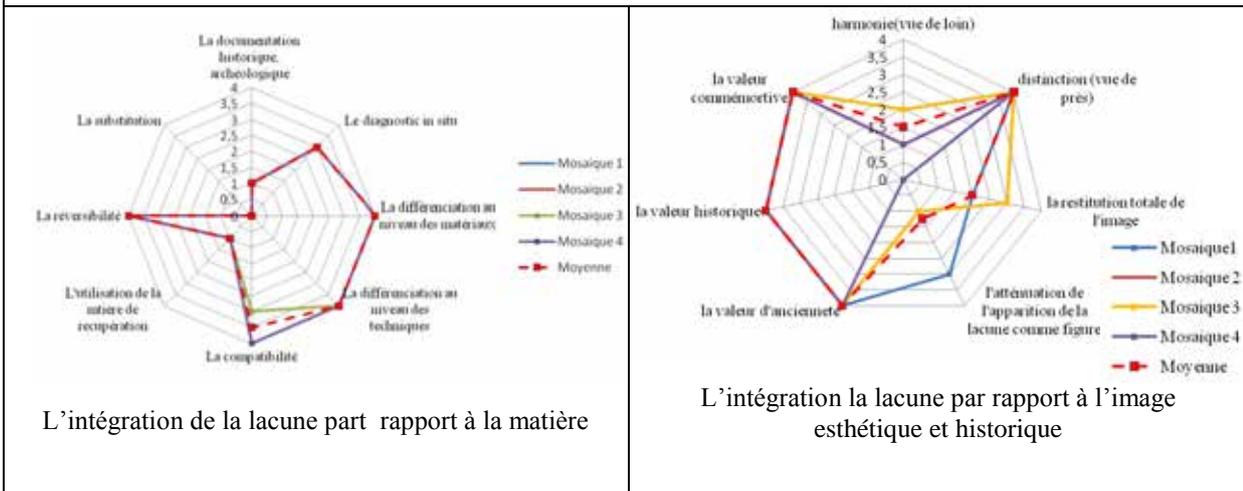
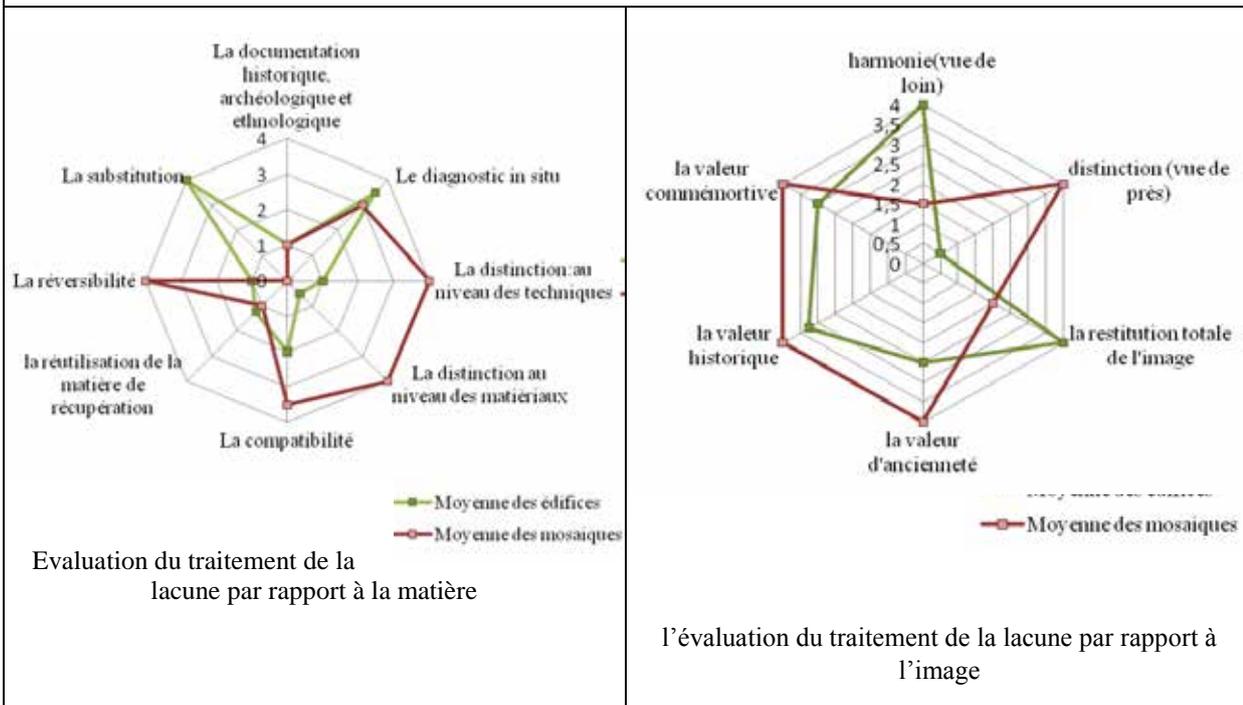


Tableau 3 : L'étude comparative : édifices/mosaïques



The Building Values in the Understanding and Conservation of the Architectural Typologies

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Abstract

In the course of history dominant architectural restoration criteria have promoted certain building values over others. Masonry construction and consolidation techniques applied under these criteria have at times proved to be inadequate to preserve the intended values.

There are architectural typologies with constructive invariants, which themselves contain building values. The study of different interventions applied to these typologies can provide information about which techniques are most suitable for preserving these values, and help in the preservation of similar typologies.

Keywords: Restoration; Criteria; Values; Consolidation; Invariants

1. Introduction

Restoration criteria have evolved over time simultaneously with consolidation techniques, confirming the statement “the history of restoration is the history of the construction resources of each time”¹⁴.

According to the dominant criteria of each period, efforts to preserve and protect architectural heritage have focused on enhancing certain values over others. While protecting them, other values considered less significant were neglected or destroyed. As a result building integrity was reduced, so new criteria were then formulated to cover these deficiencies, turning restoration into an increasingly complex process. Additionally, each consolidation technique has specific characteristics that can exert great influence over the intervention, distorting the message that the restoration itself pretended to express, at times even destroying values that initially were intended to be protected through the intervention.

This article will describe different restoration criteria and how they can affect building values. A methodology will then be established to help in the preservation of building typologies with architectural invariants. This methodology is based on the identification of these invariants and the values they contain. To conclude this paper the methodology will be applied on two architectural typologies obtaining information that will facilitate the understanding and conservation of similar typologies.

2. Preservation of the documental value in material appearance and structure

The artistic object as stated by C. Brandi is made up of image and matter, being the first one the support for the manifestation of the image. Matter is divided into material structure and material appearance, being both indivisible like the two sides of a coin¹⁵. Accordingly Viollet-le-Duc aimed to recover the building to an original state through restoration, in a unitary style that might never have existed. Being image and material execution important, he erased image and matter to reconstruct the material structure and appearance as a new support for an idealist image. This is different to what the followers of the *restauro stlisitico* pursued, they searched for an ideal style, but only giving importance to the image and not to the construction methods used to achieve it. They used the simplest techniques and low-cost materials, reconstructing only the material appearance without paying attention to how the material structure was built, lacking from the analytic and scientific rigour that defined Violet-le-Duc.

Ruskin, in his defence of the “no intervention”, kept image and matter in its appearance and structure, with all the documental values they contained.

¹⁴ (López Otero, 1932).

¹⁵ (Brandi, 1988).

As a reaction to the demolition and reconstruction proposed by the *restauro stilistico*, and also to the criteria of “no intervention” used by the English school, two restoration currents are born in Italy; *restauro storico* and *restauro moderno*.

The *restauro storico* proposed the recovery of the different architectural additions that had been lost, as long as enough documentation was found to rebuild them. They didn’t follow a unified image, but an overlay of images. Their reconstructions aimed for a historical image, but they also didn’t mind about their original construction methods, so they reconstructed only the material appearance but not its structure.

The *restauro moderno* and *scientifico* defended the preservation of the building chronology and the differentiation of each intervention. In some of their works they used “modern” techniques and materials, such as reinforced concrete, keeping image and material appearance, while modifying its structure, losing its documental values irreversibly despite their original intention of preserving them.

For the *restauro critico*, restoration was an architectural fact that followed functional and aesthetic criteria. It was based on a critic act, which analysed and recognized values of the building, and a creative act aimed at the recovery of the image removing everything that might distort it. Demolition of additions was accepted, regardless of the values they contained, if they were considered to disrupt the figurative unity. Any gaps could be filled in a fantastical way, so image and matter were removed entirely to meet functional and aesthetic goals.

In recent years many authors have attempted to develop criteria that favoured the preservation of the documental value of the building. In the formulation of the *restauro conservativo*, A. Bellini defines restoration as a scientific act in which the documental value is prioritized over the aesthetic. It is based on scientific rigor taken to the extreme, where any maintainable element is preserved, as it might not be significant today but may be interpretable and used tomorrow in a more enlightened scientific context¹⁶. Against the ever changing historical and aesthetic judgments, this current argues that the only ethically sustainable position is to abstain without altering the matter, since a resolution that results in destruction is not acceptable given the relativity of our judgment¹⁷.

Opposed to A. Bellini’s total conservation, P. Marconi defends the preservation of the architectural heritage’s documental value through traditional replacement techniques. His argument is based on the traditional conservation technique of masonry walls through sacrificial coatings. From its inception this technique provided the cyclic replacement as a tool for protection and conservation; sacrificial coatings consisted of less durable materials (“poor architecture”), that once deteriorated became useless to continue to protect the masonry, so it had to be replaced for a new one that could fulfil this function. These ongoing renovations, far from being considered forgeries, are necessary for the preservation of the masonry, without which their protection as envisaged in the beginning would not be possible. Therefore, the original construction system is preserved, according to Marconi, and so the documental value associated with it.

Marconi extrapolates this casuistic of the sacrificial coatings to other architectural components proposing the replacement of structural elements for static reasons, replacing full parts of the matter in its appearance and structure. He does not conceive them as differentiated constructions, he uses duplication as a tool to avoid the loss of the significance of the ancient monuments.

F. Doglioni considers excessive to accept reconstructions for preserving the authenticity of the object based on the lack of importance of the originality of the material, as this might lead to the use of replacement not just as a remedy against progressive deterioration, as Marconi defended, but to unlimited renovation operations. Consequently, after successive replacements, the total loss of authenticity is reached. Replacement techniques eliminate the trace of building damages, which are documents that allow us to understand the structural behaviour they obey. In this sense according to Doglioni’s ideas, matter is not only the support for the manifestation of the image, as stated by Brandi, but also has documental value and should therefore be preserved in both its appearance and structure once its firmness has been returned.

To L. Jurina techniques should be used to support the preservation of the documental value of matter, ensuring its original static function. The restoration must follow criteria of minimum intervention, have a reduced invasiveness, and aspire to the highest possible reversibility. Total reversibility, according to Jurina¹⁸, does not exist, but it should be the goal to aim to, to get closer to achieving interventions with a maximum degree of reversibility. This degree of reversibility depends on the type of contact between the intervention technique and the existing building. Diffuse contacts, like injections, are less reversible. A

¹⁶ (Marconi, 1988).

¹⁷ (Doglioni, 2008).

¹⁸ (Jurina, 2012).

higher degree of reversibility is found in structures arranged in "parallel" over existing ones, limiting their contact to the support from outside the masonry, like struts and cross bracing. They don't compete against nor cancel the old structure; they collaborate with it by increasing its resistance, while respecting its documental value.

Depending on the criteria and consolidation techniques applied in architectural heritage restoration, matter is totally or partially modified. This change means a loss or deterioration of the documental value contained in the matter of historic masonry. The following examples will describe the interventions over two residential buildings attending to the effects of the applied criteria and techniques over the building values.

3. Methodology applied on case studies

Some architectural typologies are repeated in certain geographical areas and include architectural invariants, which contain many building values. It is the case of the two examples analysed on this paper, the residential prototype that was model to the town of *San Lorenzo de El Escorial* in Madrid, and the vernacular typology called *Agra Coruñesa*.

The methodology used for the study of each case begins by gathering information of the building, which will be documental data as well as data collected from using the building itself as a source of information (construction methods, residential habits, its transformation over time, etc.). Architectural invariants and their building values will be identified through this information. Next, the state of conservation of the values contained in the invariants will be established. The results of this study will provide information regarding the features that must be protected in these and similar typologies, as well as the criteria and consolidation techniques that are most suitable for their preservation.

4. House for the Marquis of Campo Villar

During the 18th Century, King Charles III moved frequently to *San Lorenzo de El Escorial* to hunt. The court would move along with him to this small village that could not possibly provide shelter for all of them so the village began to grow rapidly.

The architect Juan de Villanueva, besides participating in the urban layout of the village, wrote regulations for the housing buildings, establishing a module of minimum cost to ensure the quality of the buildings in the village. He also designed two houses as building models for the rest of the village to take as a reference. One of them was the house for the Marquis of Campo Villar (fig. 1).

The original building had a two-storey rectangular body with an additional habitable attic space. Spaces are set symmetrically on both floors, with two large rooms at their ends covered by barrel vaults. The access is located on the symmetry axis, reflecting this composition the time Villanueva spent in Rome and his appreciation of the Italian Renaissance. These items are part of the artistic value of this property, which is one of the first residential neoclassical examples Villanueva designed.

Additionally, this building is testimony to the good work of the time; a model with great documental value that followed the module of minimum cost developed by its creator. The vaults executed in brick and the walls with two layers of masonry with a mixed core are some of the constructive elements that are repeated throughout the villa, as well as the windows horizontally marked by its granite frame.

In 1927 an intervention was conducted following functional criteria. A volume was added to the original rectangular plan, transforming it into an L shape. Moreover this action sought a unified style, similar to criteria from the *restauro stilístico*, as the finishes that are used and the openings composition are similar to the original, although with poorer materials. The volumetric simplicity and the symmetry of the elevations was lost with this intervention and therefore part of their artistic value. Part of the original masonry, along with its documental value, was removed to attach the new volume to the original one.

Two years later, again functional criteria was used to add a new level to the building, removing the original attic, losing in the process all its documental value irreversibly, including details about its structure and construction. Most brick vaults from the upper floor were removed to insert slabs for the new level. Matter from the masonry construction is completely removed in these interventions, and new undifferentiated bodies are added creating new matter similar to the original in its appearance but not in its structure. This last intervention included on the east façade a glass gallery with a concrete structure which also followed functional criteria, but unlike the previous interventions this case was planned as a differentiated addition. However this action covers the original facade, concealing its artistic value.

5. The Agra Coruñesa

This vernacular typology can be found in isolated villages in interior regions of *La Coruña* in northern Spain. These villages originally based their economy on agriculture and ranching, which reflected in this type where the spaces for these uses coexist with the residential.

The typology comprises a rectangular two-storey core and a space between roof and ceiling that serves as a ventilated storage space for food (fig. 2). The kitchen is located at the ground floor and inside it is the *Lar*, a raised area where the fire was made and which makes the main meeting place for the family after a day of work. The animals were placed in the stables which are separated from the kitchen by a hallway that divides the plan in two and includes a staircase leading to the upper floor where the bedrooms are found.

Additional bodies are attached to this core, containing spaces for the animals and for agriculture use that are usually accessed from within the house.

It is a typology of great documental value as its design corresponds to residential and productive habits of the time in which it was built. In addition to this, these typologies have several common characteristics in their construction, with a documental value that allow them to be identified as *Agras Coruñesas*.

The outer 60-80cm thick walls are two layered masonries made of granite or slate and a core of smaller stones that sometimes are combined with mortar. The gaps between the different pieces are filled with smaller stones. To give consistency to the walls, some larger stones are placed across the wall in all their thickness. Corners are also executed with higher quality stones.

The gabled roof is covered with clay tiles that rest on a wooden frame that sits on the masonry.

Finally, wooden beams and joists and wide decking boards form the slab that rests on this structure. The bearing masonry is narrowed occasionally to allow for the support of the beams.

The studied sample is located in the village of San Clemente. An intervention was made by its current owners in 2012 following functional and aesthetic criteria. The existing roofs were removed in this intervention and with them all their documental value, being replaced with a metal structure. Also one of them was transformed into a terrace. One of the bodies of the building is extended as an undifferentiated volume to accommodate a garage. Matter from the walls are here reconstructed in both material appearance and structure. The access is formed by a concrete portico covered by stone cladding using stylistic criteria, seeking to preserve the image of the building by using matter similar to the original in just its appearance.

The external layers of the masonry walls were originally placed without mortar and had several areas with gaps and loose stones. Gaps were filled during the intervention with local stones, and then a general infilling and pointing of joints was implemented with a rigid mixture based on white cement to give a general cohesion to the building. Matter in the masonry was altered both in appearance and in structure (fig. 3). It would have been more appropriate for this masonry to use a lime mortar instead. Also the infilling should have been limited to the core of the masonry to maintain the original conception of open joints between the stones of the masonry. To do this, long tubes could have been placed along the wall to inject the filling by gravity assuring they reach its core. This technique would have respected the original conception of the structure and the original construction system.

Finally, the wooden structure slabs were replaced by new reinforced concrete beams and joists, reducing the section of the existing perimeter wall to accommodate a concrete edge beam of 40cm to tie the walls together and add consistency to the building. This intervention is hidden and changes the structural system irreversibly. It is similar to the techniques employed during the *restauro moderno* and *científico*, achieving similar results by preserving the matter of the masonry only in its appearance, but not in its structure. At that time the use of these techniques represented a significant progress in restauration, however, today experience has shown the need for less invasive techniques with a higher degree of reversibility.

6. Conclusion

As these examples show, some recent interventions follow criteria that have been discarded long ago.

In many cases there is a lack of understanding of the characteristics from the consolidation techniques being used. Other times there is an absence of knowledge of the building values and the features that contain them. Many times this has led and continues to lead to interventions with purely functional or aesthetic purposes that use inappropriate techniques destroying progressively and irreversibly the authenticity of the building, understood as the integrity of the values it contains.

Changes in the matter from historical masonries can suppose a damage in their documental value. In many cases these changes may manifest in matter of historic masonry walls in its material appearance, in the form of damages such as cracks, detachment of material, etc. However in other cases, such as hidden consolidations made with reinforced concrete, matter in its structure may be damaged even though its

appearance remains unchanged, as it goes from being a witness of a historic masonry designed to work isostatically, to an indeterminate mechanical system. Therefore, preservation of the appearance does not imply that documental values have not been damaged.

The protection of poorer constructions, such as the Agra Coruñesa, is essential as their extinction imply a loss of cultural identification in the region and examples of great documental value.

Several authors have extolled the importance of involving users or residents in the restoration process as they are the recipients of the interventions¹⁹. Regardless of the legal protection assigned to the various architectural heritage elements, it is essential ensure their interest. Informing users of the elements that add value to their own or surrounding properties will ensure that they become their greatest protectors, which will greatly help in the process of preserving a heritage that today continues to decrease.

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¹⁹ (A. González, 1999).



Figure 1: Front elevation: symmetry axis marked by cushioned stone gate with semi-circular arch, small cantilevered stone balcony above as a reflection of Villanueva's stay in Rome.



Figure 2: Agra Coruñesa.



Figure 3: Masonry wall before and after the cement infill and pointing of joints.

A World Heritage Application as an Opportunity for Urban Intervention: the Case of Coimbra

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Abstract

Coimbra's World Heritage Application was a long process, lasting from 1982 to 2013. It occurred within the city's development policies. The Application Dossier presents a system to manage the classified area: a dynamic Management Plan, a management board that coordinates the institutions responsible and some legal and technical management instruments. All these work together to achieve the main goal of the application: safeguard and protect the Property, develop its urban context sustainably, and be a new way of considering the city's urban project.

Keywords: Coimbra's World Heritage Application; Image of the City; Urban Intervention Tools; Urban Development Management

1. Introduction

A patrimonial classification attributes a specific context for urban intervention and for the field of architecture: the constant conceptual evolution since post-Second World War has introduced specificities and characteristics into the definition of urban space, discussed and elaborated in the fundamental text¹ (1964), *Venice Charter*.

However, a World Heritage Application (WHA) may be a lengthy process. The University of Coimbra (UC) has taken part in the restricted group of World Heritage Universities since the 22nd of June, 2013. But the process started in the beginning of the 80s and was the first Portuguese WHA.

There are three phases to Coimbra's WHA²: the first started on the 17th of March, 1982 with several tentative applications to being designated *Historical Centre*, promoted by the Municipality of Coimbra; the second began in 1998 and was characterized by an introspective study period undertaken by the UC; the third period was defined from when the UC was put on the Tentative List of Proprieties on 14th of May of 2004 by the Portuguese UNESCO National Committee until it was awarded the title.

The main purpose of this paper is to establish the operational links between some emerging tools in Coimbra's WHA, defined in this third period, and their possible application for the urban intervention in the present context of the city. The *University of Coimbra – Alta and Sofia (UC-A&S)* is the first Portuguese World Heritage Property defined with material and immaterial cultural components and that introduces some procedural advances, like its Management Plan³, in accordance with *La Valletta Principles*⁴.

2. The Property – brief contextualisation

The first Portuguese University was created at the end of the XIII century, its site varied over time between Lisbon and Coimbra⁵.

¹ (Jokilehto, 2005).

² (Capela, 2013).

³ "A Management Plan is a document specifying in detail all the strategies and tools to be used for heritage protection and which at the same time responds to the needs of contemporary life. It contains legislative, financial, administrative and conservation documents, as well as Conservation and Monitoring Plans." (ICOMOS, 2011: 4).

⁴ (ICOMOS, 2011).

⁵ (AAVV, 2012b-I).

In 1527, the Portuguese King John III decided to make use of the reform of the Convent of Santa Cruz in Coimbra and, ten years later, the Portuguese University was transferred definitively to Coimbra⁶, on the 1st of March, 1537.

The University reform was inspired by the model of the University of Alcalá de Henares, founded in 1499 by Cardinal Cisneros, and its Constitutions⁷, which were approved in 1510. While in Alcalá de Henares, the model followed to define the new urban structure of the University Town from the market square⁸ was the *City of God*, in Coimbra, there were two main principles to achieve, the construction of a new university area and an urban extension plan⁹ from the Convent Square of Santa Cruz. From the beginning, this new urban structure was defined as a street and named *Rua de Santa Sofia*¹⁰, which indicates its principal intention and function. Meanwhile, the Rector's House was transferred to the royal palace, in the upper part of the city, in October of 1537, where it remains to this day¹¹ (fig. 1).

The concept of a University Town has been absorbed over centuries and it was used as a national urban project to improve the University's upper area¹² in the XX century by the dictatorial regime. The objective was to proceed with an advertising programme about the image of the state's political power using the University as a national project. The dimension of the urban intervention¹³ was contested then and continues to be so nowadays. However, that controversial intervention is, today, part of a World Heritage site, adding value to the future¹⁴ of the city of Coimbra.

*"Perhaps more important than the award of the classification itself, the University's application for UNESCO world heritage status has challenged the city to change its mind-set and intervene in the built heritage."*¹⁵

3. University of Coimbra – Alta and Sofia Management Plan

Volume II, *University of Coimbra – Alta and Sofia Management Plan*¹⁶, is an integrant part of the *WHA Dossier* and identifies several dimensions related to the management of the two nominated areas, *Alta* (the upper area) and *Sofia* (the lower area), and its protection area (fig. 2). This document defines the *Principles and Policies*¹⁷, *Specific Objectives*¹⁸, *Strategies and Responsibilities*¹⁹, before and after the World Heritage Title, with the aim of guaranteeing multiple approaches to the problems related to the dimension of the Property and its insertion in the city²⁰. These approaches are designed to promote a dynamic management and planning through various instruments like the *Action Plans*²¹ and monitoring and reviewing management plans established for a 30-year period²².

The aspect of the Property and public and private ownership are other issues dealt with in Volume II. It proposes a possible partnership between public and private owners where the UC and the Municipality of Coimbra (CMC – *Câmara Municipal de Coimbra*) play a key role in its management model and safeguard

⁶ About the diachronic project of the city and its buildings to accommodate university programmes development see (Rossa, 2001); (Pimentel, 2005); and (AAVV, 2006) also. Concerning the contextualisation of the Property (AAVV, 2012b).

⁷ Rossa Walter (2006) – "A Sofia primeiro episódio da reinstalação moderna da Universidade portuguesa". *Monumentos* 25, 16-23, Lisboa: DGEMN, p. 22.

⁸ (AAVV, 2012a).

⁹ (AAVV, 2006: 19).

¹⁰ (AAVV, 2006).

¹¹ (Pimentel, 2005: 14).

¹² (Rosmaninho, 2006).

¹³ There were three moments that determined the Master Plan of University Town of Coimbra: the first was developed by architects Raúl Lino and Luís Benavente (who took part of the executive board of the *Venice Charter* later, in 1964), nominated by the Portuguese Government (1934-36); the second was coordinated by Luís Benavente (1939-40); the third was managed by Cottinelli Telmo (1941-48) and used the architecture as a demonstration of the regime's power. While the first and second instances tried to promote a local intervention project, in dialogue with the existent buildings and urban spaces, the last one promoted a large-scale destruction to construct a new image of the city – a university town (Rosmaninho, 2006).

¹⁴ (Murtinho, 2012). To verify other ways of heritage intervention in Portugal, see (Tomé, 2002).

¹⁵ (AAVV, 2012b-VII: 6).

¹⁶ The WHA Dossier of *UC-A&S* is a seven-volume strategic document: I – Nomination for Inscription on the World Heritage List; II – Management Plan; III – General Texts; IV – Influences; V – Master Plans; VI – Execution; VII – Protection Area.

¹⁷ (AAVV, 2012b-II: 133).

¹⁸ (AAVV, 2012b-II: 135).

¹⁹ (AAVV, 2012b-II: 137).

²⁰ The total Property area is 117 hectares: *UC-A&S* has a total area of 35.5 hectares, 29 of which correspond to the *Alta* (the upper part of town) and 6.5 to *Sofia* (the lower), these areas are surrounded by a protection zone of 81.5 hectares.

²¹ (AAVV, 2012b-II: 141-161).

²² (AAVV, 2012b-II: 163-165).

structures by developing “methodologies and criteria for intervention and financial support”²³. Although the creation of the *City – Univer(sc)ity Association*, was proposed to share “responsibilities in the management of the whole territory included in the nomination” by these two Institutions, it was not clarified how it would work. This original association was improved in 2012 to create another, more complete one, adding other relevant institutions and the RUAS Association²⁴ took over responsibility. It adopted an innovative model that unites all the official institutions with executive responsibilities for promoting the legal jurisdiction in the Property – the UC, the CMC and the Regional Office of the State Secretary of Culture (DRCC – *Direcção Regional de Cultura do Centro*). Without the RUAS Association, the Management Plan would be more difficult to apply because the legal instruments are governed and managed by all those various different participants.

4. The main legal instruments for protection

In Portugal, complex restrictions are imposed on interventions in classified areas. Any application for a heritage nomination is immediately safeguarded by the national legal jurisdiction and mostly by quantitative parameters, in order to protect and conserve any possible future heritage area. The National Law on Cultural Heritage, *Decree-law no 107/2001, September 8th*, governs the protection and safeguard regime for cultural heritage. It is regulated by *Decree-law no 309/2009, October 23rd*. This National Law automatically establishes a Protection Zone for any proposed heritage nomination. A surrounding safeguard area which is 50 meters from the property’s external perimeter limits²⁵ is established, which will influence not only the spatial understanding of the insertion area, but also the entire city. This point encourages those responsible for the urban planning to assess the purpose of this limit within the urban space. After a profound technical evaluation this Protection Zone should be revised, establishing a *Special Protection Zone* based on topographic or landscape references and the urban context.

For Coimbra Property, there are more specific legal instruments to safeguard its proper protection, based on national and local regulations and norms:

1. *Announcement no 14917/2013, December 5th*, published in the National Official Journal²⁶, made the addition of the *UC-A&S* to UNESCO’s World Heritage List known and the classification of the Property as a National Monument and the definition of its *Special Protection Zone* (fig. 1);
2. *Municipal Regulation of Urban Building, Recovery and Reconversion of the area resulting from the nomination of the University of Coimbra as World Heritage by UNESCO, including the Protection Area* (Announcement no 2129/2012, February 10th), published in the National Official Journal²⁷, states the regulations concerning the enhancement, development, valorisation and safeguarding of the referred area;
3. *Coimbra Municipal Master Plan (PDM – Plano Director Municipal) (Announcement no 7635/2014, July 1st)*, published in the National Official Journal²⁸, made the strategies for territorial development and land occupancy rules for the city known;
4. *Strategic Plan for the City of Coimbra*, approved by the CMC²⁹ in 2010, published the four main purposes based on i) developing the regional economy, ii) increasing the health cluster, iii) safeguarding and restoring cultural heritage and iv) managing sustainable urban development, defining the regulation of the Urban Rehabilitation Areas (ARUs – *Área(s) de Reabilitação Urbana*), which are relevant for the areas of priority for urban rehabilitation – Lower part-River (*Baixa-Rio*) and Upper (*Alta*) (fig. 3).

These legal jurisdictions (fig. 4) are promoted by the RUAS Association concerning the Property and its protection area, it is defined that all the urban operations in the classified area will be analysed and authorized under the coordination of the Association, RUAS.

However, this analysis goes beyond the Protection Zone’s boundaries; it includes a wider surrounding area than the Protection Zone to assure the visual protection of the Property.

5. Emerging tools, an opportunity to safeguard and protect urban heritage

²³ (AAVV, 2012b-II: 7).

²⁴ *Associação RUAS – Recriar a Universidade, Alta e Sofia* (Recreate University, Alta and Sofia) was founded by the UC, CMC, DRCC and a Public Company for Urban Rehabilitation (*SRU Coimbra Viva*), the latter does not have an executive role.

²⁵ This limit is imposed on a Heritage Application, in Portugal, since 1932 – *Decree no. 20985, June 7th 1932*.

²⁶ *Diário da República, 2.ª série — No. 236 — 5 de dezembro de 2013*.

²⁷ *Diário da República, 2.ª série — No. 30 — 10 de fevereiro de 2012*.

²⁸ *Diário da República, 2.ª série — No. 124 — 1 de julho de 2014*.

²⁹ *Edital No. 21/2010*.

Confronted by some doubts and questions related to the limits of the Protection Zone, raised by ICOMOS after its analysis and visit to the site, the UC-A&S WHA answered them with a project methodology based on the Zone of Visual Influence (ZVI) from the viewshed analysis. The Property has a total area of 35.5 hectares and a Protection Zone of 81.5 hectares. It is very difficult for the institutions responsible, the UC, the CMC and the DRCC, to guarantee inspection of everything that happens in those 117 hectares.

Nevertheless it is important understand that the area surrounding the Property and the Protection Zone is an urban context that characterizes and promotes the iconic image of the “Lusa Atenas”, crowned by the UC. The image of the city depends on its urban surroundings which are already safeguarded by the three levels of protection in Coimbra’s PDM.

Actually, the proper dimension of the limits of the classified area could have been higher than the present one, but the diverse quantity of owners would implode the most suitable management model due to its super-dimension. The link between the Property and its urban context, due to its setting, is a bond that recreates and remembers the importance of history, collective memories, the site and the city’s spatial representation. These attributes compound the city’s image, repeatedly reproduced by painters, musicians, poets and general artists over the centuries. This is an important facet worthy of protection for the future, because the city’s image creates and establishes the greatest link with its communities – a safe, womb-like place and a home – an identity (fig. 5).

For that reason, a viewshed is a protection area for the Property, visually involving it with its urban context: it is an area to see from and to be seen (fig. 6). Creating a double sense of control and responsibility nurtured by the UC-A&S and those observing them too (fig. 7).

Methodologically, a laser measure system was used to obtain a Digital Surface Model³⁰ (DSM), on a Geographic Information System (GIS) program. This model is the most suitable to study and to define the protection area’s visual bay from/of the Property and to establish a suitable plan to safeguard and to protect it from future changes or intrusive interventions, without needing to classify a huge protection area. The ZVI project consists of two components, the observation point and the visual bay³¹. The results are indicated on the DSM, according to the median value of the human-eye level, which was considered as 1.65 meters. These results show the extension of the ZVI from various observation points in the classified area (fig. 8). When all these individual results are superimposed, they show what is called a magnitude viewshed. It means that the final result is based on the overlapping of the results from several points, constituting a compound viewshed. The result of the magnitude viewshed assesses the areas most susceptible to suffering intrusive interventions and promotes the constant monitoring of some items of the Management Plan (fig. 9).

As Labadi and Long claimed (2010), heritage sites play multiple roles. The conservation process makes it possible “to place marketing strategies, not only to attract tourists but also to help in the re-creation of local identities”³². A city and its image is also a European legacy and a profitable resource, as Council of the European Union³³ pointed out (2014) recently. This legacy has contributed to defining and developing the concept of human landscape, since the factory chimneys replaced the pinnacles of cathedrals.

The ZVI is an emergent urban intervention tool, used in architectural and urban landscape planning, which could be used to verify the major spatial connections in a city and prevent possible harmful interventions by its privileged overview of an urban space. This system reflects the main purpose of the present theme, because not only could it help protect sensitive areas, but also the planning of the entire city. It means identifying all visual obstructions from/of the Property, thus revealing its potential as planning tool for the practice of architectural landscape.

6. Conclusion

This paper has discussed Coimbra’s WHA operative tools, which can contribute to developing the city’s project, based on a profound knowledge of the Property:

1. The Management Plan, which has been revealed as a fundamental document where the discussion and policies about the management of the Property and Protection Zone are defined in order to guarantee the urban spatial continuity of the city;

³⁰ A DSM is a high resolution model, which represents the earth’s surface and all object surfaces, which are upon the ground, like buildings and trees. For the methodology of this project, the DSM is better than other digital models, like Digital Terrain Model, because the introduction of existing objects into the model guarantees more realistic results (RUAS, 2013).

³¹ A visual bay is the physical area on earth, on water or on air, visible for the human eye from an observation point (RUAS, 2013).

³² (Labadi and Long, 2010: 7).

³³ (European Union, 2014).

2. The constitution of the RUAS Association based on a formulation of policies about compromises and synergies between the institutional entities responsible for safeguarding and protecting the area – the UC, the CMC and the DRCC;
3. The visual protection system, which has been formulated to reply to technical doubts raised by ICOMOS about the defined limits of the Property and the Protection Zone and could also be an emergent tool to sustainably safeguard urban landscapes as urban heritage.

The introduction of the tools mentioned should be seen as an opportunity to develop the urban intervention process and the city's urban management, considering that they could be a pertinent way to deal with the constant development of the concepts inherent to seeing urban heritage as a human value.

However, this possibility should not only be recognized when it is embraced by a patrimonial title; it could also be used preventatively as an urban project tool to safeguard urban heritage, considering the entire city, not only the plans, but also the sections, the elevations and the visual frameworks which characterize the authenticity of the city's image. Furthermore, this approach implies that the city's image is also part of an urban heritage, like a human landscape, by which the identity of the city and its representation is determined, based on its place, its culture and its collective memory.

To sum up, it is assumed that the process of urban intervention and the development of urban management need to rethink and replace some kinds of tools that no longer work for the benefit of the city and its urban space. It is necessary to discuss urban intervention policies and their dynamics to avoid the destruction of an urban heritage with or without a patrimonial title and to create synergetic bonds with the private and the public entities involved.

Learning by analysing of the process of conserving Coimbra's heritage could be one more opportunity to consider the city that we want for the future, assuming that it will be better than the present one.

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Fig. 1 – “Paço das Escolas”. (Photo: FG+SG).



Fig. 2 – The Property areas and its Protection Zone. (AAVV, 2012b-I: 224).

Fig. 3 – Identification Plan of Areas of Urban Rehabilitation. (AAVV, 2012b-VII: 120).

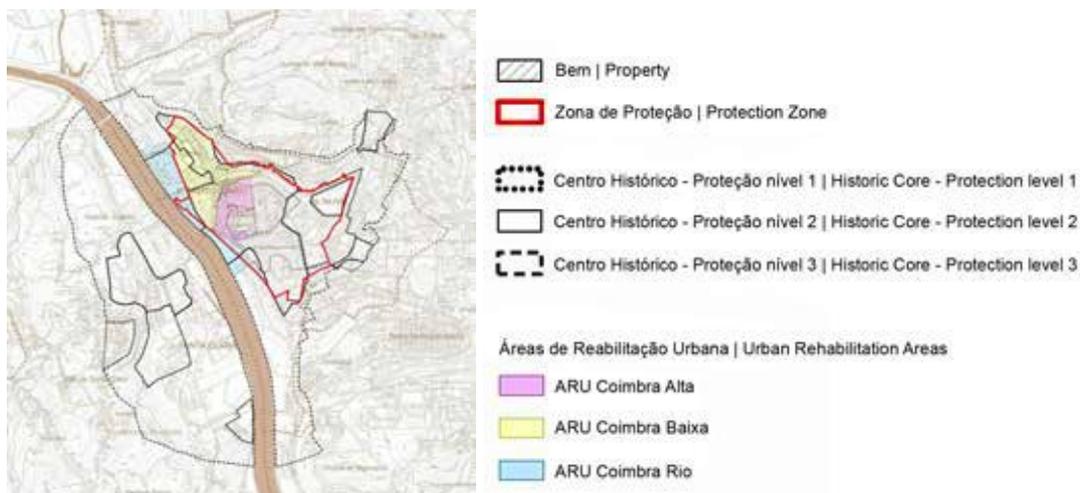


Fig. 4 – Protection’s main legal instruments. (RUAS, 2013: 7)



Fig. 5 – The city crowned by the UC. (Photo: Alice – CES, 2013).



Fig. 6 – View from the UC Tower. (Photo: FG+SG).

Fig. 7 – View of Sofia. (AAVV, 2012b-I: 67).

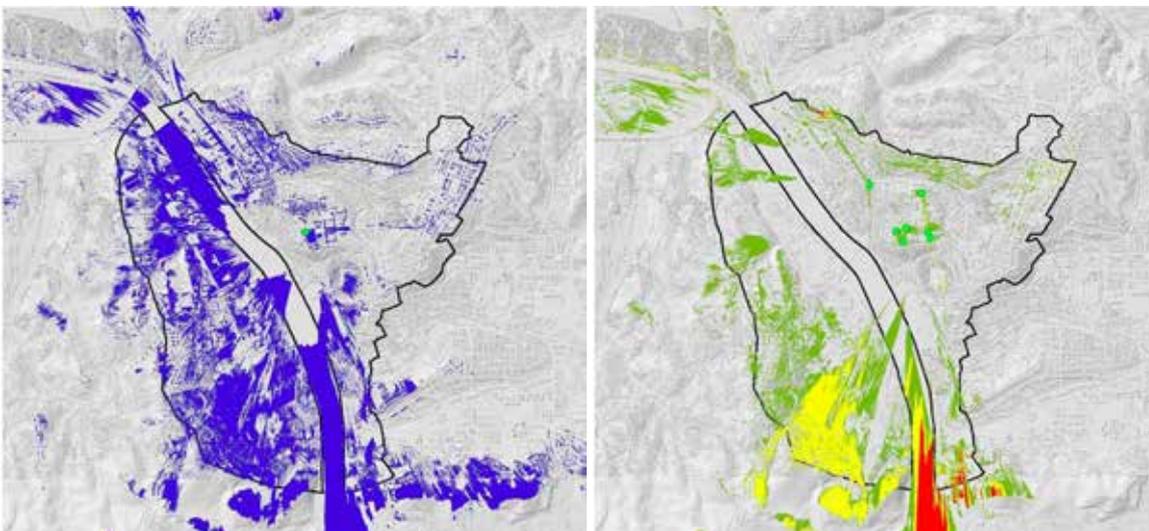


Fig. 8 – The ZVI from the UC Tower and confrontation with the Historic Core Limits (PDM) (black). (RUAS, 2013: 49).

Fig. 9 – The result of the magnitude viewshed from the signed places and confrontation with the Historic Core Limits (PDM) (black) and the nominated areas (red). (RUAS, 2013: 13).

Applied Studies of Geotextile Usage in Conservation and Restoration of Heritage Building: Case Study of Tahe Baghe Lale Bathhouse, Kerman, Iran

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Abstract

During the recent years, the effect of human factors on historical and cultural monuments and textures has threatened some of the cultural complexes as a serious harm. Ignorance of some of the officials has led to the change of usage and, at times, to disintegration of the main framework of these cultural monuments. Ancient textures of the cities are always of especial significance because they are historical and are located in the centers of urban activity. However, the ancient textures of the central parts of these cities due to their particular socio-framework and economical structure in comparison with other cities are of higher value because in these buildings, the architectural as well as cultural passage and evolution can be traced back to several centuries. The status of such textures due to their being regarded as one of the axes of urban development provides conditions for having a new outlook on restoring historical-cultural textures in these cities. One of the important and culturally valuable monuments in Iran is Tahe Bagh-e (End Garden) laleh Bathhouse, which is one of the ancient buildings located in Kerman (east of Iran). Based on the existing evidence and the late Islamic Era architectural style and also with regard to the type and style of decorations, this monument belongs to the Ghajar Era. This twin bathhouse with lime-work and decorations, stone carvings, and tile-works is among the rare and valuable bathhouses in the country. One of the important problems facing the complex during the recent years is the rise of ground water level which has destroyed part of the men's section of the bathhouse. In this research, after the study and pathology of Tahe Bagh-e (End Garden) Laleh Bathhouse, conservative and restorative measures with the use of modern restoration technologies (Geotextiles) for better maintenance of this complex have been presented.

Keywords: *Geotextile; Bathhouse; Pathology; Restorative*

Why in a desert city that has always faced with water shortage, we're faced with flooded buildings?

Bath, is one of the architectural spaces which is in direct contact with water. Water has always been considered one of the most sacred natural elements by the Iranians. As the *Avestan* and Pahlavi texts have referred to the importance of commemoration and celebration of water. Washing the body was important from two aspects: physical and mental purity. That is why the use of spaces where one could wash and cleanse was considered in the course of Islamic and historical eras by the Iranians.

Bathing conveys two highly important principles; first hot water and then privacy (Whereas in Iran showing off the bare body of woman and man is not allowed). Heating the water and using it as well as maintaining the privacy which before Islam and after Islam were morally important to Iranians caused enclosed architectural spaces known as the bathroom.

Generally creation of bathes in different places has been designed with considering the access to water resources and outflow of sewage¹. So the most urgent issue was access to water resources.

Water resources

Water resources included springs, rivers, wells and the “*Ghanat*”s. For approaching these resources and domination of water with respect to the bathes most of the bathes were built into the ground.

Three thousand years ago, Iranians were aware of the groundwater flow and since the groundwater in most parts of central Iran is salty and unusable, they had brought the ground water from water-containing layers of mountain slopes to the desert margins by the force of gravity and had made deserts fruitful. This task was

¹ (Pope, 2009).

done by the “*Ghanat*”s which sometimes were built at 30 meters deep and 80 to 160 kilometers long to maintain water for use.

“*Ghanat*” consists of an open mouth and an underground tunnel-like channel and several vertical wells which connect the underground duct at specified intervals with the ground (fig. 1). These wells in addition to being ducts for transferring drilled material out also perform the air conditioning operation of the underground channels and provide a channel for dredging, repairing and visiting the inside of the “*Ghanat*”. Digging the “*Ghanat*” usually starts from its surface which is the dry ground and ends at the water discharge mother zones of the well. In fact, first the opening of the well and then the first subterranean wells which are all dry are drilled. Then work continues toward the upper hand parts which are the water discharge zones of ground².

Location (site of construction)

The city of Kerman is located in the desert area in the South East of Iran; a country where deserts comprise 23% of its area. *Dasht-e Lut* (*Lut* Desert) is located to the northeast of this city, the core of which is one of the hottest spots on Earth (fig. 2). Kerman, with an average annual rainfall of 136 mm, is considered among the dry and arid cities of the country³.

In Kerman, there are about 16 registered baths four of which are governmental and the rest are local. Governmental baths were rather for entertainment and were constructed within the governmental castle. These baths were exclusively devoted to courtiers and the king. Local bathrooms were formed in the center of the populated neighborhoods.

“*Tahe Baghe Laleh*” Bath is among the local baths which were built during the late *Safavid* dynasty (1722-1501 AD) and early *Qajar* (1925-1791 AD) in “*Tahe Baghe Laleh*” neighborhood which is one of the relatively large and old neighborhoods in Kerman. The collection includes men's bathroom, women's bathroom, service spaces and the bath trustee's house.

The main spaces of each bathroom include “*Sardbineh*” (cold place) and “*Garmbineh*” (hot place) which are connected by a countour named “*Miyan dar*”. The locker room is located in the “*Sardbineh*”, the bathroom in “*Miyan dar*” and the hot water “*Khazineh*”, and bathing space and “*Shahneshin*” in “*Garmbineh*”. Access route has an interesting design and the arrangement of the aforementioned spaces has a special order. First the entrance space is in direct contact with the outside space. Then, a narrow aisle first reaches the atrium (vestibule) and from there to the “*Sardbineh*” of the bathroom and the “*Miyan dar*” which connects the “*Sardbineh*” with the “*Garmbineh*” (fig. 3).

Foundation

Foundation of the building is of rubble stone and lime concrete that has been built at the depth of 120 cm depth below the walls. The walls which are in contact with water and humidity have been built using bricks which have been baked at a temperature over 1200 degrees and have been covered with tiles. Mortar has been used to cover the interior spaces and interior walls of the pools and *Khazinehs* and lime coating to decorate the ceilings. The ponds are made of stone and the structure of the building is made of brick⁴. Bathroom ceiling is in the form of a dome which at any part has been built according to the importance and dimensions of space. On top of each dome a window has been installed to provide natural lighting for the bath.

Pathology

The initial damages in this building which was used up until late 1990's appeared in the form of tiny cracks, moisture spots on the walls, swollen coatings, mortar deterioration and separation of materials. The damages indicated the existence of moisture and its penetration into the walls. But about five years ago the bathroom flooded (fig. 4).

In early investigations it seemed that underground water levels have increased and since the bathroom has been built at the depth of 6 meters under the ground, it has faced this problem more (fig. 5).

Nitrates on the tiles which had been caused due to penetration of moisture into the walls showed impurities in the bath water. Testing water and nitrate, proved the presence of urea in water and this meant that urban wastewater had entered the underground water table (fig. 6).

² (Pope, 2009).

³ (Kerman meteorological bureau, 2010).

⁴ (Cultural heritage, handcraft and tourism organization, 2005).

Research showed that during the past 30 years the underground water level had increased about 8 m⁵. To address this issue, the author has investigated the historic literature and has studied all happenings and evolutions took place in last 300 years and has found the caused of recent water cloggings in obstruction and failure of “*Ghanat*” ranges due to non-normative street construction and building and also the entrance of the sewer of other places into the “*Ghanat*”s through absorption wells due to lack of municipal sewer systems.

Underground water tables and using them which once was one of the concerns of the people of Kerman and was the basis of the conflict with the climatic conditions today, because of mixing with sewage, is not even fit for watering gardens and forests. The reason for this incident is disturbance of ancient structure’s order. In the old city of Kerman due to its location within the desert, life was based on water management system. It means that strings of “*Ghanat*”s had been expanded beneath the city in order to solve water-related problems by transferring groundwater from discharge areas to city. In fact, “*Ghanat*”s were considered the vital arteries of the city which with a simple but calculated structure made the transition from the water shortage crisis possible.

“*Ghanat*” destruction in Iran dates back to 1967 when in the country's plains and in the “*Ghanat*” areas deep and semi-deep wells were dug to solve water development problems in Iran. Unaware of the fact that this led to a drop in the underground water level and lower water discharge of the “*Ghanat*”s.

In Kerman, destruction of “*Ghanat*”s was accompanied with excessive and non-normative construction; actions that rather than keeping the structure of old complexes, by disturbing them, lead to damage and destruction of buildings that had no connection with the new constructions.

Harms done to the bathroom raised the possibility of the existence of a “*Ghanat*” path beneath the bath because the most severe damages had been created in a particular direction and in the eastern part of the bath where the entrances and the shop were located. Severe cracks had been created in the shops and they had been pulled down. In the entrance hallway of men’s bathroom walls and *toyzehs* had crumbled, plinth stones had shattered and the wall had bent. In the *Shahneshin* of *Sardbineh*, of women’s bathroom cracks in the floor and the swelling of the coatings and loosening of tiles and bricks were observed. In this section, the foundation had been pulled down and the walls were tilted. The alley in the South East part of the bath had been pulled down and a pit had been formed.

Studying the map of Kerman “*Ghanat*”s and paying attention to the fact that the baths were constructed close to the water resources, turned suspicions into certainty. “*Ghanat*” path crosses just below the eastern part of the bath and had caused the scouring phenomenon (fig. 7). This phenomenon occurs when strong drainage layer is exposed to a fine layer such as clay. In this case, water penetrates the drainage through low permeability layers (clay), ashes fine clay particles, and will cause a pit. Here “*Ghanat*” plays the role of strong drainage and draws the water of the region, thus clay is dried and pulled down. (It is essential to note that soil type in this area was of fine type which consists of clay and silt and some silt-containing sand⁶)

Solutions

To resolve this crisis which has afflicted many buildings in the city of Kerman, the first step is to open the path of the “*Ghanat*”s so that groundwater is transferred through the “*Ghanat*”s.

The next step is dredging and drying of the “*Ghanat*”s. This helps smoothen the flow of groundwater and also enables us to exploit it.

The next act is to remove water and moisture from around the bathroom. Today in Iran, moisture disposal channels and drainage channels are used for this purpose. But in case of the “*Tahe Baghe Laleh*” bath, due to its critical situation and bad conditions and dealing with water instead of moisture, it is not possible and desirable outcome is not achieved. Therefore the use of geosynthetics is recommended.

Geosynthetics are products of polymeric material that are used for solving different issues in civil and geotechnical engineering. The polymeric nature of these products has made them very convenient and affordable for use on lands where high levels of persistence is required. The advantage of using is geosynthetics is affordability, speed and ease of implementation, flexibility in design and implementation, good durability and assimilation with the natural environment. These polymers are used for filtering, arming the soil, erosion control, separation and sealing. In fact, the greatest use of these polymers is in structures which deal with water and soil where they are used for soil stability and preventing the penetration of water. Road building and construction of dams are among these cases.

⁵ (Mahab Ghods consulting engineering Company)

⁶ (South geotechnical Lab).

Geosynthetics have not yet been used in restoration projects in Iran, but have been used in many construction projects and the result has been satisfactory.

Due to special circumstances of “*Tahe Baghe Laleh*” bath where both the soil has problems and water has covered the whole, these polymers can be very effective and solve both soil and water problems because so long as the problem of flood has not been solved no restoration work can be done on the bath, and thus the bath will face gradual destruction and severe decline. Besides, this method without changing the building and damaging the structures can be reliable and satisfactory.

To solve the problems of the bath, canals and wells equipped with geosynthetics are drilled around the bath. Canal transfer the water and play the role of drainage and wells are used to drain the accumulated water. Due to the property of clay which if dries up suddenly reduces in size and thus results in severe pull down of the building, this task must be done within a proper time, that is; more than a month. Calculating the amount of pumped water and its discharge can be effective in the timing.

Thickness of geosynthetics is between 0.5-5 cm. But since it is not possible to dig channels with a width less than 40 cm and inside the channels there should be space for work, a channel with the width of 1 m and up to 1 m depth is drilled below the foundation and within 3 meters from bathroom. Channel side slopes should be in the same direction that water is supposed to be pumped (the wells). On the canals route, wells are drilled with a depth 0.5 m greater than the depth of the channel. On these wells manholes are installed so that there will be neither visual problems nor any problem for dredging the wells (fig. 8). Alongside the wells, floor sweeping pumps are placed to draw and transfer the water. However, if “*Ghanat*” routes are opened, after discharge of water from within the wells, the water can be emptied into the “*Ghanat*”.

Concrete is pumped onto the internal wall of the canal which is on the bath side and a GCL layer is installed on it. In front of GCL a 20-cm-thick brick wall is drawn to put the polymer under pressure. This wall must stretch up to 1 m below the channel bed to prevent water from passing. GCL acts as insulation and the water does not pass. The outer layer of the wall is also covered by pumping concrete and then the geosynthetic layer is placed to act as drainage and direct the water into the channel. Middle channel is filled with rubble stone, cobblestone or pebble. Over the stones up to 30-40 cm soil mixture is poured and beaten up to be quite compact. Then the paving or asphalt is built over it. Placement of a layer of washed sand under the rocks can play the role of the filter (fig. 9). In the well concrete Coles are placed. Behind them geosynthetic sheets in the form of rings are placed and behind these sheets washed sand is poured. Between the Coles rubber pads are placed to distribute their pressure and prevent them from breaking (fig. 10).

Although bath problem is the problem of the city of Kerman and must be fundamentally solved, but we hope this method could work to completely resolving the urban crisis and save the “*Tahe Baghe Laleh*” Bath from being ruined.

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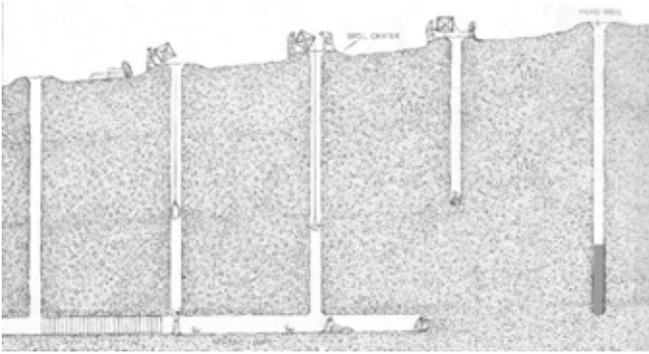


Image 1: Map of drilling the “Ghanat”.



Image 2: Location of Kerman city at Iran.

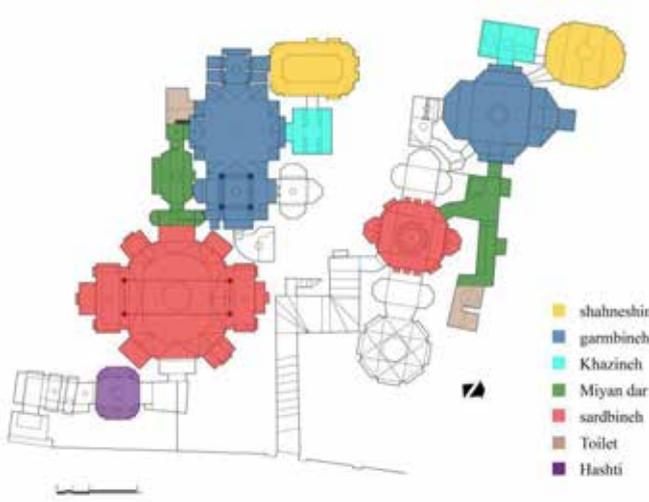


Image 3: Main parts of Baths.



Image 4: Flooding of the bath.

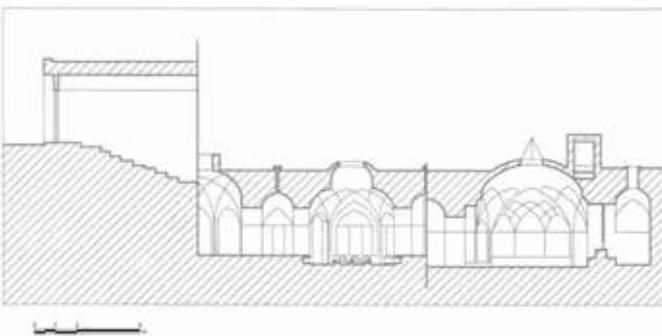


Image 5: Section of women’s Bath.



Image 6: Nitrate.



Image 7: Crossing “Ghanat” path below the Bath.
 Image 8: Manhole

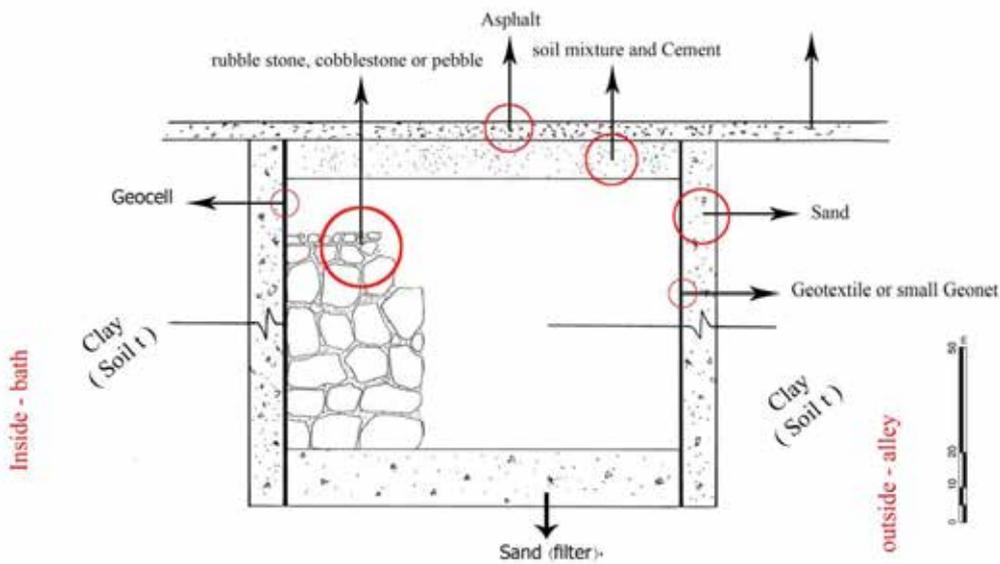


Image 9: Details of channel equipped with Geosynthetics.

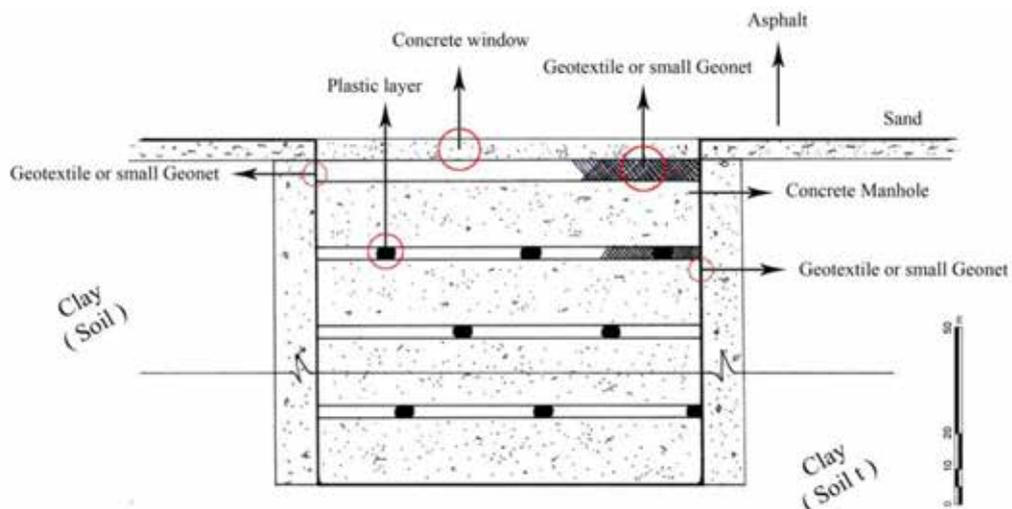


Image 10: Details of wells equipped with Geosynthetics.

Evaluation de la pertinence de la reconversion architecturale comme garantie de la survie de l'ancien

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Résumé

Notre travail se définit comme un premier essai de mise en place d'une méthodologie de recherche³ sur l'intervention de reconversion architecturale. A travers cette étude on a tenté en premier lieu de développer un outil théorique pour l'analyse et l'évaluation de la pertinence des interventions de reconversion réalisées en Tunisie et en deuxième lieu de cerner la tendance lourde de cette opération. Cette évaluation a concerné un ensemble de bâtiments reconvertis et qui ne se limite pas uniquement aux bâtiments à caractère historique.

Mots-clefs : Reconversion ; Évaluation ; Pertinence ; Tendances ; Outil

1. Introduction

La reconversion est une intervention qui redonne une seconde vie à des bâtiments délaissés, ayant perdu leurs vocations initiales, en leurs affectant une nouvelle et récente fonction qui tient compte des enjeux de la vie moderne. Son action ne se limite pas à une simple réaffectation elle s'étend dans le but d'intégrer l'édifice dans son ambiance urbaine, sociale et économique en adaptant sa morphologie et sa configuration aux besoins de la nouvelle activité.

La réutilisation du patrimoine bâti est devenue un marché important de la construction en Europe. En revanche, il n'a pas pris la même ampleur en Tunisie. Or la reconversion est plus que jamais d'actualité. C'est une forme de recyclage, une occasion d'adhérer à la cause du développement durable qui permet de préserver nos ressources naturelles et contrer leur appauvrissement progressif.

De plus, la reconversion est un marché porteur pour les architectes vu la crise de l'habitat, la pénurie d'espaces et le nombre grandissant de bâtiments désaffectés et abandonnés dans la ville. Cette intervention sur le patrimoine bâti présente de nouvelles catégories de commandes pour la planification urbaine ou la production architecturale.

Depuis l'indépendance la Tunisie accordait une grande importance à son héritage architectural, reconnu par sa valeur culturelle ou inscrit dans l'inventaire du patrimoine architectural à préserver. La reconversion consistait en une simple occupation des lieux sans transformation importante et étudiée pour accueillir la nouvelle fonction dans la crainte d'altérer ces repères inestimables de la mémoire politique, religieuse ou militaire du pays.

Depuis les années 70, les intervenants ont porté un nouveau regard sur la reconversion. Des idées nouvelles commençaient à se sentir au niveau de la cohabitation et du mariage du nouveau et l'ancien. La reconversion ne se contente plus d'occuper l'espace mais plutôt de le transformer, de le recomposer et de créer une nouvelle démarche pour intervenir sur l'existant d'une manière innovante.

Le secteur privé a énormément contribué à l'évolution de la reconversion dans notre pays en commençant par la réaffectation d'une série de demeures en restaurants comme Dar Bel Haj, Dar Hammouda Bacha, Essaraya, Dar El Jeld. Ce qui a poussé d'autres à investir dans des espaces abandonnées, des maisons transformées en hôtels de charme comme Dar El Medina, ou makhzen transformé en théâtre (Dar Ben Abdallah).

Le secteur privé a rendu l'intervention de reconversion plus fréquente, vu la pénurie d'espaces, le coût élevé du secteur de la construction et la surexploitation des sols vierges précisément dans le centre ville. En effet, le terrain d'exploration des lieux à reconquérir est toujours ciblé dans le noyau central de la ville de Tunis.

¹ Patrimoine Architectural et Environnemental : Connaissance, Compréhension, Conservation : Unité de recherche sise à l'ENAU

² ENAU : Ecole Nationale d'Architecture et d'Urbanisme

³ L'article fait partie d'une étude menée pour un mastère de recherche en architecture qui s'intitule « La reconversion comme garantie de la survie de l'ancien. Evaluation de la fiabilité de la reconversion architecturale sur des bâtiments anciens situés à Tunis »

Pour cela, on pense que la reconversion semble être l'alternative adéquate à tous les problèmes précités afin d'éviter l'étalement de la ville aux périphéries. L'observation actuelle nous permet de constater l'état de crise de notre parc immobilier et le secteur de construction en général en Tunisie qui risque de perdurer les années à venir ce qui poussera les architectes à réutiliser de plus en plus les bâtiments anciens. De ce fait la reconversion s'intéressera notamment au patrimoine récent et ordinaire et non uniquement le patrimoine monumental.

Nous pensons qu'une recherche sur ce type d'intervention est importante et utile pour le concepteur afin de mieux cerner cette pratique architecturale selon la nature et la typologie du patrimoine bâti et savoir répondre ainsi aux besoins de l'usager et de la population locale, qui constituent une donnée importante pour la méthodologie de toute reconversion garantissant ainsi la réussite (nouvelle fonction) et sa survie (conservation de l'ancien). C'est pour cela que nous nous sommes posé cette question :

Est-ce que la tendance lourde de la reconversion qui se pratique aujourd'hui en Tunisie c'est de privilégier l'authenticité des lieux au détriment de la nouvelle fonction ?

Pour répondre à ce questionnement nous proposons de répartir notre travail sur deux tissus anciens. Un premier est situé dans un tissu historique qui est la médina de Tunis (Makhzen du Dar Ben Abdallah) et un deuxième dans la ville européenne (Théâtre de l'étoile du Nord). Au départ, on a eu du mal à choisir notre support d'étude car suite à l'inventaire qu'on a effectué, la plupart des interventions sont situées dans des tissus anciens comme la médina de Tunis ou le village de Sidi Bou Said... et ces reconversions n'étaient pas accompagnées d'une importante transformation. On a opté donc pour des bâtiments reconvertis ayant des affectations abouties et qui continuent à survivre jusqu'à nos jours. Situé dans le grand Tunis, le corpus ne se limite pas uniquement aux monuments historiques (classés ou non classés). Il inclut notamment les bâtiments anciens et ordinaires ayant un intérêt architectural ou faisant partie de la mémoire collective des habitants et du paysage urbain. Chaque intervention d'adaptation relative à un bâtiment est distincte de l'autre et notamment la typologie constructive et la fonction initiale pour pouvoir travailler sur un champ d'étude assez riche.

2. Protocole d'analyse, méthode et évaluation

Pour pouvoir mener à bien cette recherche, on va procéder au départ par présenter l'outil théorique et la méthode d'évaluation développés. Ensuite on s'étalera sur l'évaluation effectuée sur le support d'étude choisi dont la première partie concerne le makhzen du Dar Ben Abdallah et la deuxième concerne le théâtre de l'Etoile du Nord. Enfin en troisième partie nous procéderons à la synthèse et à la comparaison des évaluations effectuées.

Nous avons pu développer un outil théorique évaluant objectivement la fiabilité de la reconversion à partir d'une recherche empirique, à travers les différentes chartes internationales (charte d'Athènes, charte de Venise, charte de Washington) et l'analyse des notions évoquées par Bernard Reichen⁴ dans des ouvrages édités sur la reconversion et encadrant ce type de pratique. L'outil théorique est composé de dix critères d'évaluation : respect de l'environnement immédiat, respect de la substance ancienne, respect de la logique constructive, respect du décor existant, mise en valeur de la construction, réversibilité de l'intervention, distinction entre le nouveau et l'ancien, compatibilité de la fonction avec la forme existante de la construction, durabilité et évolutivité et enfin le critère innovation et créativité. Afin de mener une évaluation objective et cohérente, ce dernier a été adapté par la suite à un outil d'évaluation de la qualité architecturale MATEA (Modèles pour l'Analyse, la Théorie et l'Expérimentation Architecturale), défini par Stéphane Hanrot (Architecte DPLG, HDR, Professeur EAML) permettant d'exprimer des connaissances sur l'objet architectural et sur la pratique du projet.

Notre étude sera essentiellement comparative, pour cela on s'est orienté vers le modèle de comparaison de MATEA consistant à recueillir les points de vue des différents intervenants dans l'enquête, dont l'une est destinée aux experts (architectes, ingénieurs, historiens, techniciens ...) et la deuxième est destinée aux usagers (personnes qui fréquentent le lieux ou y travaillent ou habitent ...), à un même état du projet dans un tableau de base de données. Ce dernier constitue une grille d'analyse de l'objet architectural, comme on a déjà défini précédemment, qui sera commune à tout le corpus d'étude et découlera évidemment de l'outil théorique (critères et sous critères d'évaluation). On a adopté aussi le schéma de type radar pour illustrer les résultats trouvés suite à la collecte des points de vue et qui nous a permis de mener l'analyse comparative. On a emprunté, notamment, du modèle de comparaison de MATEA l'échelle de valeurs. Nous avons établi une échelle de 5 valeurs dont chacune correspond à un degré d'application du critère d'évaluation sur l'objet

⁴ Architecte pionnier dans la reconversion industrielle.

architectural : 0 = pas appliqué, 1= mal appliqué, 2 = moyennement appliqué, 3 = bien appliqué, 4 = très bien appliqué.

Après avoir évalué les différentes reconversions par les experts (concepteurs, architectes, ingénieurs, historiens, ...) et les usagers (personnes qui fréquentent le lieu ou y travaillent) les résultats ont été illustrés dans des radars pour effectuer une étude comparative entre les évaluations des deux types d'enquêtes.

3. Evaluation de la reconversion du makhzen du Dar Ben Abdallah

Le makhzen du Dar Ben Abdallah, situé dans la médina de Tunis, constituait les dépendances de la grande demeure Du Dar Ben Abdallah reconvertie en musée. Autrefois ce makhzen était dédié à l'élevage des animaux et au stockage qui s'est transformé en espace théâtral (fig. 2-5). Cette évaluation a suscité beaucoup notre intérêt par rapport aux autres car le graphe (fig. 1) montre une divergence au niveau de tous les critères entre les deux évaluations. En effet les usagers ont bien apprécié cette intervention qui, selon l'évaluation, est presque homogène. La fonction théâtrale de ce lieu s'adapte à la forme de ce lieu ancien dont la reconversion a réussi à préserver les états antérieurs de différentes époques ce qui a **respecté sa substance ancienne** (l'étage ajouté accessible par un escalier en colimaçon)

Pour les experts **la réversibilité** de ce lieu est mal appliquée car l'intervention est lourde, ainsi que **la durabilité et évolutivité**, puisque tout l'espace disponible a été exploité.

- **La distinction entre le nouveau et l'ancien** est un autre critère qui a été mal appliqué : le choix « ancien » et rustique de l'ameublement afin d'obtenir une harmonie avec le lieu a faussé la lecture de l'espace reconverti et a créé un certain déséquilibre visuel.

- Malgré l'introduction de matériaux contemporains, **la créativité** de l'intervenant est imperceptible. Le choix des meubles qui laisse à désirer a nui énormément à l'image de ce lieu.

- Le critère le moins apprécié est celui de **la mise en valeur** (pareil pour les usagers). Des simples éléments signalétiques ne sont pas suffisants pour valoriser cet espace reconverti, vu sa situation enfouie dans la médina de Tunis.

L'intervention sur le makhzen Dar Ben Abdallah a enregistré le plus d'écart-type entre les deux évaluations (experts/usagers). Cette reconversion a été jugée par les usagers comme la meilleure intervention réalisée et la plus homogène avec une note moyenne de 3.32. Par contre elle a été la moins appréciée par les experts. Cela confirme que l'espace architectural est perçu et évalué différemment par les experts et les usagers.

4. Evaluation de la reconversion du théâtre de l'Etoile du Nord

La deuxième évaluation concerne un ancien hangar qui s'est transformé en espace de spectacle non conventionnel qui est le café théâtre (fig. 7-10) L'enveloppe du bâtiment existant offre un espace généreux avec une hauteur importante prête à l'exploitation. L'intervenant a aménagé les espaces à l'intérieur d'une coque pratiquement vide. L'enveloppe extérieure est respectée : la couverture métallique est bien appréciée dans ces formes d'espaces pour l'installation des dispositifs techniques d'éclairage et de mise en scène et notamment le système de climatisation.

- La forme existante du bâtiment a permis une distribution spatiale fonctionnelle et cohérente selon les besoins des usagers de la nouvelle activité. Ce qui explique les valeurs attribuées au critère du **respect de la logique constructive** et celui de la **compatibilité de la fonction avec la forme existante de la construction** (fig. 6).

- La forme existante du bâtiment offre une certaine flexibilité et une souplesse qui donne une certaine malléabilité à l'espace, donnant ainsi à cette construction d'autres potentialités pour une nouvelle transformation ou extension. Ce qui veut dire que le critère de **la durabilité et évolutivité** a été bien appliqué. Idem pour **la réversibilité**, ce type de bâtiment peut retrouver son état initial puisque sa coque extérieure est restée intacte.

- Tout en respectant la logique constructive, qui était dans ce bâtiment convenable pour l'intervenant, la reconversion a permis la préservation de l'histoire, d'où le **respect de la substance ancienne** de ce lieu industriel tout en respectant son voisinage (**le respect de l'environnement immédiat**).

- Ce critère de **l'innovation et de la créativité** a une valeur proche de la moyenne seulement car la créativité de cette intervention découle du lieu lui-même, de son architecture métallique déjà existante, et non de l'apport de l'intervenant.

- Entre l'appréciation moyenne et minimale, une note de 1.6 a été donnée au critère du **respect du décor existant** vu que ce dernier n'est pas assez mis en valeur dans l'intervention.

- Le bâtiment se caractérise par une architecture industrielle qui fait partie du patrimoine récent de notre

pays. L'intervenant a introduit des éléments et des équipements contemporains qu'on n'arrive pas à les détacher du contexte de l'existant. On a l'impression de se trouver dans une époque intermédiaire ne reflétant ni l'ancien et ni le nouveau. D'où la valeur de 1.44 attribuée au critère de **la distinction entre le nouveau et l'ancien**.

- Le critère le moins apprécié est celui de **la mise en valeur** de l'intervention. En dépit de quelques efforts effectués au niveau de la végétation extérieure, les panneaux signalétiques ainsi que l'éclairage nocturne de la façade, le critère de mise en valeur est mal appliqué dans ce bâtiment.

5. Synthèse comparative des deux évaluations

Une valeur moyenne a été attribuée par les experts au critère de **l'innovation et la créativité** uniquement pour le cas du bâtiment de l'étoile du Nord. On pense que cette valeur découle de l'originalité du bâtiment reconverti qui réside dans son architecture industrielle et non dans l'apport de l'intervenant. D'ailleurs, le critère de la **durabilité et évolutivité** et celui de la **réversibilité** ont été bien appliqués uniquement dans cette intervention : c'est un espace non conventionnel en Tunisie accueillant une activité théâtrale. Ces critères sont des concepts dont leur réalisation est difficile et leur perception par l'utilisateur n'est pas évidente surtout après une transformation majeure ou extension lourde. Il ne peut évaluer que l'architecture intérieure dans laquelle il pénètre, marche et vit. Par contre pour le Makhzen du Dar Ben Abdallah, il trouve que ce critère a été moyennement appliqué car ils arrivent à cerner l'espace qui est resté à l'état initial.

L'écart-type enregistré entre les deux évaluations nous confirme le conflit de la perception spatiale entre l'expert et l'utilisateur. En effet, l'utilisateur perçoit l'espace architectural par ses sens, il ne peut penser au-delà de ce qu'il voit ou entend. Cela est confirmé par les commentaires enregistrés lors de l'enquête dont la plupart commencent par des termes reflétant l'indécision: « je crois, je pense, peut être, je vois, je ne sais pas... » et donnent ainsi des réponses nuancées. La perception de la transformation architecturale chez l'utilisateur est superficielle elle se limite uniquement à la fonctionnalité adéquate du bâtiment selon leurs besoins, aux équipements nécessaires, au confort visuel, acoustique et thermique.

Les usagers ainsi que les experts, dans les deux interventions ont attribué des valeurs au dessus de la moyenne au critère de la compatibilité de la fonction avec la forme existante et qui se rapprochent des valeurs attribuées au critère du respect de la substance ancienne du lieu. Ces résultats confirment que ces reconversions réalisées accordent une importance à la nouvelle fonction autant qu'à l'histoire du lieu et son authenticité. Ce qui répond à notre questionnaire émis au départ et permet de cerner la nouvelle tendance et l'orientation qu'ont choisi actuellement de prendre les concepteurs tunisiens dans la pratique de la reconversion. Une intervention qui se veut plus réfléchie, dépassant l'occupation statique des lieux, se souciant d'avantage des besoins des usagers et des enjeux de la vie moderne. Une approche de la reconversion qui tend de plus en plus à se conformer à celle qui s'effectue dans les pays occidentaux. On commence à s'étendre vers des nouveaux champs d'expérimentation comme le patrimoine récent, quotidien ou industriel susceptible d'être reconverti.

6. Conclusion

A travers cette recherche on a pu développer un outil théorique pour évaluer la pertinence de la reconversion architecturale à travers dix critères d'évaluation. Ce qui nous a permis d'élaborer une évaluation objective et assez cohérente qui a montré que la reconversion actuelle, qui se pratique en Tunisie, concilie la nouvelle fonction et l'authenticité du lieu. Cette étude confirme l'écart de perception de l'espace entre concepteurs et usagers. On a constaté notamment que l'utilisateur donne plus de valeur et d'ampleur à la fonction qu'à l'espace qui la contient. Malgré le jugement de non fiabilité de l'intervention du théâtre du Dar Ben Abdallah par les experts, ce lieu vit grâce à sa fonction et a une fréquentation importante par ses utilisateurs qui portent un avis positif sur sa reconversion.

La privatisation de ces opérations a propulsé la reconversion en Tunisie vers la reconversion du patrimoine non classé, mais on n'accorde pas encore assez d'importance à la reconversion des bâtiments industriels. Pourtant l'évaluation effectuée a montré que ces types d'espaces offrent des potentialités importantes au niveau de la quantité et la qualité spatiale et peuvent produire des lieux non conventionnels, appréciés par les usagers et accueillant diverses fonctions.

La reconversion propose un large champ d'action pour l'architecte. Elle devient un outil de conservation du patrimoine, de planification urbaine, de développement urbain et humain durable. Et l'outil d'évaluation développé à travers ce travail peut être perfectionné et réadapté pour mener d'autres études sur différentes interventions architecturales pour des recherches ultérieures.

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Figure 142 : Comparaison des évaluations des experts et des usagers
 Intervention 4 (Théâtre de Ben Abdallah)

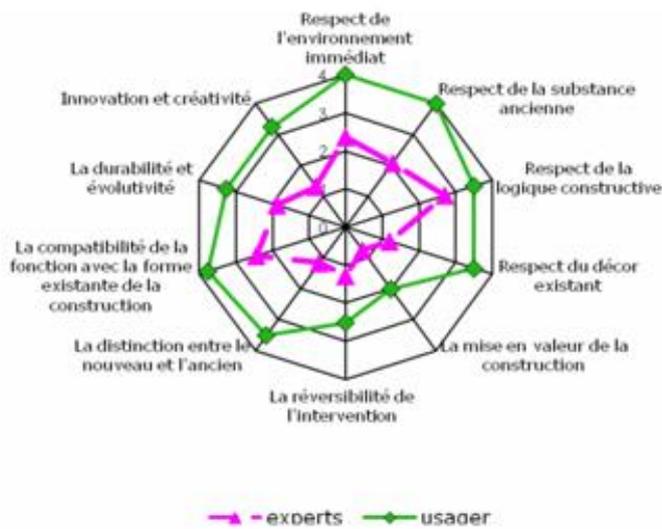


Figure 1 : Evaluation des experts et des usagers du makhzen du Dar Ben Abdallah

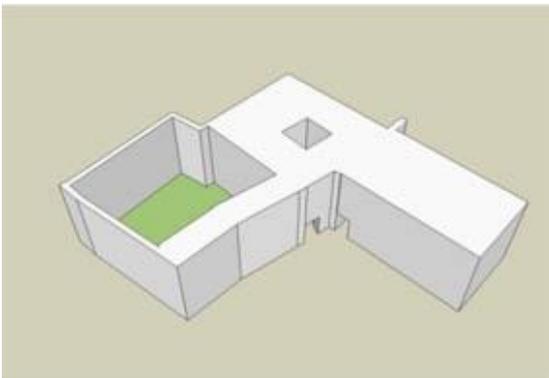


Figure 2 : Bâtiment avant intervention (Vue aérienne).



Figure 3 : Bâtiment après intervention (Vue à partir du patio).



Figure 4 : Bâtiment avant et après intervention.

Figure 5 : Bâtiment en cours d'intervention.

Figure 140 : Comparaison des évaluations des experts et des usagers : Intervention 2 (Etoile du Nord)

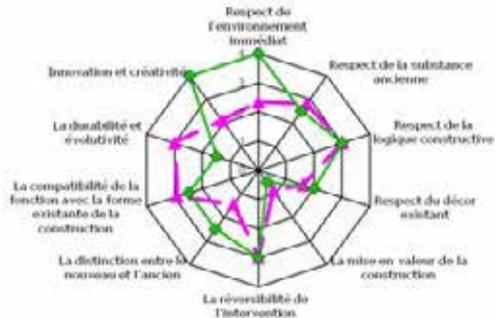


Figure 6 : Evaluation des experts et des usagers de l'Etoile du Nord



Figure 7 : Vue sur la salle de spectacle avant transformation.

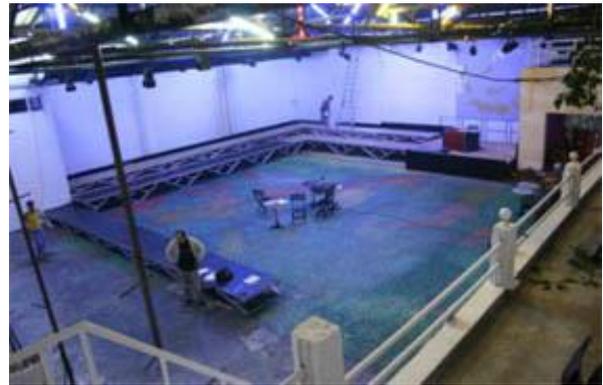


Figure 8 : Vue sur la salle de spectacle après transformation.



Figure 9 : Vue sur le foyer du théâtre après intervention.



Figure 10 : Vue sur la salle de spectacle après transformation.

A Qualification System for Built Heritage Conservation and Ancient Building Rehabilitation

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Abstract

A Web supported system intended to simplify procurement procedures in building rehabilitation and heritage conservation, whilst ensuring suitable qualification of the involved service providers is proposed, applicable to three main areas of activity: i) Design and inspection, ii) Survey and testing, and iii) Execution (contractors and subcontractors). The system classifies the involved companies in specialties, as per the qualification of their personnel, and in size classes as per the numbers of their human resources, experience and degree of development of their organizational framework.

Keywords: *Qualification System; Procurement; Contracting; Quality Management; Training*

1. The case for a qualification system

Of all business offshoots of the construction sector, the rehabilitation of the building stock and the conservation of built cultural heritage have been growing in importance in terms of the overall economy of most countries, and ordinary citizens are becoming increasingly concerned and expectant with regard to this issue. As a result, these two areas of the construction sector have been taking a more prominent role and gaining their own identity.

Rehabilitating building stock is generally more complex than standard construction, and requires companies to implement appropriate methods and technologies. Such demands are further heightened when dealing with Heritage, when the various different agents have to take a radically different stance. The success of interventions to rehabilitate building stock and, above all, to preserve and restore the Heritage, is seriously compromised if such interventions are not entrusted to agents with the necessary qualifications, either in terms of their design or execution. As a matter of fact, inadequate interventions in current buildings are often ineffective, and are a frequent cause of degradation of heritage buildings (fig. 1).

As well as applying only to companies undertaking these interventions and having been conceived chiefly with new construction in mind, the current qualification regimens applicable to companies in the construction sector in most countries do not take into account the qualification of the human resources who make up their work force, in particular the personnel actually involved in front-end execution – the foremen and craft workers - when assessing companies' technical capabilities.

The low demands vis-à-vis the technical capabilities of most agents is not conducive to assuring the effectiveness and durability of the interventions, ergo the satisfactory application of private and public funds, and is incompatible with taking a responsible stance in terms of safeguarding the Heritage.

The current procurement procedures, in most countries, enable such access to be restricted, by the contracting authority establishing a series of additional requirements extending beyond simply holding a contractor licence. However, it is rather time-consuming for bidders to provide evidence that these requirements have been fulfilled and likewise for contracting authorities to verify this.

These practices translate into mismanagement of moneys allocated to regular building stock rehabilitation and put the Heritage at risk. Their drawbacks extend to economy and society at large, insofar as they don't encourage the demand for qualification among the workforce of the construction sector, thereby preventing much needed productivity gains.

2. GECORPA's proposal

Based on their own experience and that gained over the years by the associates of GECORPA – Grémio do Património (the Portuguese association rallying professionals and firms specializing in heritage conservation and building rehabilitation) the authors developed a qualification system for building and heritage rehabilitation -- GECORPA Qualification System, GQS -- intended for personnel and firms working in these

demanding fields of activity, which ensures that any given company's access to executing interventions in these areas is dependent upon its fulfilment of a series of specific requirements pertaining to the qualification of the human resources available in the said company and its organizational structure.

GQS started off by systemising the business activity undertaken by companies in the sector under assessment and dividing it into three broad Areas of business activity: Design and inspection, Survey and testing and Execution (Contractors and Subcontractors) (fig. 2).

In each Area of activity, the companies' business activity was divided into **Branches of activity**, each of which was in turn subdivided into **Specialities**, according to the companies' technical skills. The specialities were in turn subdivided further into **Types of work** and **Techniques** (fig. 3). For example, four Branches of activity are considered for those companies which execute interventions (contractors and subcontractors):

- 1 - Constructive and structural rehabilitation
- 2 - Rehabilitation of foundations
- 3 - Rehabilitation of supply and mechanical systems
- 4 - Technical and artistic rehabilitation.

The professions relevant for building rehabilitation and heritage conservation were then also systemised in accordance with levels 2 to 6 of the European Qualifications Framework (EQF)¹. For example, in the "Execution" area of activity the following categories of professionals were considered (in ascending order of autonomy and responsibility):

- Level 2 - Mainly executing staff (Skilled workers, Craftsmen)
- Level 3 - Executing staff with supervision and coordination capacities (Crew leaders)
- Level 4 - Coordination and management staff (Foremen)
- Level 5 - Intermediate technical direction and management (General foremen)
- Level 6 - Higher technical direction and management (Architect, Engineer).

Levels 2 to 4 refer to professionals with non-academic education, level 5 to professionals with intermediate academic education, and level 6 to professionals with advanced academic education. The inventory of professions covered the above referred three broad areas of activity, and included not only those pertaining to the traditional construction sector but also those belonging to conservation and restoration segment. A very large number of professions were therefore brought into play, a significant number of them being new skills, as for instance those involved in "in situ" survey and testing.

A crucial task was then undertaken, which consisted of determining "Who does What", and linking "Techniques" and "Professions" (fig. 4). For this purpose, only "specific" professions were considered, i.e., professions which are indispensable to actually carry out the rehabilitation techniques at the work front and those which are directly required to their coordination and management. Again, in the "Execution" Area of activity (contractors and subcontractors), the former correspond to the Skilled worker or Craftsmen and the later to the Crew leaders and Foremen. The non-specific professions, namely those which are common to other segments of construction and those which are transversal to other sectors of activity are taken into account in the evaluation of the extent of the organizational framework of the company.

GQS' "qualification referentials" designate the requirements of professions of each of the three areas of activity relating said professions with the nature of the interventions and the type of construction, and group them according to the various Branches of activity.

Professionals accredited by the system in levels 3 to 6 may also apply to a complementary qualification regarding training. Professionals of levels 3 and 4 may qualify as "Instructors", while professional of levels 4 and 6 may qualify as "Trainers". These qualifications are granted taking into account the experience and training skills, the later depending on the attendance of courses for the purpose.

The GQS application software was then developed. It works in the Web environment, and consists in two different areas, the Front Office and the Back Office, both accessible from any point in the Internet. The former enables the application for qualification by service supplying agents, namely companies and professionals and, after processing, makes available the corresponding information to service procuring parties, namely contracting entities. Information on specialized education and training bodies and professionals is also made available. The later is accessible only to staff of the agency in charge of GQS' management, and enables the analysis and decision of applications and the adjustments in the system's settings whenever required.

Summing up, there were four stages involved in developing the system:

¹ (European Parliament and Council, 2005).

- I. Systemising the specialist activities which constitute the services provided by the groups of agents involved;
- II. Setting out the professionals, at various different levels of qualification, who are vital both for the correct execution of these activities and for the planning, management and coordination thereof within a corporate context;
- III. Determining the relationships between the various different activities and the professionals tasked with them;
- IV. Creating an application which can be accessed via Internet, to operate the procedures.

The GQS is aimed at the following stake holders from the heritage conservation and building stock rehabilitation sector:

Contracting authorities which use the services of qualified companies, particularly those authorities which award building rehabilitation and heritage conservation works;

Companies to be qualified: companies providing building rehabilitation and heritage conservation services, from the aforementioned three groups;

Professionals to be qualified: Advanced and intermediate technicians, namely professionals whether or not they are part of the companies' permanent staff;

Training bodies: Accredited bodies interested in providing training initiatives;

Certification bodies: Accredited bodies which can offer certification programmes for those technicians who are interested.

The GQS is applied to each specific case in three phases:

1. **Online registration** of the basic data on the enterprise, including the pertaining to its organizational structure and to the interventions carried out using mainly its own human resources;
2. **Qualification**, based on the training undertaken and experience gained, of the company's human resources involved in the planning, management, coordination and execution of these activities, by assigning each one with one or more specific professions (fig. 5);
3. **Classification** of the company in specialities as per the qualification of its human resources and in categories of ability, as per the number of those human resources and the value of the interventions carried out.

3. How Owners and other stake holders benefit

The advantages to the contracting authorities of the GQS are obvious: instead of stipulating additional requirements and assessing the bidders' fulfilment thereof, the contracting authorities can just choose from the system's classification grid those branches of activity and specialities which are best suited to the nature of the work to be performed. GQS enables online access to information regarding the skills of the qualified companies and of their human resources. For companies providing building rehabilitation and heritage conservation services, the advantages are equally clear: by enabling the contracting authorities to access information regarding the skills of the supply companies, GQS avoids the need to transfer supporting documentation to the platforms, thereby allowing greater simplification and streamlining of resources in responding to the pre-qualification procedures. The professionals working in the sector can also benefit greatly from the GQS, by having their skills recognised, valued and disclosed.

The GQS falls within the framework of the relevant European Directives on the award of public contracts, enabling the selection of bidding companies via compliance with a series of requirements which extend beyond simply holding a contractor licence. By the contracting authorities subscribing to the GQS, the qualified companies can have automatic access to the tender, without the need for the latter to provide evidence of and the former to verify fulfilment with those requirements.

Subscription to the GQS by the various different interested partners, particularly contracting authorities, service provision companies and professionals is voluntary, resulting from their recognition of the inherent advantages.

4. Advantages for the economy and society

The Framework Convention on the Value of Cultural Heritage for Society² states in its Article 9 - Sustainable use of the cultural heritage:

«To sustain the cultural heritage, the Parties undertake to:

...

promote high-quality work through systems of professional qualifications and accreditation for individuals, businesses and institutions.».

The accompanying explanatory report of the convention goes on to detailing how this can be achieved:

« The responsibility for qualification systems and professional accreditation may be undertaken through agencies such as professional associations or private bodies: the role of the state is to ensure that controls on quality contribute to achieving the aims of this Convention.»

Implementing the GQS makes it possible to assure the quality of the heritage conservation interventions, thereby enabling the sustainable development of the important asset made up by the built heritage, in compliance with the Faro Framework Convention. Adoption of the qualification system can also contribute towards the “Return to the Art of Building”, by preserving practices and know-how which themselves are a major asset and heritage³. Of no less importance is the contribution brought about by the system towards the major investments in building rehabilitation which are being lined up for the next years being translated into effective and long-lasting interventions. But the advantages of qualification extend beyond the quality of the services provided: by promoting business specialization, higher qualification translates into higher added-value of the services offer and helps creating export opportunities. Last but not least, the adoption of a qualification system like GQS and the ensuing demand for qualified suppliers, stimulates the qualification of the construction sector’s human resources, increasing the added-value of labour, thereby reducing the revenue gap.

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² (Council of Europe, 2005).

³ (ICOMOS, 2011).



Figure 1: Design and execution by unqualified agents can give rise to serious aggressions to the character of historical buildings

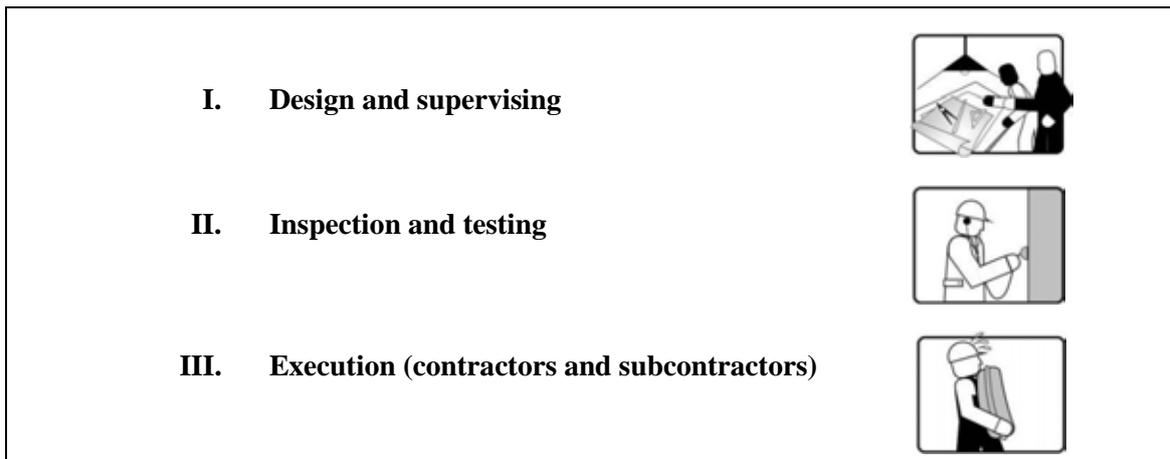


Figure 2: The three broad areas of activity covered by GECORPA Qualification System (GQS).

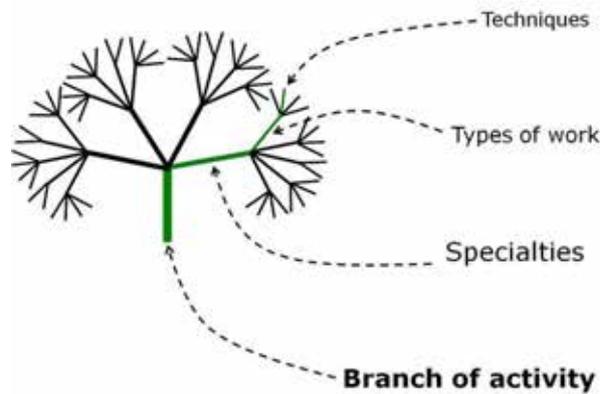


Figure 3: Diagram showing the systemisation of the works in each area of activity of the rehabilitation of building stock and heritage, structured into four grades. In each area, the of activity of enterprises is divided into “Branches of activity”. The supply of a given service by an enterprise of a branch of activity, involves exerting a number of “Specialties”, implying a set of “Types of work”, employing one or more “Techniques”.

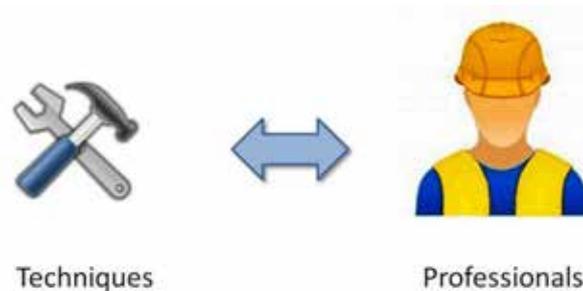


Figure 4: GQS evaluates the technical capacity of each contractor or service provider based on the correspondence between the various roles and techniques required by the specialized services he intends to supply and the knowledgeable and skilled professionals present in his permanent staff.



Figure 5: GQS’ “qualification referentials” designate the requirements of professions of each of the three areas of activity relating them with the nature of the interventions and the type of construction.

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