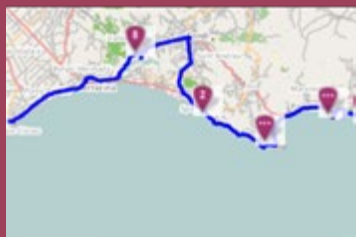# PRESERVING, MANAGING AND ENHANCING THE ARCHAEOLOGICAL SITES: COMPARATIVE PERSPECTIVES BETWEEN CHINA AND ITALY

Edited by
Laura Genovese, Haiming Yan & Angela Quattrocchi

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PRESERVING, MANAGING AND ENHANCING THE ARCHAEOLOGICAL SITES:
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TABLE OF CONTENTS

3   **Archaeology as Driver for Local Development**   **121**

INTRODUCTION

Italy and China, although quite distant and different on a geographical scale, they boast a series of sites of extraordinary historical-cultural value, as the archaeological sites. Some of them are inscribed on the UNESCO World Heritage list, boasting world renown, others are known only to insiders or local communities. All these sites are confronted daily with issues related to conservation, management and enhancement.

These are not simple issues to deal with, given that these actions are part of a broader and more intricate framework of interconnections of economic, political, social and cultural factors, determined not only by local and national dynamics but, often, by global trends.

In recent years, academics and institutions in the field of conservation and enhancement have faced these problems, placing them in a framework of economic growth and socio-cultural sustainability.

In fact, "it is a common belief to consider cultural heritage as a valuable resource for the sustainability challenge. It should make local communities more resilient to globalised systems of production and consumption promoting resource-intensive lifestyles and to economic crisis, which can have devastating impact on employment, earnings and public sector" (Pace infra).

In this perspective, the archaeological and monumental heritage they have conquered an important role in both urban and rural regeneration projects. Their integration into urban regeneration schemes has been understood as a way to generate urban neighborhoods marked by strong stylistic and identity features, attractive and livable, and in which the heritage acts as a driver for economic development, with social impacts in terms of employment, safety, healthiness (Pace infra).

From this point of view, the Chinese experiences of the urban large-scale archaeological parks, the Dayizhi (Yu infra; Yu, Zan infra), and historical buildings of cultural interest (Yan infra), although with variable outcomes, offer significant examples. As well as some Italian cases, thanks to a traditional approach of heritage protection, which has allowed to base both economic and socio-cultural growth of urban areas and/or entire communities on the conservation and improvement of the ancient cultural asset (Faroni, Morandini, Rossi infra; Varriale infra).

The same can be said for minor archaeological areas, in rural contexts, where the archaeological site adequately interpreted and promoted, has become a place in which to reaffirm and strengthen the sense of local identity and an opportunity to revive local economies and develop social capital (Galli infra; Genovese infra; Bernacchi, Giusti infra; Sfameni infra).

Although national policies are slowly moving towards this goal, these are not frequent cases. The issue of sustainable heritage-led development also arises at a wider level: in Europe this concept has become one of the priority objectives of the Horizon

2014-2020 European programming calls for funds, but still needs a clear definition of actions and approaches, to achieve it and to monitor its outcomes.

Suffice it to say that planning tools are not always sustainable and regeneration plans often ignore the needs and potential of local communities, producing spaces of pure consumption and gentrification or developing "entertainment-driven regeneration" (Pace infra) exposing the results to heavy criticism (Yu, Zan infra). In these dynamics, a common issue is the increasingly trend of many planners and designers towards showy and spectacular interpretive solutions and heritage presentation, obscuring the meaning and value of heritage experiencing. Furthermore, the lack of integration of the heritage in the historical urban or landscape context, often, hampers the understanding of hierarchies of values historically existing between them.

In many cases, these phenomena are also the result of the fragmentation of local policies and the interests of some local administrators, more interested in the immediate gains deriving from the mass tourism market thanks to the exploitation of famous sites, rather than investing in a networking strategy, to integrate even smaller and lesser-known sites into a comprehensive valorization circuit. Thus, places authenticity and typicality, that are at the basis of the local identity and which are preconditions to cultural tourism, are penalized.

Therefore, several cases show that heritage alone does not automatically guarantee the transition to sustainability, as attempts to solicit social participation are not a guarantee either. However, it is also necessary to invest in this direction to identify tools and appropriate approaches to encourage dialogue on these issues (Sepe infra).

The involvement of local stakeholders and of those who, at various levels, lead a passionate coexistence with their heritage, can serve to solicit in the community a sense of identity and an ethic of care, otherwise could be difficult to instill it through top-down strategies.

This is demonstrated by the fact that, often, many creative and innovative solutions were born with bottom up dynamics, on the stimulation of local administrations, together with citizens' associations, and, sometimes, with the support of research Institutions, in order to overcome the obstacles posed by the lack of some regulations or bureaucratic measures (Galli; Beolchini infra).

Such evaluations have been the basis of the research and action work, in the respective countries, of the Chinese Academy of Cultural Heritage (CACH) of Beijing and of numerous Institutes belonging to the Department of Social Sciences and Cultural Heritage (DSU) of the National Council of Research (CNR)[1] with the collaboration of prestigious universities and research institutions, such as the Mediterranean University of Reggio Calabria, the University of Bologna, the Sapienza University of

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1   Among these: the Institute for the Conservation and Valorization of Cultural Heritage (ICVBC), the Institute of Studies on Mediterranean Societies (ISSM), the Institute For Research on Innovation and Services for Development (IRISS) and the Institute for the Study on Ancient Mediterranean (ISMA).

Rome, the Peking University of Beijing, the Spanish School of History and Archeology at Rome (EEHAR) of the Spanish National Research Council (CSIC), the International Council on Monuments and Sites - China, of various public institutions, as Local Soprintendences of Archaeology, Museums and museum networks, local stake holders and Citizens' Associations[2].

The long term and multidisciplinary dialogue with these partners has led, from time to time, to evaluate more appropriate methods and tools to the contingent problems.

The bilateral China-Italy project, between CACH and CNR - Institute for the Conservation and Valorization of Cultural Heritage (ICVBC), entitled Valorization-Tourism-Participation: Developing alternative integrated solutions for less promoted historic sites (2016-2018), has been an opportunity to strengthen the link between the two research institutions and share their respective partnerships, opening the dialogue to new actors.

At the basis of the editorial project was the idea to collect the contributions of a multidisciplinary group of scholars and representatives of local authorities, with the aim of presenting a review of positive and current cases in Italy and in China, in the field of research, conservation, management and promotion of archaeological areas, as a knowledge basis useful to identify solutions and best practices for mutual benefit.

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2   Among these, a special thanks goes to the Brescia town Provincial Authority and the Municipality of Brescia and local Archaeological Superintendence; the Cottanello Municipality and local Archaeological Superintendence, local authorities and citizens' associations; the Daming Palace Archaeological Park; the Hangzhou Municipal Bureau of Landscape and Cultural Relics; the Luoyang Institute of Cultural Relics and Archaeology; the XI Mountain Community of Lazio Region, the Museumgrandtour Territorial Museum Network; the Municipality of Porcari and Municipal Library Centro Culturale Cavanis in Porcari; the co-operative society *La Paranza ONLUS* in Naples; the Museum of Peking Man Site at Zhoukoudian; the Sovana Municipality and local Archaeological Superintendence.

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MULTIDISCIPLINARY APPROACHES FOR INTERPRETING AND PRESERVING ARCHAEOLOGICAL REMAINS

REFLECTIONS ON ESTABLISHING THE ARCHAEOLOGICAL PARK SYSTEM IN CHINA

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INTRODUCTION

Following accelerated urbanization in China, more and more large-scale archaeological sites in the city center or urban fringe face the risk of erosion. To avoid such damage, many archaeological sites have started to explore ways of establishing themselves as parks. On December 17, 2009, the State Administration of Cultural Heritage (SACH) issued the Measures for Administration of National Archaeological Parks (Trial), marking the official launch of the national archaeological park as a new cultural heritage protection and management mode.

To date, SACH has carried out designations of three batches of national archaeological parks, and 36 of them have been completed and successfully designated, and 66 inscribed on the tentative list. These 102 archaeological parks have not only explored a new pattern for harmonious co-existence of protection of large-scale archaeological sites and urban and rural development, but also become a core carrier of the local cultural system and means of realizing public cultural rights, as well as a driver and growth point of humanistic urban development. The new protection and management mode is being gradually accepted by the public.

Since then a series of explorations have been made centering on the national archaeological park, the new mode of heritage protection and management. In June 2011, the National Archaeological Park Alliance was officially established, and so far seven annual joint meetings have been convened. In December 2012, the Requirements on Formulation of National Archaeological Park Planning (Trial) was released and enacted. In February 2014, the Guideline for Evaluation of Operations of National Archaeological Parks (Trial) was formulated; the first round of evaluation was launched in April of the same year, and two rounds have been completed to date. In October 2017, SACH released the Guideline for Creation and Operational Management of National Archaeological Parks (Trial).

With seven years of practice, the new archaeological site protection and management mode has been improved; meanwhile, supportive management requirements and professional regulations have been formulated and released for construction, planning, management and operation of such sites. Accordingly the framework of China's national archaeological park management system has taken shape.

WHAT IS A NATIONAL ARCHAEOLOGICAL PARK OF CHINA?

Article 2 of the Measures for Administration of National Archaeological Parks (Trial) defines that the national archaeological park is "a specific public space that is based on an important archaeological site and its surroundings, and has functions such as scientific research, education, tourism and recreation, and boasts national demonstrative significance on protection and presentation of the archaeological site."

1. Basic positioning

The national archaeological park is basically positioned as a specific "public space", emphasizing its nature as a "park". It can be a venue constructed and operated by a governmental or public organization for public amusement, appreciation and entertainment, or an outdoor space for public use of urban residents in daily life and social activities. Meanwhile, the "public space" is not merely a geographic concept. What's more important is the people in the space, and wide involvement, exchange and interaction presented in the space. In other words, the national archaeological park is essentially positioned not only a form of "public space", but also a collection of "public activities".

2. Components

The national archaeological park mainly consists of an "important archaeological site" and its "surroundings". Here "archaeological site" refers to "a site discovered in the archaeological efforts and will continuously carry archaeological works", and is characterized by "being buried underground" or "incomplete remains on ground". Its form and historical information it carries are to be discovered and explored through archaeological excavations. Auxiliary instruments are needed to reorganize and express results of archaeological works so as to gradually display the historical feature it depicts. The potential and non intuitive feature of the historical information prompt creation of a variety of interpretation and demonstration means. It also becomes a unique power source for protection and enhancement of archaeological sites.

What is "important"? We must begin with the "DYZ" (Large-scale Archaeological Sites) - a special protection scheme of China. In August 2005, the Ministry of Finance of China and SACH jointly issued the Measures for Management of the Special Fund for DYZ Protection. Article 2 of the regulation stipulates, "the DYZ mainly include the large-scale settlements, town-sites, palaces, mausoleums and tombs, and other sites, site groups and cultural landscape with large scale, high value and far-reaching influence that carry historical and cultural information on politics, religion, military affairs, science and technology, industry, agriculture, architecture, transportation, water conservancy and other aspects of different development stages of China in ancient times." Every five years since then SACH will design specific development plans and set up a repository of DYZ that are under key protection. The national archaeological parks are mostly chosen from the repository.

Obviously the national archaeological park is produced in the process of selecting important archaeological sites and shows high representativeness in terms of time span, size, function, geographic distribution, location characteristics, archaeological basis, protection and utilization conditions. All these elements reflecting such important information constitute the "surroundings" of the "important archaeological sites".

3. Main functions

The main functions of the national archaeological parks are "scientific research, education, tourism and recreation", reflecting the process of the national archaeological parks shifting from the academic sphere to the public and from seclusion in the sector to opening to the public.

"Scientific research"- core and bracket. The purpose of the national archaeological park is to provide a space for archaeological and research works in a more efficient way, and transfer archaeological and research results more actively and interpret historical and cultural information more comprehensively.

"Education" - goal and means. The archaeological park is a move that attempts establishing a bridge for the archaeological sites to go public and transfer the arcane archaeological and scientific research results and disseminate them in a socially acceptable way. The archaeological sites have interactions with the public in forms such as "public archaeological craze", archaeological summer camp, introducing archaeology into communities and volunteers of protection.

"Recreation" - improvement and supplement. "Recreation" is the last of the three main functions of the national archaeological parks in its definition, and a new characteristics bestowed to the archaeological site. It is an attempt to improve the quality of living environment of the surrounding area on the basis of ensuring the environmental safety of the site, and increase the value of land use for protection so as to drive development of the surrounding area.

4. Core characteristics

The core characteristics of the national archaeological parks is that it "boasts national demonstrative significance on protection and presentation of the archaeological site". The Appendix of the Measures for Administration of National Archaeological Parks (Trial) issued in 2010 established the Detailed Rules for Evaluation of National Archaeological Parks (Trial) and corresponding Evaluation Score Table, including evaluation of resource conditions (150 points), evaluation of archaeology, research and preservation and protection of the site (200 points), demonstration and interpretation of the site (200 points), management and operation of the archaeological park (150 points). All scores are divided into the necessary indicators (700 points) and additional indicators (100 points). A site is qualified for an archaeological park only when it scores at least 600 points in the necessary indicators and the score of any single item should be no less than 80% of the total points of the item, and at least 50 points in the additional indicators. The strict scoring system determines that the selected parks are highly representative nationwide.

DEVELOPMENT HISTORY OF CHINA'S NATIONAL ARCHAEOLOGICAL PARKS

1. Origin of "archaeological park"

There are different opinions on origin of the "national archaeological park" of China. It is a concept developed following the cultural heritage protection and management practice of China. In 2009, China convened the DYZ Protection Summit Forum at Liangzhu Ruins, Yuhang District, Hangzhou, Zhejiang Province. At the summit, Liangzhu Consensus on the Construction of Archaeological Parks was adopted, which can be regarded as official commencement of China's national archaeological park.

From the aspect of the administrative management of cultural heritage, the national archaeological parks roughly experienced the process of "antiquities - cultural relics - immovable cultural relics - cultural relics protection site - DYZ - archaeological park - national archaeological park". It is a concept developed from the gradual transformation of the cultural heritage protection from universality to particularity and from singularity to diversification. It is also a process that the cultural heritage protection practice gradually adapted to the social and economic development.

The formation of "archaeological park" basically started in the second phase of the cultural heritage protection of contemporary China (roughly from the beginning of the 1980s to 2005). In this period, China's cultural heritage protection has gradually diversified and paid attention to urban construction and cultural tourism requirements, and started to gear into the international conventions. Gradually novelty

forms such as famous historical and cultural cities, scenic spots and world heritage, among others, appeared and "archaeological park" was gestated and produced.

2. Gestation stage - from "relics protection" to "relics park"

In 1980, Chinese leaders, celebrities, experts and scholars, led by Soong Ching-Ling, issued the "Proposal for Renovation and Utilization of the Yuanmingyuan Ruins". In 1981, some members of the Standing Committee of the People's Congress of Beijing published the proposal on Beijing Daily dated October 18, "Proposal for Quickly Building the Yuanmingyuan Park". In July 1983, the Beijing Urban Construction Master Plan approved by the State Council stipulated that the Yuanmingyuan Park should be completed by 2000. In December 1984, the Yuanmingyuan Society was officially established, and the Yuanmingyuan Park was opened officially in June 1985. In July 1986, Yuanmingyuan Ruins Construction Committee was officially established, which carried out a series of cultural relics protection and environmental improvement programs. In May 1999, the formulation task for Yuanmingyuan Park Planning was relaunched. It was officially approved by the SACH in September 2000, making the Yuanmingyuan Park the earliest "relics park" that was finally constructed under the leadership of governmental forces with a unified planning, with cultural heritage protection as core and scientific research results as the links.

Inspired by the protection action of the Yuanmingyuan Ruins, a batch of relics parks were constructed in China in the early stage. In 1985, Beijing completed Tuanhe Imperial Short-stay Palace Ruins Park. In 1987, Henan constructed Yinxu Archaeological Park. In 1988, the Yuan Dynasty Capital City Wall Site Park was completed in Beijing. Yanshi Shang Dynasty City Ruins Park started construction in 1996. The Park of Yangling Mausoleum of the Han Dynasty was established in 1997 in Shaanxi. In 2000, Shaanxi started to build the Emperor Qinshihuang's Mausoleum Park. In 2001, Beijing completed the Huangchenggen Ruins Park. In 2002, Beijing launched construction of the Ming Dynasty City Wall Ruins Park.

3. Infancy - from "DYZ" to "archaeological park"

On August 25, 2005, the Measures for Management of the Special Fund for DYZ Protection was jointly issued by the Ministry of Finance of China and the SACH. It is an important milestone for the protection of the DYZ and the national archaeological parks, indicating that the DYZ protection action was recognized by the government and embarked on the track, and ushering in a boom time of the DYZ protection, a period of 10 years from the 11th Five-Year Plan to the 12th Five-Year Plan, and bringing the national archaeological park construction into its infancy.

On December 29, 2006, the Ministry of Finance and the SACH jointly issued the General Plan for the DYZ Protection during the 11th Five-Year Plan Period. The

document proposes to "explore scientific approach of DYZ protection and presentation and establish the DYZ protection presentation demonstration zones (relics parks) and relics museums" in the overall objectives, and clearly stipulates the specific tasks to "initially establish and improve 10 to 15 relics parks such as Daming Palace, Emperor Qinshihuang's Mausoleum, Yangling Mausoleum, Yanshi Shang Dynasty City Ruins, Lifang Zone South to Luohe River".

In September 2009, the DYZ Protection Liangzhu Forum was held in Hangzhou, Zhejiang province. The forum deliberated on and adopted the Liangzhu Consensus on the Construction of Archaeological Parks, and publicized the exposure draft of the national archaeological parks administrative measures and accreditation rules. The forum fully affirmed the profound significance of the "archaeological parks" in the practice of cultural heritage protection on the academic level, basically clarified the positioning, principles, characteristics, procedure and main contents of the "archaeological park" tasks. It is an important beginning for the national archaeological parks to back on the right track.

Liangzhu Forum was convened when the 11th Five-Year Plan was succeeded by the 12th Five-Year Plan. China has established many state-level archaeological parks, e.g. Ji'an Koguryo, Anyang Yinxu, Wuxi Hongshan, Chengdu Jinsha and Shaanxi Yangling Mausoleum of the Han Dynasty while Xi'an Daming Palace, Luoyang of the Sui and Tang Dynasties, Zhejiang Liangzhu, Liaoning Niuheliang and other archaeological parks were under preparations.

4. Development stage - from "archaeological park" to "national archaeological park"

At the end of December 2009, the SACH distributed the Measures for Administration of National Archaeological Parks (Trial). The document clearly defines the archaeological park, and provisions competent administration, project initiation and accreditation requirements, responsibilities of related management institutions and corresponding rewards and penalties system. It is China's first departmental regulation for the "national archaeological parks", marking that the national archaeological park management has entered a benign development stage.

Under the guidance of the "Measures (trial)", SACH accredited the first batch of national archaeological parks in June 2010 in the following procedures: submitting application - application review - preliminary expert review and evaluation - field investigation and scoring - expert evaluation - shortlist. In October of the same year, the list of 12 national archaeological parks and the list of 23 initiation projects were unveiled.

In June 2011, representatives of the 12 national archaeological parks assembled in Daming Palace, declared establishment of the National Archaeological Park Alliance and released the Declaration of National Archaeological Park Alliance, which established the common goals of the archaeological parks as "scientific

development, sustainable development, inheriting civilization and serving humankind", and reached consensus on the feature, role, tenet, principle, philosophy and main activities of the Alliance, structuring a state-level platform for exchanges and cooperation of archaeological parks.

CURRENT SITUATIONS AND PROBLEMS OF CHINA'S NATIONAL ARCHAEOLOGICAL PARKS

1. Transformation from "present reality" to "predetermined standard"

A series of management measures for the national archaeological parks were adopted when the protection and presentation modes of a batch of DYZ gradually presented the "park" characteristics. They are to gradually guide the existing archaeological parks to reach the unified management standards on the basis of affirming their protective efforts over years, but not to make the archaeological parks a unique protection management model.

Therefore, the current park management mostly focuses on the present realities of all kinds of parks, and less to regulate preconditions of archaeological park model with the guiding standards, resulting in blind construction and concentrated application of archaeological parks.

2. Transformation from "procedure management" to "system management"

At present, more attention is paid to requirements of the accreditation procedure of the national archaeological parks. But due to the periodicity and limitations of practical experience, it has failed to fully consider the systemic nature of the national archaeological park as a protection management model, and full connection between the national archaeological park management system and the existing cultural relics protection management system of China.

From the angle of the cultural heritage protection management system of China, the existing protection management documents have overlapped provisions. From the perspective of the management system of parks, the existing management documents fail to cover the whole process of park construction. From the perspective of the guarantee system of administrative execution, the existing documents fail to clarify the specific requirements on project implementation, fund management, archaeological research, qualification and so on that shall be referred to in the process of overall execution. From the perspective of connection with relevant industries, the existing management documents fail to specify relationship and requirements related to urban construction, land use, tourism development, natural resource protection, publicity and education and commercial services.

3. Transformation from "overall management" to "industrial supervision"

Currently, DYZ that are mature and meet requirements have been basically accredited as the national archaeological parks or inscribed to the project initiation list. Considering the objective characteristics of the site protection and archaeological research, the park evaluation frequency and number will be undoubtedly reduced. The majority of the national archaeological parks will enter the routine construction and pilot run period. More comprehensive and cumbersome special tasks will be challenges that every park has to face.

Since the policies and funds of China's existing cultural relics protection management system has not completely connected with the park management system, the park management should be focused on the principle and baseline requirements according to existing management experience and development characteristics of current stage. Meanwhile, efforts should be made to give play to the social organizations such as the National Archaeological Park Alliance and the market operation modes such as the third party evaluation institutions, delegate tasks other than administrative approval to the industrial supervision and market self-discipline so as to create sufficient space for self-development of the national archaeological parks.

4. Transformation from "industrial management" to "social management"

The national archaeological park involves a number of administrative departments, and numerous and jumbled management systems and behaviors, and publicity and education, public opinions, scientific research and other non-administrative sectors. These characteristics determine that the management of the national archaeological parks is not an issue that can be solved independently by the cultural relics administration department. More and more social participation and civic affairs should be gradually introduced when the management system construction requirements are met.

In conclusion, the establishment of the archaeological park system of China is an inevitable choice for many important large-scale archaeological sites in the face of social and urban development, and an innovation on the basis of the traditional cultural relics protection mode. At present, the basic management system framework has been established. However, it faces various problems in development and needs further exploration and improvement.

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DAMING PALACE CONSERVATION IN XI'AN: MOVING FORWARD WITH CONTROVERSIES

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INTRODUCTION

Daming Palace is a UNESCO World Heritage site (a component of Silk Roads: the Routes Network of Chang'an-Tianshan Corridor, designated in 2014), located in the north part of Xi'an, which is the capital city of Shaanxi province and has been capital of thirteen dynasties in China's history. It was built in AD 634 and burnt down in 904. According to systematic archaeological investigations, it covered an area of about 3.2 square kilometers and had 11 gates and at least 43 foundations. Some could still be seen from the surface, but most of them are underground and need further archaeological works to discover and study.

Fig. 1 Daming Palace, the Danfeng Gate.

Our case study focuses on the Daming Palace not only because of its significant values: headquarters during almost the entire Tang Dynasty (618-907), masterpiece of Chinese architecture, etc., but also for its important role in dayizhi conservation scheme (see Yu infra): a "model" for other sites but full of controversies. The controversies are not about its way of conservation and presentation, but mainly about the way of operation and other associated issues.

In this case study, we will briefly review its conservation progress, analyze the way of operation, provide the voices from the government, experts and the public, and finally layout a general understanding of its positive results and shortcomings.

THE CONSERVATION PROGRESS: FROM PLANS TO ACTIONS

Before the dayizhi policy: site conditions and conservation plans

After the palace was burnt down in the beginning of the 10th century, this area became a zone of agricultural field and very few people mentioned and studied it over centuries.

Since 1907, some scholars began to conduct field investigation and study the inscriptions of the Daming Palace, by which they gradually realized the importance of the site. In the 1920s' city plan of Xi'an, the site was designated as a historical culture protection area, and construction in this area was strictly limited. But soon the population of the site area was in the first outbreak because of the railway construction (literally, the Chinese name of the district "Daobei" where the site is located means: on the north side of railway). Thus some important buildings' foundations in Daming Place like Hanyuan Hall were protected by walls to prevent further damage.

In 1951, Xi'an made a new overarching city plan, which mandated careful management of the relationship between the protection of historic monuments and urban development. Later, in 1954, the city government zoned the north area of the city for local industry, warehouses and a residential area for workers, as well as a reserve area for future urban development. As a result, the economic development rate in this area was lagging behind other areas, and the main threat to the site was large-scale illegal housing development, which took place for decades. The archaeological work at Daming Palace began in 1957, since when a team from the Institute of Archaeology at CASS carried out long-term archaeological excavation and research at the palace, excavating part of the gates, walls, temples, halls and other construction foundations.

In 1963, 1985 and 1993, the state undertook three land acquisition operations for the core site area, and built walls round the Lingde Hall (about 34,000 square meters), Xuanwu Gate (5,000 square meters) and Hanyuan Hall (71,000 square meters). In the 1980s, the Daming Palace Heritage Protection Institution was established. In the 1990s, two conservation and presentation projects were carried out (Linde Hall

and Hanyuan Hall, based on Sino-Japanese cooperation). However, in the mean-time, the population inside the site area was in the second outbreak. because of the booming migration from surrounding rural areas that was driven by the nearby rail-way station and the main building materials wholesale market. The roads, sanitation and local economy were under great pressure and all in poor condition because of construction control.

Over this periods, the city plans provided the idea of the conservation method for Daming Palace, more detailed from earlier ones to later ones:

- In 1951's city plan, the Daming Palace was designed as a well-greening park;
- In 1980's city plan, the protection area of the Daming Palace was confirmed, and large-scale greening in protection area and construction of Site Park were mentioned;
- In 1995's city plan, some details about the site park were laid out: to imple-ment conservation and restoration projects of the palace walls, gates and halls, to set up signs and guides, to try different presentation and interpreta-tion ways to, to recover the road and water system, and to build the Daming Palace Museum.

Finally, in 2005, a major plan was approved by the State Administration of Cultural Heritage: the Tang Daming Palace Conservation Plan. The plan – started in 2001, jointly designed by provincial and municipal authorities – represented an early design for the site, providing some details about the work to be done and the bud-get (800 million), though without detailing the precise time agenda for these works. According to the plan, the protection area of Daming Palace was 3 square kilome-ters, plus a construction-controlled zone of 6.5 square kilometers. (The protection area is thus a bit smaller than the boundaries of the site and the archaeological park: 3.2 square kilometers).

The main contents of the plan proposed an approach that was similar with the later dayizhi policy:

1. land acquisition for the entire protection area, to protect the site;
2. a plan to relocate 9,000 people and 14 enterprises within the protection area;
3. identification of interpretation facilities for the overall structure of the site, with a variety of ways to show the essence of remains (such as presentation projects for Hanyuan Hall, Lingde Hall, Xuanzheng Hall, Han Lingyuan; exhi-bition of unearthed cultural relics et cetera); and
4. environmental improvements.

After the dayizhi policy: urban regeneration and site park construction

With comprehensive consideration of the needs of urban development and site conservation, also with the help of dayizhi policy, the city decided to undertake

a huge project of urban regeneration in this area. In 2006, the Conservation and Regeneration Plan of the Daobei Region was prepared and published, including the core protected area 3.2 square kilometers and 15.96 square kilometers area around the site.

In 2007, the Qujiang Management Committee, a unique government institution, began to implement the regeneration plan and the construction of the archaeological park. About 3.2 square kilometers of land was acquired; within months, 100,000 people were relocated, and a complex tourist center and other facilities and roads were constructed. The construction of the archaeological park (2008–2010), however, involved all major monuments of the site (Danfeng Gate, Yu Dao Street, Shishinden, Xuanzheng Hall, Sanqing Hall, Taiye Pool, Xuanwu Gate and others), with more than 20 conservation and presentation projects, also two museums were built: the Daming Palace Relics Museum (10,000 square meters) and Danfeng Gate Site Museum (11,474 square meters). Between 2008 and 2010, the area excavated in Daming Palace was almost the same as that undertaken in the past 50 years; Danfeng Gate even reached 8,000 square meters. On October 30th, 2010, the park opened to the public. Also in October, the Daming Palace site park was announced as the first batch of national archaeological parks.

The regeneration project cost about ¥12 billion (about € 1.6 billion), with about ¥3 billion for heritage conservation and park construction, and ¥9 billion for the relocation of residents. Only little of the fund came from the dayizhi central fund (¥180 million) and most came from a bank loan by Qujiang Daming Palace Investment Group Co. Ltd, an enterprise fully controlled by Qujiang Management Committee. As compensation for its investment, the government gave Qujiang Management Committee the right to develop the land around the site.

CONTROVERSIES AND DISCUSSIONS

So far, things seem to be perfect. The urban regeneration and site park construction solved most of the long-term problems. For the residents, all the unpleasant memories such as the poor living conditions, bad traffic, serious pollution, lack of human services, economic development imbalances, were never back again. The park provided new leisure area (two thirds of the park is a free, open-access area) and also some jobs for the residents, such as cleaning, gardening and security. For site conservation, with 100,000 population being relocated, there is no further threat and damage from human activities, which makes conservation seem easier. For the government, it not only solved the problem of financing the site conservation, but also benefitted from the increase land values. After the opening of the park, Daming Palace became a model of site conservation and archaeological park construction: many cities took it as a successful case, and were eager to transplant this model (even in Xi'an, at the Chang'an site). So, what are the controversies?

About the business model

The business model works as follows. The Qujiang Daming Palace Investment Group Co. Ltd, which is owned by the Qujiang Management Committee, borrows from the banking system to carry out the Qujiang Daming Palace Archaeological Park project, and make all the investments needed. As compensation for financing this investment, the government gives it the rights to develop the land surrounding the archaeological park. By investing in infrastructure construction and environmental works, the land prices surrounding the park will rise sharply. At that point, the government company could lease the land to developers to build high-quality houses, and thus repay the investment and pay back the loans. In short, land speculation will fund the regeneration of the site, its protection and development, including relocation of residents.

This type of business model is not new, and had been widely used in Xi'an before 2008 as a typical tool for land management and development in the context of rapid urbanization. But with the Daming Palace application, it became a controversial reference for administrative practice (best or worst, depending on your point of view). In order to fund the investments, the land development area had to be big enough (3.2 vs15.96 square kilometers) and central enough to cope with the financial needs of the project: "When the river rises, the boat floats high." As a possible consequence of the business model, actual investments needed were much higher than expected. The project started with a budget of ¥1.7 billion in the 2005 plan, and it ended up with a ¥12 billion budget. In parallel, the share of budge for conservation and presentation became more and more marginalized: from around 20 percent in 2005 to 1.5 per cent in 2010. The initial dayizhi conservation plan was turned into an urban regeneration project. So some experts said directly "I think it's not site conservation, it's real estate development."

The highly risen investments brought also a big problem: how to repay the loans for the project. Most of the ¥12 billion investment for the project was covered with bank loans. Every year the Qujiang Daming Palace Investment Group Co. Ltd must pay part of the principal plus 6 per cent interest, on the basis of its own income, which comes from land development. In the first few years, land prices around the park rapidly increased, so that the Investor optimistically estimated that the loans would be repaid in three to five years. However, given depressed real estate prices in recent years, it is uncertain if this payback period is still possible.

About the archaeological work

A more radical critique is that the archaeological work was (and will be) impacted by the construction of the park in many ways, which many archaeologists have argued:
1. Important archaeological issues remain unresolved. Despite the last 50 years' work seeking to understand the overall layout of the Daming Palace,

and excavations on some of its most important components, it was a huge building complex, with more than 130 buildings. The excavations carried out so far – including those during the construction of the park – represent less than the 5 per cent of the site area. Indeed, most of the site has not yet been systematically excavated and researched. Excavations and research will be difficult now after the park has been built. In a sense, the establishment of the park has halted archaeological activities inside it, while in the surrounding areas developers came in before archeological surveys could be undertaken.

2. The original geomorphology of the landscape was seriously affected by the construction of the park. According to Xu Pingfang, former director of the Institute of Archaeology at the Chinese Academy of Social Sciences, "There had been two terrain surveys in the 1930s and 1970s in Xi'an. The maps of these two surveys show that the original geomorphology of Daming Palace was not affected by the development of Xi'an city for more than 2,000 years. During the park construction, however, the ground of the site has been flattened. Even building an underground museum would make the archaeological work more difficult, because some foundations or other relics could be destroyed or partly destroyed by land flattening."

3. There was not enough time allowed for the archaeological work. Normally for such a huge site, archaeologists would need 20 years to excavate and research. Instead, archaeologists had only three years during construction to carry out investigations and surveys of the whole area, plus excavation in an area of 25,000 square meters, almost the same amount of work done in the previous 50 years. Time pressure seems to have been huge, according to the archeologists in our interviews: "Before we finished, we were surrounded by the developers starting their work!"

More serious is, some archaeologists think, to exchange the land development rights of 15.96 square kilometers with the 3.2 square kilometers core area of the site is extremely dangerous, because this 15.96 square kilometers area is also in the scope of Chang'an city in Tang Dynasty and some parts of the Daming Palace like the East Inner Garden are also within this area. "The government let it developed, which was a tacit admission to destroy cultural heritage and made the act legalized. More consideration is given to the social and economic development of the city, but they neglect the non-renewable characteristics of the cultural heritage."

About the park operation

The park is now managed by the Qujiang Daming Palace Park Management Co. Ltd, which is owned by the the Qujiang Daming Palace Investment Co. Ltd. In 2012 this subsidiary was incorporated in the Qujiang Cultural Tourism Group Co. Ltd, a listed company on the stock market. According to the Law on the Protection of

Cultural Relics, a company cannot "operate" cultural heritage resources as its own assets. Practices here are however controversial, for the company is appropriating the benefit of using the assets based on an outsourcing contract (formally as an asset management service, in reality as operating activities).

Another problem is, it cost a lot to run such a big park with 2 over 10,000 square meters huge museums. According to the investor's estimate, the number of tourists and the revenue of tickets will reach 2 million and 45million. In contrast, after the park opened, these two numbers were 600 thousand and 30 million in 2012. Despite the reduction of down to a total of ¥180 million compared with the budget of ¥209 million, the income gap increased to about ¥145.5 million. In other words, the park cannot operate without huge subsidies, much higher than expected. In order to fill the deficit, the Qujiang Daming Palace Investment Co. Ltd yearly pays the Qujiang Daming Palace Park Management Co. Ltd 173.5 million as "management fee." In this way, the management company was profitable and went on the stock market. But as a profit-oriented company, it's not possible for the investment company to do this for a long time. Thus the company attempted to transfer the park to the local government, whereas the government refused because it is unable to afford such a huge amount of spending.

SUBSEQUENT

Aware of the situation, when announcing the second batch of national archaeological parks in December 2012, SACH redefined the requirements and principles for establishing archaeological parks. This includes the need for a feasibility evaluation before construction, which fully takes into account the financial conditions of the site. Archaeological work is reaffirmed as an important part of the park construction, and should be the prerequisite. Moreover, the design of conservation and presentation facilities should be "weakened" (ruo hua), and not be too extravagant and luxurious. The need to carefully follow laws and regulations concerning land issues, infrastructure construction, relocation of residents is also stressed. Finally, running operations of the park are addressed as a key factor, under the responsibility of the local government.

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Latest publications: *The Archaeological Survey to the Remains nearby the Ta-Keo Temple Site in Angkor, Cambodia*, Archaeology, No.9,2017(first author); Tracking on the Large Archaeological Site Protection Scheme (co-authorship), Cultural Relics Publishing, 2016.

MULTIDISCIPLINARY APPROACH IN ARCHAEOLOGICAL RESEARCH: *TUSCULUM* CASE STUDY

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INTRODUCTION

The Spanish School of History and Archaeology at Rome (EEHAR) runs in Tusculum an interdisciplinary archaeological research project since 1994, in conjunction with the Superintendence for the Archaeological Heritage (SABAP-RM-MET) and the XI Mountain Community of Lazio Region.

The EEHAR is part of CSIC, the Spanish National Research Council, which is the largest public institution dedicated to research in Spain and the third largest in Europe. Belonging to the Spanish Ministry of Economy and Competitiveness through the Secretary of State for Research, Development and Innovation, its main objective is to develop and promote research that will help bring about scientific and technological progress, in collaboration with Spanish and foreign entities in order to achieve this aim.

Consistent with our institutional mission, the key points of the Tusculum Project are multidisciplinary approach and scientific collaboration. Beyond traditional approaches, the current project includes the combination of a wide range of disciplines and techniques like geophysical surveys, archaeobiological analysis, digital cartographies, drone flights and kite aerial photography, with the aim of getting a better understanding of the site and its environment.

Several Spanish and Italians universities (Univ. of Zaragoza: Geotransfer Research Group; Univ. of Murcia: IArqUM; "La Sapienza" Univ. of Rome; Univ. of Modena and Reggio Emilia: Palinopaleobotanical Lab.; Univ. of Alicante; Univ. of País Vasco: UPV/EHU; Univ. of La Rioja) and research centers (CSIC-Archaeobiology Lab.; CSIC-Sustainable Agricultural Lab.; CNR-ITABC; CNR-ICVBC; International Research School of Planetary Science; CINECA- Vis.I.T. Lab; Museu d'Arqueologia de Catalunya-Empúries; Consorcio de la Ciudad Monumental, Histórico-Artistica y

Arqueológica de Mérida; Museu Nacional Arqueòlogic de Tarragona; Museo del Teatro de Cartagena; GAL Latium Vetus; Associazione Sotterranei di Roma) have been involved along the years, with a clear willingness to explore novel research trends and different methodological approaches. Data provided by aerial archaeology, geophysical techniques, topographical surveys and excavations have made possible a detailed study and a diachronic interpretation of the urban development of the city through the centuries.

THE HISTORICAL AND GEOGRAPHICAL FRAMEWORK

Located approximately 30 km southeast of Rome (Fig. 1), inside the Castelli Romani Regional Nature Park (http://www.parks.it/parco.castelli.romani/Eindex. php), Tusculum still bewitches visitors with a rare combination of beautiful scenery and archaeological ruins. Currently is property of the XI Mountain Community of Lazio Region, which has bought the whole archaeological area in 1984 to protect and valorize it, in order to create a cultural-archaeological park.
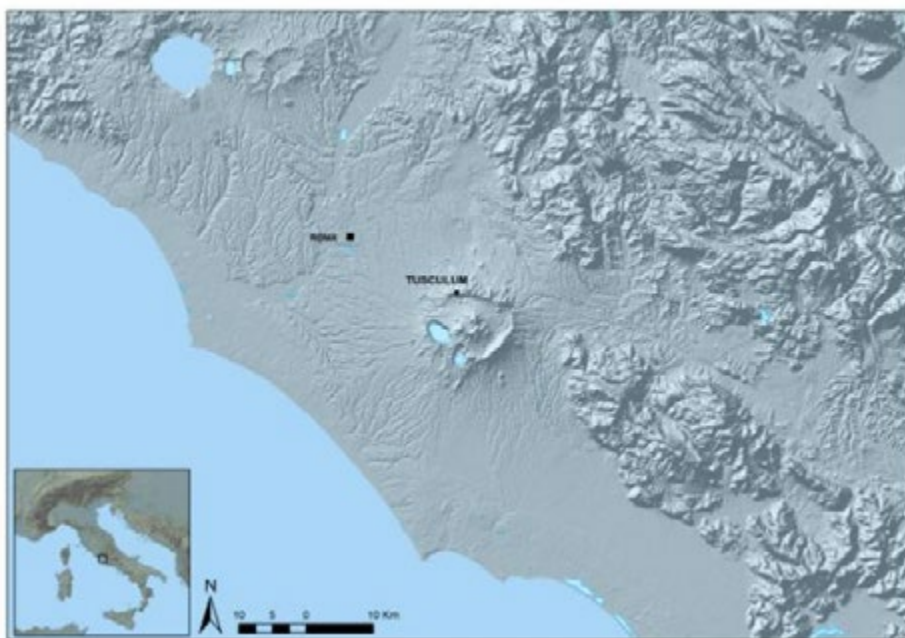

Fig. 1 Location of the city of Tusculum (EEHAR, Archive "Proyecto Tusculum").

Tusculum is also part of the Museumgrandtour Territorial Museum Network, that is one of the largest territorial museum networks on a national level. It was created on a Project by the Mountain Community, which is its leader authority, and involves the vast territory of the Alban and Prenestini Hills, rich in archaeological, historical, artistic and environmental elements.

The historical importance of Tusculum over the centuries comes from its specific topographical position. The region around the city has always been an important area of passage, serving as a crossroad for trade, which in turn led to the occupation of the territory by human communities since prehistoric times. From a geological point of view, it is a well-defined territory, made of two concentric volcanic craters, corresponding to the emerging part of the Latium volcano. The area is rich in springs and characterized by rather fertile lands, which have favored human occupation, converting the area during the Roman period in a suburb of the near Rome.

The origins of Tusculum lie in the legend, according to which the town was founded by Telegonus, son of Odysseus and the Sorceress Circe; there is no doubt that the acropolis was consistently occupied as early as the Iron Age, while the monumental area below from the 6th century B.C. (Martínez-Pinna 2014). Thanks to its significant strategic position, Tusculum's role was historically one of primary importance. The city was frequently mentioned in the narration of historical episodes by authors such as Livius, Tacitus, Ovidius or Cicero, highlighting its importance within the Latin League. In 381 BC Tusculum became municipium and was brought into the Roman orbit: a new period of significant urban reforms started, which corresponds to the arrival of members of the most important tusculan families to Roman political life. During the later Republican period and early Imperial phase, the city became attractive to the Roman elite, whose members began building here their villas. The area of Tusculum was the place chosen by Cicero - where he wrote his celebrated Tusculanae Disputationes- or even by emperors such as Tiberius, Nero or Galba (Ribaldi 2008). The decline of the city started in the IVth - V[th] century and the area was abandoned until the Xth century. In the Middle Ages, Tusculum had a gradual recovery, becoming the ancestral stronghold of the powerful family of the homonyms Counts of Tusculum and a dangerous rival of nearby Rome. That was the reason why it was radically destroyed by Rome and definitely abandoned in 1191, giving us the rare opportunity to discover - thanks to archaeological excavations- a crystalized roman and medieval town (Beolchini 2006).

THE NEW *TUSCULUM* PROJECT: NEW RESEARCH TRENDS AND DIFFERENT METHODOLOGICAL APPROACHES

From 1994 to 2010, the Tusculum project has been especially dedicated to understand diachronically the transformations of the monumental area, composed by the theatre and the roman forum. Then, in 2012, we decided to rethink our scientific

approach. A new project, titled "Tusculum in Medieval times: territory, landscape, economy and society", started with a clear willingness to provide a new direction to explore and incorporate new research trends and different methodological approaches, focusing on the more unknown phases of the city: the Late Antiquity and the Middle Ages (Peña-Chocarro, Beolchini et al. 2013).

The main guiding principles of the current project are:

1. Assessment and topographic analysis of the entire site;
2. Implementation of a new high-definition digital cartography (thanks to drone and aircraft flights, kite aerial photography and geophysical analysis);
3. Studies of economic and social history, aimed at reconstructing daily life (based on archaeobotany, zooarchaeology, pottery studies, building techniques, etc.);
4. Paleoenvironmental studies for exploring climate and vegetation changes (based on palynology, plant remain studies: wood charcoal, seeds and fruits).

This highly multidisciplinary approach, pursuing an integrated interpretation of data by specialists with different backgrounds, has enabled for the first time the formulation of an historical framework that is not limited to the reconstruction of a single monument, but aims, instead, to reconstruction of i) the town planning in roman and medieval times; ii) Tusculum's relationship with its landscape; iii) the daily life of its inhabitants; iiii) the conditions and life expectancy.

Furthermore, new technologies have drawn our attention on archaeological areas potentially interesting for our researches, allowing an important economical and time saving.

Particular emphasis has been given to archaeobiological researches (archaeobotany, zooarchaeology, anthropology), as a way to gain insights into the environmental conditions and the economy of the area, focusing on the urban core relationships with the environmental context.

Besides the reconstruction of the landscape and the economic structure of the city, the study is complemented by the analysis of the main activities carried out on the territory: agricultural production, strategies and crop type, human and animal nutrition and the method of preservation, storage and food processing (Peña-Chocarro, Moreno-García et al. forthcoming).

To obtain first-hand information about the local agricultural exploitation, since 2012 a regular sampling of closed excavation contexts is carried out and the carpological remains are studied by the CSIC Archaeobiology Lab. A clear predominance of cereals is evident, especially wheats (Triticum aestivum and durum). Used for food purposes, for a long time these wheats were reserved to the richer social classes, while the poorer ones used predominantly other varieties documented in Tusculum, like barley (Hordeum vulgare) and mile (Panicum miliaceum). Between legumes, the fava beans (Vicia faba) is the most represented species, while between fruits the presence of grapes (Vitis vinifera), olives (Olea europea), figs (Ficus carica),

chestnuts (Castanea sativa) and walnuts is predominant. Pollen analysis carried out by the University of Modena and Rome-La Sapienza are in course, but preliminary data points to a mixed forest dominated by various types of Quercus, lime, maple and particularly chestnuts and beech.

A zooarchaeological study is also carried out by the CSIC Archaeobiology Lab, on samples coming from contexts collected in different parts of the city. Some of these samples came from old archaeological campaigns, while others were retrieved during the last season of excavations. Until now, 3.030 zooarchaeological finds have been catalogued and studied, 64% collected in the monumental area (forum and theatre) and 36% in the acropolis. The first aim has been to explore the range of species present at Tusculum, then, in a second phase, the study has focused in management and production strategies of the main herds; consumption patterns and processing activities, like carcasse preparation, carried out. The spectrum of species represented by 14 different taxa shows a considerable diversity, with a clear predominance of domestic taxa. Domestic mammals are represented by cows, sheep and goats, pigs and horses, which played an important role within the economy of the site in medieval times as providers of different products. Wild fauna appears less significant with red and roe deer, wolfs and wild boars. Birds are also present: hens, doves and partridge. Butchery marks on some of the bones have been also analyzed pointing to on-site slaughtering of animal. Some of the cut marks suggest animal skinning for the use of hides for crafts. The information provided by the study of animal bones matches well to the palaeonutritional information retrieved from the analysis of trace elements carried out on human bones.

Data retrieved from the anthropological study suggests a medieval society closed to genetic exchanges. Most of the pathologies found are related to the poor hygienic conditions. Mortality curves are the expected for the period with life expectancy around 30 years and a pick of infant mortality during weaning. Although the health status is generally discrete, individuals from the privileged burials seem to have had better life conditions with a higher consumption of meat. A second group shows a diet richer in plant foods, especially in legumes. This is particularly evident in females over 30, while males of the same age have a richer protein diet. The group from privileged burials shows relatively wellness with absence of pathologies due to specific working activities.

Beyond archaeobiological researches, the study of the Tusculum landscape has been approached by the application of other non-invasive methodologies, like aerial archaeology and geophysical surveys (Diarte-Blasco, Beolchini et al. 2015). The flights have allowed the analysis of the visible landscape, while geophysical surveys have focused in the mapping of underground features. Results from both techniques are complementary and in many cases support each other.

The flights with drone have been carried out by the International Research School of Planetary Science from the University of Chieti and Pescara, with the aim of

developing a digital cartography both in the upper part of the city (acropolis), and in the monumental area (Fig. 2).
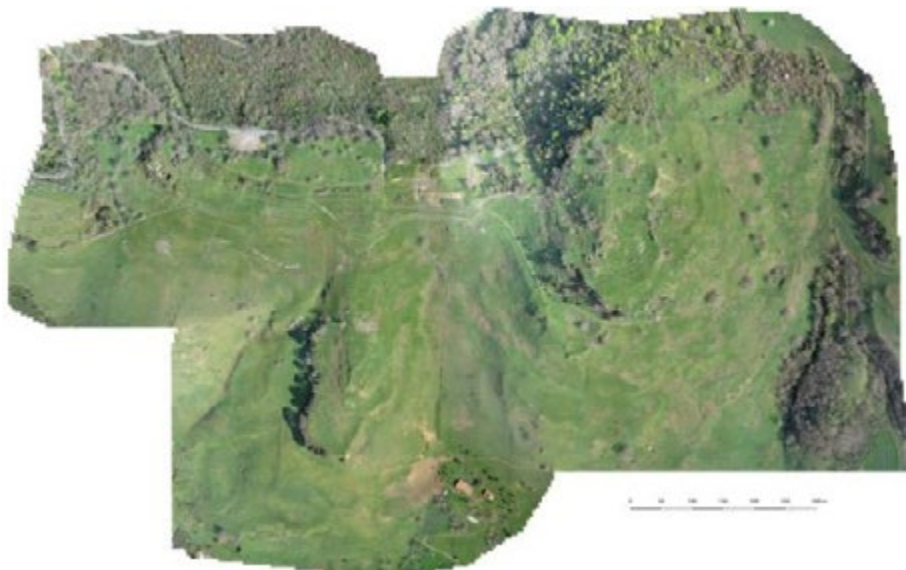
Fig. 2 Ortophoto of the entire archaeological area (EEHAR, Archive "Proyecto Tusculum").

The work plan has included a series of flights at low altitude over the site using a UAV, with the aim of obtaining stereoscopic images and high-resolution 3D spatial metric information. We have used a new generation of UAV, a flying wing with an automatic pilot, which has taken high-resolution pictures. In addition to the aerial pictures taken by the drone, we took a series of pictures at low altitude using a kite. This system allows using the intermediate aerial space between the minimum height reached by a UAV (ca 150 m.) and the maximum a telescopic mire can reach (between 10-15 m.). This space is ideal for the kite to which a photographic camera can be fitted. In this case, pictures were taken between 50 and 100 m high completing those taken by the drone. While the UAV can cover larger areas, the kite is generally used for smaller spaces, but its resolution is higher allowing for better detail in the pictures. An aircraft coming from Spain has been also used for aerial imagery acquisitions, in collaboration with the CSIC-Sustainable Agricultural Lab. The aircraft was equipped with many on-board sensors - thermal sensor, hyperspectral sensor, RGB sensor and CIR sensor - that have provided us DSM mosaics and ortophotos (Fig. 3), which have consent the identification of new structures unknown up to now.

Fig. 3 Detailed ortophoto mosaic of the acropolis. In red, the structures documented during the archaeological excavations; in black, those located thanks to aerial images analysis (EEHAR, Archive "Proyecto Tusculum").

Geophysical surveys are another non-invasive technique that we have recently experimented in Tusculum, in order to explore the development underground of some of these structures detected by the flights. The surveys, carried out by the CNR-ITABC and the Geotransfer research group from the University of Zaragoza, have given interesting results, across the upper and lower parts of the city. In 2016 and 2017, thanks to the collaboration with the CNR-ITABC, multimethodological surveys were carried out to locate the archaeological remains in a flat area, located west to the forum and the theatre (Piro, Iacobelli et al. 2017). The area surveyed occupies an extension of almost 5000 sq. meters and different techniques were used: magnetometry, electromagnetic survey and georadar survey (GPR). Results are extremely encouraging, probably favored by the volcanic nature of the area, which produces interesting differences in the susceptibility of the constructive material used.

ERT surveys were also employed in the acropolis area and beside the theatre, to find evidence of undiscovered parts of an underground aqueduct system (Fig. 4). The results, together with geological studies and historic evidences, were used to reconstruct the orientation of underground aqueduct system and also to understand how water was supplied to such a large, populated settlement.
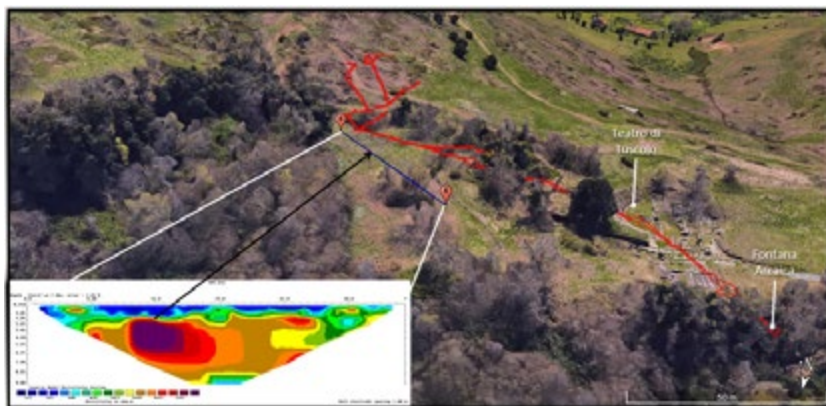
Fig. 4 ERT surveys to find evidence of the underground aqueduct system (CNR-ITABC).

The integrated interpretation of aerial images, geophysical surveys and topographical data has convinced us to open a new excavation area on the west side of the forum, never excavated before. It has been the proof of the real utility of our multidisciplinary approach to the investigation: the archaeological excavations have recovered a roman bath, and a medieval church with an extended necropolis built on the roman ruins.

A new research field has also been recently inaugurated, thanks to the collaboration with CINECA- Vis.it.Lab. Archaeological and historical data collected by the Tusculum project are used to reconstruct buildings and landscapes in roman and medieval times, through three-dimensional models and multimedia solutions, turning all the information gained from the fieldwork into digital knowledge.

In 2017, the Institute of Conservation and Valorisation of Cultural Heritage of Italian National Research Council (ICVBC-CNR) has also joined the Tusculum Project, aiming at developing joint research projects and initiatives to contribute to the conservation and enhancement of the archaeological area (Beolchini, Prestileo et al. forthcoming). ICVBC-CNR collaborates both to plan and carry out diagnostic activities, and to develop best practices for the enhancement of Tusculum.

CONCLUSIONS

The results from two decades of archaeological excavations carried out by the EEHAR-CSIC in the medieval city of Tusculum has brought to light a settlement of complex structure and wealth of unique components, which is a point of reference in our understanding of urban organization and material culture in central Italy in roman and medieval times. The violent destruction of the city that took place in the

year 1191, along with its subsequent abandonment and its wiping away from collective memory, reduced the impact of later transformation, thus preserving the site and offering archaeologists a unique time capsule within which to recover valuable evidence to reconstruct the history of this important urban centre and its relationship with neighboring Rome. In recent years we have used a series of multidisciplinary approaches (archaeological excavation, survey, topographic analysis, bioarchaeological studies including archaeobotany, archaeozoology, palynology, physical anthropology, as well as non-invasive techniques such as geophysics and aerial archaeology). These approaches have provided a rich and complementary dataset, that form the basis for planned future fieldwork and, on the other hand, to preserve the ruins and promote a better knowledge of the site in a broader territorial scale. In this context, collaboration with Mountain Community and ITABC-CNR is essential, to return the site, fully accessible, to local communities in order to reinforce the sense of identity and care towards this heritage, and to promote the role of archaeological heritage as a driver of local development, by integrating the park into territorial tourism networks.

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REFLECTIONS ON THE WORLD HERITAGE VALUE INTERPRETATION FOR HAILONGTUN ARCHAEOLOGICAL SITE

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INTRODUCTION

Taking Hailongtun World Heritage Site as a case, this paper sets out to examine the effective ways for the interpretation of an archaeological site of a highest protection status. Apparently, the current World Heritage framework is a powerful instrument, which yet expects to be fully implemented in terms of interpretation. However, historic literature, previous research and on-site interviews with various stakeholders suggest that there exists a larger framework of multilayered narratives that might help depict a more holistic picture of the site by mobilizing all the related local cultural resources. This paper will thus analyze these two frameworks in comparison, and seeks to understand better the disconnections between the two, in hope of a more integrated interpretation prospect, for the benefit of both the sustainable development of the site itself and its local socio-cultural settings.

THE INTERPRETATION OF HAILONGTUN UNDER THE WORLD HERITAGE FRAMEWORK

Background of the Inscription

Hailongtun site, situated in Huichuan County, Zunyi city of Guizhou Province is part of a trans-provincial serial nomination named Tusi Sites. Together with Laosicheng site in Hunan Province and Tangya site in Hubei Province, it was inscribed onto the World Heritage List in July 2015. Unlike the other two sites which

had started the nomination preparation much earlier, Hailongtun joined this group as late as 2012 with the launching of the first large scale systematic archaeological excavation from April 2012, literally a last-minute train catcher. As far as an archaeological site is concerned, it normally takes years of strenuous work to get gradually close to the understanding of the "full" picture, though by "full" we could only mean an ideal situation. Therefore, the miraculous speed of the inscription of Hailongtun, on one hand, won the precious heritage site a highest protection status which it rightly deserved, on the other, brought inevitable challenges to its future interpretation.

THE WORLD HERITAGE VALUES AND THEIR ATTRIBUTES AT HAILONGTUN

The Outstanding Universal Value (OUV) of Tusi Sites

Distributed around the mountainous areas of south-west China, where historically the mountain culture featured by ethnic minority groups met Han culture of the Central Plain of China, Tusi Sites "are the remains of tribal domains whose rulers were appointed by the central government as 'Tusi', from the 13th to the early 20th century. This system of government was aimed at unifying national administration while simultaneously allowing ethnic minorities to retain their customs and way of life. The three sites of Laosicheng, Tangya and the Hailongtun Fortress combine as a serial property to represent this system of governance. Their combinations of local ethnic and central Chinese features exhibit an interchange of values and testify to the ancient Chinese administrative wisdom." (UNESCO world heritage center 2015). The following two criteria are met:

- "Criterion (ii): Tusi sites of Laosicheng, Tangya and the Hailongtun Fortress clearly exhibit the interchange of human values between local ethnic cultures of Southwest China, and national identity expressed through the structures of the central government.
- Criterion (iii): The sites of Laosicheng, Tangya and the Hailongtun Fortress are evidence of the Tusi system of governance in the South-western region of China and thus bear exceptional testimony to this form of governance which derived from earlier systems of ethnic minority administration in China, and fully developed in the Yuan, Ming and Qing periods." (ibid).

The OUV expressions for Hailongtun

Criterion (ii) emphasizes on the "interchange of human values", and at Hailongtun, this happened between the ethnic minority groups of Gelao and Miao of Southwest China mountains and the Han culture from Central Plain of China. And the result is

clearly demonstrated by the site itself in various aspects, including: site selection, general plan, architectural form and decorative design, construction techniques and materials, movable cultural artifacts etc. Those form the material attributes of the abstract heritage values and provide highly readable clues for site interpretation.

Criterion (iii) stresses the value as "witness" to Tusi System this ancient form of governance of Chinese central empire for better managing its remote ethnic regions during the long period from the 13th to the 20th Century. Under this criterion, Hailongtun also makes significant contribution to OUV. It is referred as Hailongtun Fortress, which highlights its military function, and makes it different from the other two sites. Bozhou Tusi of Clan Yang that Hailongtun represents started from the Song Dynasty, reached its heyday in the Yuan and Ming Dynasties, was granted the highest military Tusi rank by the Chinese Central Empire, and boasted the largest Tusi power ever in Southwest China. The Yang Family ruled Bozhou as Tusi for over 725 years, crossing various dynasties and different stages in the evolution of Tusi system. Its birth, flourishing and extinction are all related to radical military events, providing very special witness to the whole history of Bozhou Tusi from pre-Tusi system, to its golden time, then its suicidal rebellion leading to the abolishment of Tusi system of the region by the Ming Empire. The history of Bozhou Tusi ended dramatically in 1600, and right at Hailongtun fortress. Therefore, we could say Hailongtun site makes irreplaceable contribution to this value criterion by testifying the Tusi ranking system, the legendary Clan Yang's rule, and the historic evolution of Tusi system as a whole.

The OUV attributes of Hailongtun

According to the World Heritage value framework mentioned above, especially of serial nomination, together with the requirements on authenticity and integrity, and practical management concerns in face of urgent nomination, led to the final identification and boundary demarcation of Hailongtun.

The property area is practically only covering the remains of the Hailongtun fortress itself and the upper part of Longyan mountain where it sits on. The buffer zone is drawn mainly along the ridgelines to include the mountain and river landscape for a visual harmony of the site (Fig.1).

In a way, Hailongtun Fortress together with its immediate landscape setting form the sole heritage attribute under the World Heritage framework. And this value-attributes framework appears further to be the major if not only reference for the World Heritage conservation, management and interpretation, which could be seen clearly from all the related plans Fig1). We could say, only the most qualified material evidence for the world level value is valid in this narrative. Could this exclusive system of value interpretation be limiting in the much complex local reality? Are there missing narratives of the site also important?

THE INTERPRETATION OF HAILONGTUN BEYOND THE CURRENT WORLD HERITAGE FRAMEWORK

Hailongtun in its Larger Historic Military Defense System

From various historical records including local chronicles, historians and researchers have been able to draw a clear picture of the complete regional defense system built by the last Bozhou Tusi, with Hailongtun as its core (Wang, Zhou 2014, pp. 275-305; Sun 2015). It could be summarized as a three-circled comprehensive system taking full advantage of the northern mountainous area bordering Guizhou and Sichuan Province, and building defense structures of various functions on all strategic points. The distance from the outer circle to the center is as long as over 60 kilometers (Wang, Zhou 2014, p. 276), The outer circle is composed of a dozen of large passes and fortresses (much bigger number is recorded in historical document, not all corresponding remains could be found today); Loushan Pass, over 30 kilometers north east of Hailongtun, is one important pass that forms this outer circle.

Even after 1600 when Bozhou Tusi power perished, important battles were fought here, the most famous one being the one led by Mao Zedong in 1935 which turned to be a decisive point for the rise of the Communist Party. It proves again the strategic significance of the whole area of Loushan Moutains where Hailongtun is located. The middle circle is much closer to Hailongtun, the local chronicles mentioned over twenty names of passes and fortresses. What's worth specifically stressing is Yangmacheng (Horse keeping town) Fortress which is within the buffer zone of Hailongtun world heritage site, with extensive remains of fortress walls, being itself a provincial-level protected cultural heritage. According to archaeological study (Sun 2015), Yangmacheng Fortress was built earlier than Hailongtun, very probably an important fortress of Bozhou Tusi in an earlier stage. What could be certain though is that even after Hailongtun became the center of Bozhou Tusi defense system, Yangmacheng did not lose its significance. This larger system might help better understand the role Hailongtun played in the last battle significant in the history of Bozhou Tusi, and certainly help better understand the military genius and tremendous power Tusi had in building such complex system.

Hailongtun in its Bozhou Tusi Comprehensive Heritage System

Bozhou Tusi that Hailongtun represents enjoyed a large sphere of influence in a long span of time, and it left a large number of related heritage remains in Zunyi city and its surrounding rural areas. According to the inventory published by Zunyi Municipal Administration of Cultural Heritage (He, Chen et al. 2014), by 2014, besides 17 military heritage sites which belong to the Bozhou Tusi historic defense system mentioned above, there exist also 26 Tusi related heritage sites of various types, including 12 Tusi tombs, as well as 5 Tusi manor sites, 5 religious sites, hydraulic

and transportation sites etc. Among which, the Tomb of Tusi Yangcan and his wife is a state level priority protected cultural heritage site. All these sites, though in very different states of preservation with many of them could hardly be recognized as cultural heritage, provide historic information of diverse aspects of the Bozhou Tusi domain, and help depicting the panoramic view of the historic Bozhou society under Tusi's rule, in which Hailongtun played an important part.

Hailongtun in its Traditional Rural Setting- Local Community Participatory System

Unlike Laosicheng Tusi site in Hunan province where the traditional ethnic community of Tujia people continued living on the site till today. Bozhou Tusi was completely uprooted by the Ming army in 1600. However, the natural environment, geographical conditions haven not changed. Therefore, the vernacular architecture, ethnic culture shaped in such environment might share certain continuity of the Bozhou Tusi culture represented now by Hailongtun. In fact, archaeological excavations have proved, "the New Palace building complex in Hailongtun is an outstanding example of traditional vernacular architecture of northern Guizhou region" (Chen 2014, p. 245). Hailongtun site is located in the administrative area of Hailongtun Village, Huichuan County. For the World Heritage nomination, 87 households of villagers within the property area were first moved out, to avoid possible negative impacts on the archaeological site. Some of the villagers' houses were kept and renovated in a traditional form, and reopened as space for interpretation and visitor service, apparently striving for the recreation of the "northern Guizhou vernacular architecture" as a more harmonious presence in the heritage site for tourists. However, without real inhabitants living inside, this part of the interpretation does not seem to be as effective as it could be.

Known from the interviews taken on August 2017, most households of Hailongtun village have lived in the area for at least four to five generations, a few have stayed for over 200 years. Being conscious or not, the local villagers have established very close bonds with Hailongtun. Their memories store the local modern and contemporary history directly related to the heritage site. For example, Haichaosi Temple was rebuilt in the Republican period, now part of the world heritage property, before Hailongtun was discovered and protected officially as cultural heritage. The temple used to be a popular community space for folk activities and cultural events. Before the village primary school was relocated not long ago, most children living in the village would climb the Longyan mountain every day for school. For villagers who used to work in plantation and agriculture, Hailongtun ruins in the mountain setting form the landscape of their daily life. Certain village cadres or community leaders are even given the task to carry out daily monitoring for the security of some cultural remains. We are told by Mr. Wang, one production leader in the village, that he has served as a part-time guard for the Yangmacheng fortress wall remains for over

20 years. Some villagers joined the archaeological excavation team helping simple field work. In fact, many important cultural relics and objects were first discovered and reported by villagers, such as the special pass for entering the Hailongtun Fortress in the Tusi time. We could well imagine, with proper communication and education, those villagers who have lived in the neighborhood of Hailongtun site for generations could have deeper understanding of the place and landscape that they are already so familiar with, and they might feed more lively materials back to the post-1600 history of Hailongtun site, which is also valuable resource for interpretation and cultural tourism.

We also know from the interviews, that during the early stage of tourism starting from the 1990s, local villagers already started providing various services for tourists, for example, they sell fruits and native products such as wild kiwi and bamboo shoots that they picked in the mountain; they provide litters and horses as transportation means for elder visitors; and more active and resourceful villagers would use their own houses as restaurants and hostels, and offer fun package with local tour guide and self-designed programs with more local rural flavors.

All these suggest that the local community is capable and willing to participate in the protection, interpretation and tourism development of the heritage site.

CONCLUSION

A cultural heritage site, sculpted in time, continuously dissolving ideas and cultural contents, is bound to be a treasure mine for exploration and interpretation, a World Heritage site might be especially so. The isolated application of any single framework might have a simplifying tendency. Through a comparative analysis on the interpretation of Hailongtun within and beyond the World Heritage framework, we notice that below the sublime tip of "pyramid" that we proudly present to the world stage, the massive foundation of the pyramid stays almost silent locally. There's a disconnection between the World Heritage interpretation and the multiple local narratives.

Certainly, it's neither possible nor necessary to put all above-mentioned value attributes related to Hailongtun onto World Heritage list, but it's necessary to be aware of the other narratives beside the World Heritage one and their equal importance to the integral and authentic interpretation of the site. After all, a World Heritage or any designated cultural heritage does not stay in its inscription text or abstract title, it lives on in a continuing spatial-temporal network and a much complex social-cultural reality.

Therefore, a more context conscious and holistic approach is needed to help bridge the gaps between research findings and site interpretation, connect and reconnect the seemingly fragmented narratives, involving related stakeholders, and

promote an integrated conservation of cultural heritage, for the benefit of both the sustainable development of the site itself and the its local socio-cultural settings.
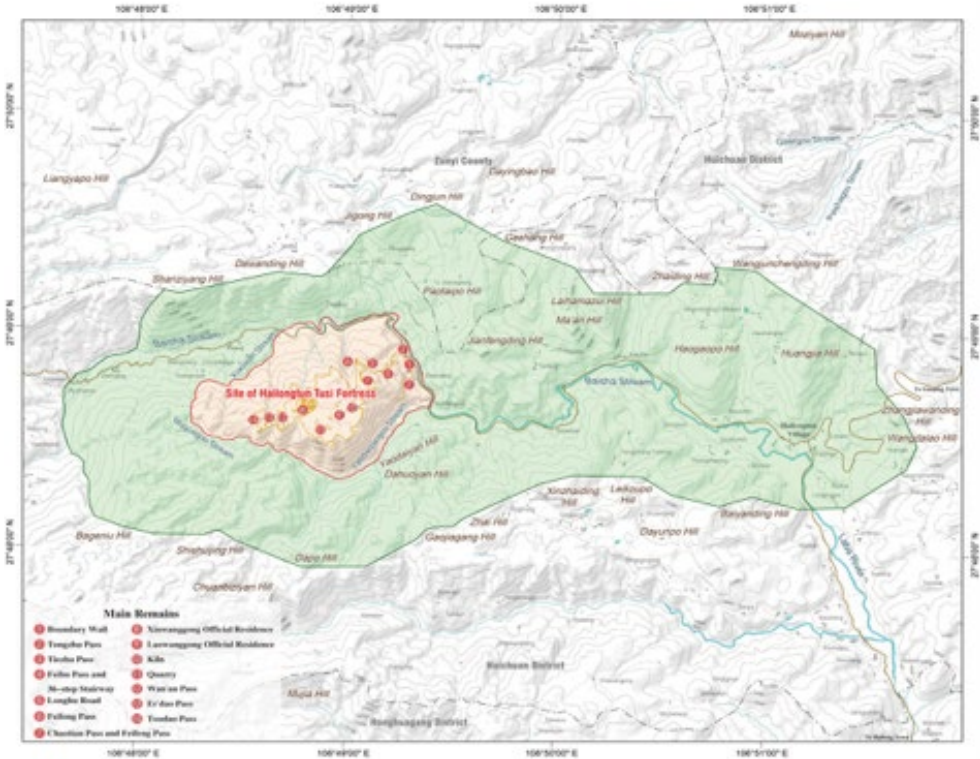
Fig.1 The world heritage property area (within the red line) and buffer zone (in light green) of Hailongtun (SACH, 2015); All local tourism development master plans of county and city levels adopt this demarcation directly. (Huichuan County, 2016; Zunyi City, 2015)

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PLANS:

– *Conservation and Management Plan for Site of Hailongtun Tusi Fortress (2013-2030)*

– *Huichuan County Tourism Development Plan (2016-2025) (draft)*

– *Zunyi Loushan Mountain National Scenic Area Master Plan (2015-2030) (draft)*

INTERVIEWS:

– Mr. Wang, head of Daqiao Production unit of Hailongtun Village, Yangmacheng Fortress site, August 6, 2017.

– Mr. Luo H. & Mr. Gao F.Q., Director and Vice Director of Hailongtun Villlage Committee, Office of Hailongtun Village Committee, August 6, 2017.

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COTTANELLO (RI) CASE STUDY: A MULTIDISCIPLINARY RESEARCH AND ENHANCEMENT PROJECT

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INTRODUCTION

Near the small town of Cottanello, in the Rieti province, in northern Lazio, a Roman villa is particularly important for the articulation of the plan and for the richness of its decoration.

Apart from the significant archaeological remains, the site also happens to be situated in a particularly evocative territorial context, rich in historical-cultural assets. For this reason, since 2013, the Institute for the Study on Ancient Mediterranean (ISMA) of the National Research Council of Italy (CNR) has set up a collaboration with several other organizations to study this territory. Other CNR Institutes, the local Superintendence, Universities, local authorities and citizens' associations they all form part of a collaborative working group. All the activities carried out so far (archaeological excavations and scientific research, conferences, publications, teaching and training activities, organization of seminars, informative meetings, workshops and guided tours), have enhanced our knowledge of the site.

THE SITE

The building excavated in the Collesecco area, adheres to the typology of the Roman urban-rustic villa, that is to say a structure which includes not only a residential zone for the owner's family, but also an agricultural and productive area. Excavation has so far been limited to the residential sector, while the productive and service areas are yet to be unearthed (Fig. 1).

Three main building phases have been identified from the 3rd century BC to the 6th century AD. In the main phase (1st century AD), the building is arranged around different courtyards, and includes an underground corridor (cryptoporticus) and a

bathing complex. The building has a rich decoration with mosaics, painted plaster, architectural terracottas and local stone columns. The ownership of the villa is attributed to the famous Roman family Aurelii Cottae, whose stamp MCOTTAE (Fig. 2) has been identified on the rims of two large jars (dolia).

Fig. 1 The entrance to the villa site.

Historically several key elements are known to us. Firstly, that the mother of Julius Caesar belonged to this family. Secondly, that the early 1st century AD construction of the villa in its main phase, may well have been carried out by Marcus Aurelius Cotta Maximus Messalinus, known to have been a dear friend of both the emperor Tiberius and the poet Ovid. We can also confirm the connection of the villa with the modern name of the city, a sign of the importance that this property must have had over the centuries.

The villa of Cottanello is located on the upper reaches of the Sabina Tiberina region, a territory that was well connected to Rome in ancient times by the Tiber River and the Salaria consular road (Sternini 2004). Although there were many Roman villas in this area, that of Cottanello is one of the few to have been systematically excavated and the only one that is open to the public. It was for this reason that our research team decided to study and promote it.

Fig. 2 a. A terracotta gutter tile; b. a rim of dolium with the stamp MCOTTAE.

EXCAVATIONS AND RESAERCHES

The villa was discovered in the late 1960's, when Fabio Mastrodicasa Rinaldi and other inhabitants of Cottanello identified the remains of ancient structures. Between 1969 and 1973, under the supervision of the Superintendence, and with the participation of local volunteers, more of the structure was brought to light. In 1973, the archaeological area received a metal fence and roof and in 1988 restoration work was carried out on both the floors and walls.

The first scientific analysis of the villa was published by Mara Sternini in 2000 (Sternini 2000), working under the aegis of the Superintendence for Archaeological Heritage of Lazio. The volume contains a prosopographic study of the Aurelii Cottae, a detailed plan of the site, an analysis of the structures and mosaics, studies on the materials, in particular ceramics and architectural terracottas, as well as a scientific and geophysical survey.

The Sapienza University of Rome, under the direction of Patrizio Pensabene, carried out new archaeological investigations in 2010-2012, concentrating on the thermal complex, the north-east corner, the underground corridor and the western sector. The work helped to refine our understanding of the building phases, the architecture of the site and materials used in its conception (Pensabene, Gasparini 2012; Pensabene, Gasparini et al. 2013).

THE CNR RESEARCH PROJECT

Since 2013 the ISMA Institute has been conducting archaeological investigations with a permit granted by the Ministry for Cultural Heritage and Tourism (Fig. 3), and the collaboration of Superintendence for Archaeological Heritage of Lazio, Sapienza University of Rome and Cottanello Municipality.

Fig. 3 The excavations (2014).

From the beginning the project included excavation and diagnostic surveys to accompany the study of the site and its finds. The work was carried out by research-ers of the CNR Institutes for the Conservation and Valorisation of Cultural Heritage (ICVBC), for Technologies applied to Cultural Heritage (ITABC), Structure of Matter (ISM), Environmental Geology and Geo-engineering (IGAG), together with other re-searchers from different departments of various universities, including the Sapienza, Federico II and Suor Orsola Benincasa of Naples, and with the participation of inde-pendent scholars. The research group has developed a highly specialized scientific strategy that, thanks to the multidisciplinary skills of the individual researchers, is directed at three different lines of intervention: territorial study (topographic, geo-logical and geophysical knowledge of the territory and geo-referencing of archaeo-logical emergencies), historical, archaeological and archaeometric research (not on-ly for the study of the villa of Cottanello, but also for the other villas in its territory),

socio-cultural and economic activities (supporting initiatives of the Municipality of Cottanello for the promotion of the villa, organization of events open to the public; educational and training activities).
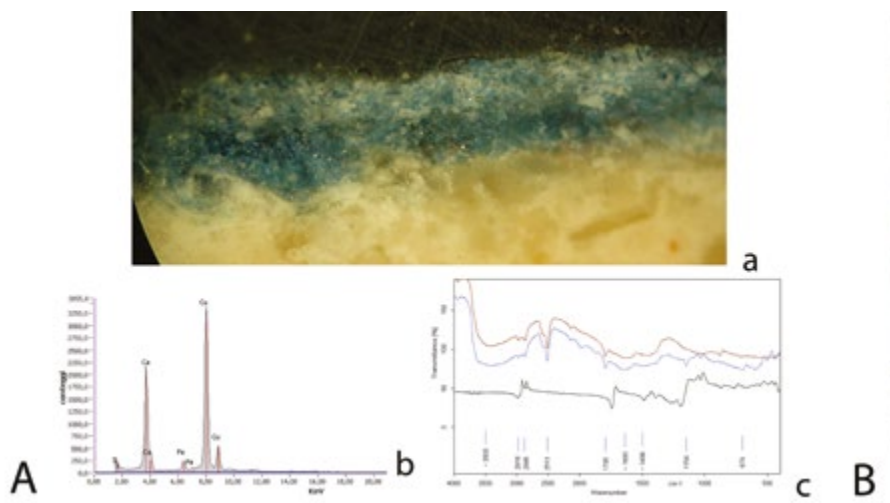

Fig. 4 a. Archaeometric analysis on a sample of plaster; b. The cleaning of a mosaic.

In short, our research project has fully adopted all the scientific methodology needed to adhere to the concept of modern "global" landscape archaeology. Indeed, the project stands out for its marked inter-disciplinarity and the close

collaboration between all those involved, whether it be research, teaching or site management. The main scientific and dissemination activities have been:

1. Excavations and historical and archaeological researches - ISMA has carried out three excavation campaigns (2013, 2014 and 2017), with important results for the history of the villa, thanks to stratigraphic analysis and typological and comparative studies of the archaeological finds.

2. Architectural studies and 3D reconstruction - The 3D reconstructions of individual elements and of the building as a whole are aimed at a more in-depth study of the villa architecture, as well as a more effective communication of the research results.

3. Archaeometric analyses - Finds have been analyzed using non destructive or micro-destructive spectroscopic techniques such as hyper spectral imaging (HSI) and X-ray micro fluorescence (mXRF), micro-Raman spectroscopy, infrared spectroscopy (FT-IR) as well as observing samples of ceramic and painted plaster in glossy and slim section by optical microscopy (MO) (Fig. 4 a). The same analyses are carried out, together with other micro destructive types, such as SEM and FT-IR, on micro specimens of paint film taken from the villa's plastered walls. Gas Chromatography coupled with Mass Spectrometry (GC-MS) has led to the identification of organic residues found within large storage containers (dolia).

4. Activities for the conservation of the archaeological structures and materials - Techniques for the conservation of the archaeological finds have been tested and developed, including the application of non-destructive investigation technologies. In particular, new bio products for the cleaning of mosaic surfaces have been tested (Fig. 4 b).

5. Topographic and geophysical survey - In the area around the building, geophysical (using integrated application of geo-radar and magneto metric techniques) and topographic surveys (using total station and GPS in kinematic mode for the realization of the Digital Terrain Model) have been carried out in order to assertain the villa's perimeters, with an eye to future archaeological investigations.

6. Scientific research on the so-called Cottanello marble - Reserchers of IGAG Institute analyzed the structural, petrographic and geochemical characters of a typical rose-colored stone, known as "Cottanello marble", which in geological terms can be termed a reddish or rosemary limestone belonging to the Red Shale Formation. The main quarry is located on Mont Sterpeto, about a mile from the town of Cottanello, and was active until the 1970s. This stone is renowned, since it was used by the baroque architects Bernini and Borromini to decorate many important churches in Rome (including St. Peter's, St. Agnese in Agone, St. Andrea al Quirinale).

7. Dissemination activities - The results of the ongoing research have been disseminated in two different ways: firstly through national and international

conferences (see for example, Sfameni et al. 2016 a e b) and secondly, through the organization of events and guided tours in Cottanello, involving schools and local communities (Fig. 5)

Fig. 5 A guided tour at the villa.

8. Educational and highly specialized training activities - Given the research input of many students from the Sapienza and other Italian and foreign Universities, the project has great value as a training dig. It's pedagogic potential also extends to students at the Cottanello primary school and to two secondary schools from Rome. The inclusion of the project within the activities of the multi-sector training program "Diplomazia: Science for Diplomacy", organized by CNR and the Ministry of Foreign Affairs and International Cooperation, aimed at training young graduates and officials from the North Africa, Middle East and the Balkan region countries, was also particularly important. Four young researchers from Tunisia, Egypt and Montenegro, took part in the 2014 excavation campaign. In addition, the archaeological site also represented the practical element of the training program for all the young scholars of various nationalities engaged in the Diplomazia project in 2014 and 2017.

SOME FINAL REMARKS

The first concrete product of this scientific collaboration is a volume, published in 2017, containing the results of the work conducted between 2010-2016 (Pensabene, Sfameni 2017). In the meantime, the CNR team's work is ongoing and is being carried out at several levels. Firstly, a digitized data base (DB) is being implemented for the synthesis of all the archaeological data. The DB information will then be processed on a Geographic Information System (GIS), currently under construction, which will be able to accompany educational and dissemination activities.

In a broader perspective, the CNR group aims to structure thematic itineraries throughout the territory of Cottanello, starting from the network of Roman villas in the Sabina Tiberina and linking them to many other historical-artistic sites. We have submitted a project to the Lazio Region, which, on the model of what has already been done for the excavation and management of the villa di Cottanello, promotes a program of technological transfer of our interdisciplinary skills to local Municipaly, private enterprises and, on a broader territorial scale, the Consortium of provincial Municipalities for the Territorial Museum of the Agro Foronovano.

We are also preparing proposals for similar projects both locally and abroad. The planning of an integrated enhancement of the extraordinary heritage of this territory depends on a strategy of investments that must involve the municipalities of the area, the Superintendence and the Region. Nevertheless, the network that has been established between the different institutions could be the basis for projects to come.

The shared common interests of several large institutions – as well as Superintendence, CNR and Sapienza University amongst others, local authorities, including the Municipality of Cottanello, and local private institutions such as the Varrone Foundation of Rieti, which supports Cultural Heritage in the province of Rieti - should ensure the villa's ability to reinforce its role as a point of convergence and experimentation of research for Italian and foreign students and scholars. Moreover, thanks to our project the Cottanello villa could become the starting point for the socio-cultural development of the surrounding area.

ACKNOWLEDGEMENTS

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Among her publications there are the monographs Ville residenziali nell'Italia tardoantica, Bari 2006; Residenze e culti in età tardoantica, Roma 2014. Togheter with P. Pensabene she is the editor La villa romana di Cottanello. Ricerche 2010-2016, Bari 2017, in which the results of the 2010-2016 researches are presented.

MODELING OF BUILDING INFORMATION - BIM: NEW SCENARIOS FOR ARCHAEOLOGICAL RESEARCH

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THE B.I.M.

The analysis of a building or a generic kind of construction depends on the quantity and quality of the information that may characterize it. This information often are heterogeneous nature, sometimes apparently contradictory. Thus there's the need to find a tool capable of effectively managing data of a different nature.

For B.I.M. or Building information modeling, we mean the representation of a building through a three-dimensional model for which information and descriptive data related to different technical-scientific disciplines are associated. Due to its intrinsic nature, a B.I.M. can contain any type of information regarding a building, and is therefore applicable to buildings of historical interest and antique workmanship. A B.I.M. related information usually concerns the spatial definition of the work and its geographical location, the technical properties of its materials and elements, the digital representation of physical and functional characteristics of its structure, as well as its construction phases and subsequent programmed operations of maintenance.

Developed for the architectural-engineering design and new construction field, in recent times the B.I.M. has also experimentally applied to the archeology sector and in particular to the research of ancient buildings with the aim of creating informational focus on new technologies, and allowing the development and dissemination of databases to be shared among insiders. The software uses data design and processing tools, which make up an information model. Any information is strictly associated with its 3D model component, and may consists of a specification regarding the building life cycle under environmental sustainability: project> construction> maintenance> demolition> decommissioning.

Obviously, if applied to a product of historical-cultural interest, the life cycle would not concern the concept of "end of life" tout court, but it would improve maintenance for preservation, enhance of structural support and defense from atmospheric

agents, beyond to the design aimed at recovery, reuse and musealization. The analysis of the life cycle can applied to the historical buildings for their conservation and restoration, introducing the cyclicity of checks and interventions useful for the conservation process in the building analysis. The management and coordination of these processes entrust to specialists who possess multidisciplinary requirements.
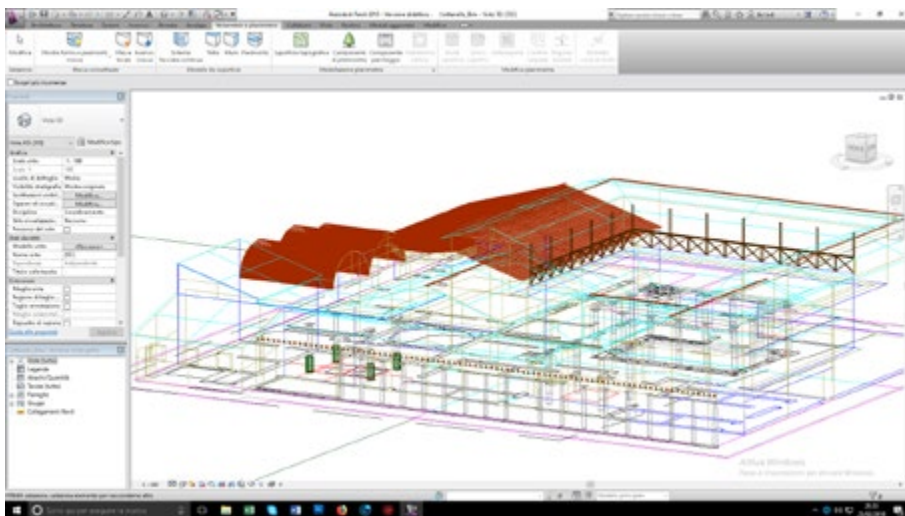
Fig. 1 Preliminary model.

The digitization and organization of information according to the B.I.M. procedure enhances their multidisciplinary nature and requires a preliminary work on 3D components and information contents which only can result from a strictly collaboration between various specialized figures, pointing to:
- inserting
- extracting
- updating
- changing the information

The ultimate goal of the Archeo-B.I.M. process is to obtain a dynamic model that contains information about:
1. geometric data
2. nature and technical characteristics of the materials
3. archaeometric characteristics
4. existing and later added plants
5. conservative maintenance
6. possibility of using for museum objectives
7. possibility of inclusion of building interventions for conservation purposes

8.   and further data in the case of particular structures

The philosophy behind this method is the management of the analytical process, organically improved and enhancing the characteristics of interoperability, where all the collaborating experts can attend on data. From the simple modeling of architectural objects with parametric method (beams, pillars, walls, windows etc.) the B.I.M. authoring software are able to automatically obtain plants, elevations, sections, and three-dimensional modes even with photo-realistic effect; to each model updating follows an automatic and dynamic variation of all the derivatives of the modeling. Creating a coherent virtual model allows you to view all aspects of the construction synoptically. It is also possible to verify the results of the choices made using the rendering module that allows you to view elements otherwise unverifiable such as the solar power input and the color of the various architectural components.

The definition of shapes and hierarchies (alignments, inclinations, full or empty parts etc.) through the addition of details comes to the formulation of a complete 3D model, followed by the structural definition (foundations, beams, pillars and bearing walls) and by the plant component. The next stage involves the ability to enter, extract, update or modify information in a standardized format that allows the interoperability and secure data interchange (i.e. so that nobody could accidentally alter any verified decision).

The metric calculation output is one of the further advantages, which is useful for general programming purposes, because every variation or addition of model details corresponds to an automatic variation of the total quantities and of the costs of the project or of the intervention. The traditional production of graphic works (plans, elevations, sections) takes place semi-automatically as it is possible to obtain coherent graphic elaborations deriving directly from the model.

The new proposed scenario overcomes the simple use of digital tools in areas, such as archeology, traditionally analogical and will allow us to grasp the real and innovative advantages of the B.I.M. methodology, such as the adaptability of the use of B.I.M. data for multiple and disparate purposes, like typological cataloging and the subsequent historical classification. You can use it in the archaeological study of other artifacts comparable with those reconstructed for historical dating or construction technology. In fact, each three-dimensional typological element developed for B.I.M. analysis and characterized from the historical, mechanical, rheological and technical point of view through its descriptive data sheet, would become part of a shared and reusable Database for the other buildings to which it would be applicable.

The B.I.M. virtual archaeological reconstruction does not exhaust its usefulness in the virtual representation of the specific building, but creates benefit through the loading of highly specific information, provided by contributions of the multidisciplinary team. Niche skills such as local construction methods or special mixtures of

materials and decorative techniques would became new typological elements, creating reference libraries used in the B.I.M. analysis of other buildings.

THE EXPERIMENTATION OF THE METHOD: THE CASE OF COTTANELLO

In the case study of the ancient Roman villa of Cottanello, the project founded on a philological method based on the analysis of data obtained from excavations and surveys and on the subsequent experimentation of new information systems applied to the virtual reconstruction of the building.

Among the first stages of the experimentation, there was necessarily the planning of the information system. In fact, to be able to obtain an effective data sharing, it is necessary to prepare, from the initial stages, clear protocols of data exchange that indicate what information should be shared and their format; these protocols involve defining specifications for elements such as: grids, coordinate systems, places, references, object names and classifications. These issues must addressed through the development of an implementation plan and through the development of shared standards that allow an alignment of language and procedures.

The working group includes experts from different CNR's Institutes, as:

* Dr. Antonio D'Eredità (CNR ISMA: *Institute for Studies on the Ancient Mediterranean)*
* Dr. Laura Genovese (CNR ICVBC: I*nstitute for the Conservation and Valorization of Cultural Heritage*)
* Dr. Carla Sfameni (CNR ISMA: *Institute for Studies on the Ancient Mediterranean*)
* Dr. Andrea Angelini (CNR ITABC: *Institute for technologies applied to cultural heritage*)
* Dr. Cecilia Giorgi (CNR ITABC: *Institute for technologies applied to cultural heritage*)
* Dr. Giovanni Caratelli (CNR ITABC: *Institute for technologies applied to cultural heritage*)

The composition of this group embodies the kind of interdisciplinary collaboration that is a essential part of the B.I.M. methodology applied to archeology.

One of the fundamental problems of what is called Archeo-B.I.M., is the lack of availability of libraries of objects and elements necessary for the definition of the information model of a building of historical interest. Given the impossibility of drawing on highly standardized libraries as in the case of contemporary building components of an industrial nature, it is necessary to create new ones deduced from archaeological casuistry. They can placed in the same sector sphere within large cloud databases for sharing and exchanging with other groups. The possibility of generating usable 3D databases makes it possible to associate information of multiple types

that can inserted into three-dimensional modeling to make it coherent according to what can be referred to as Archeo-B.I.M., i.e. the concept of definition of the constructed addition of information derived from the disciplines used in archeology.

We have moved in this direction with the aim of creating three-dimensional models that have the ability to increase their information value thanks to the application of semantic techniques that allow the possibility to browse the contents related to the models. For example the possibility of study historical-architectural, archaeological or artistic elements by selecting them for thematic areas (periodization, author, used materials, style).
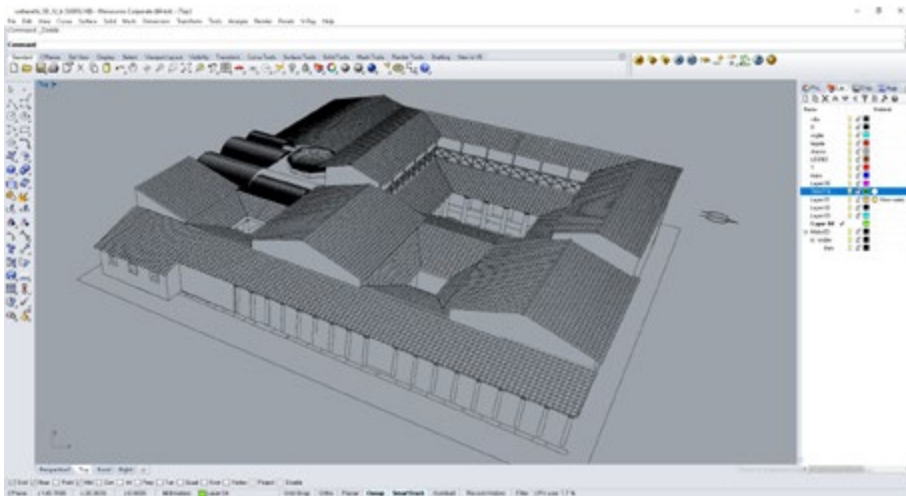
Fig. 2 Volumes definition.

The preliminary operation to produce the 3D virtual model is a process of conceptual abstraction and discretization of the structures examined. The study started on the analysis of the wall consistency and the identification of structural hierarchies, and then we proceeded to the hypothesis on the texture of the floors and finally the wooden bearing structure of the roofs, thus studying the profile of the slopes of the brick roofs. The modulation of the roofing directly connected to the regulation of the waters, meteoric and not, since inside the villa there is a private baths. That certainly needed a plant capable of handling a considerable amount of water. The reconstructive hypothesis was founded mainly on the relief of the site's emergencies, in particular the traces of the masonry, however scarce they were still useful for the verification of the structural congruence. Therefore, starting from the initial acquisition of metric data taken from a direct survey, a rough model developed. At a first stage aimed at the identification of the volumes to which proceeding are added

details that increase the level of definition of the built on because of the families of elements.

In the next phase, the identification of single elements (that is, not merging into a family of elements or sub-elements) but which contribute significantly to the generation of the three-dimensional model added. In our case the three types of columns, which differ slightly in terms of size and surface treatment but at the same time represent single fundamental elements for the definition of roof slopes, in particular internal courtyards, and reference to the proportion of masonry heights in relation to the roofing.

For the realization of the complete model of the villa, it is necessary to build families of elements that as expressed in the introduction will contribute to the definition of the work. A family of "components" such as the tiles and roof tiles that make up the surface of the roofing embodies the synthesis of geometric and constructive data such as to frame the work even from a historical and territorial point because of the recognizability of the building starting from processing and the nature of the material used. To each family of elements it is possible to attribute a dating in order to obtain a model able to reconstruct the chronological phases of the construction to be able to distinguish the interventions in their most accredited succession, thus highlighting the contribution of the historians who intervened in the process.

It should pointed out that the lack of regularity of the ancient constructions, for example the incorrect collinearity of the horizontal surfaces and the irregularity of the vertical surfaces, are not compatible with the functions of the softwares, which tend to standardize the contemporary construction techniques. The need to create libraries that can be adapted and implemented according to the insights of the archaeological divisions.

The final part of the project contemplates the possibility of intervening on the site, designing an architectural system capable of preserving the work itself and of using the information organized in the B.I.M. during the design of these structures and the subsequent maintenance operations. The analysis of the life cycle as it developed for new buildings can applied to historic buildings for their conservation and restoration by inserting into the analysis the cyclicity of the controls and interventions useful for the conservation process.

The team that has been trained not only to be able to summarize the knowledge of different disciplinary sectors (from archeology to the history of architecture, from engineering to the study of materials), has included such information in databases ready to be integrated into digital models and then used in the B.I.M. generation process. We have moved in this direction with the aim of creating three-dimensional models that have the ability to increase their information value. Thanks to the application of semantic techniques that allow the possibility to browse the contents related to the models, for example the possibility of study historical-architectural, archaeological or artistic elements by selecting them for thematic areas (periodization, author, used materials, style).

Fig. 3 Reference model.

Thanks to a work sharing the group's expertise and the expertise of other consultants on specific issues, we are sure we can achieve these fundamental objectives:

1. establish a system of collaboration between different disciplinary sectors that contribute to the creation of technological tools able to implement the understanding of cultural heritage;
2. improve the surveying procedures of monuments and buildings of historical and cultural interest and cataloging of relative data;
3. develop a semantic content platform in full interoperability that allows the management of data and information related to cultural heritage.

The results of the project are still partial as historiographic research and the compilation of the families of objects to draw from are still in progress. The experimentation of methodologies of representation through informative models with the main purpose to investigate and deepen the possibilities provided by the most recent tools born for the building production for the analysis of ancient buildings and historical interest.

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Among his publications there is *La villa romana di Cottanello. Ricerche 2010-2016*, Bari 2017, in which the results of the 2010-2016 researches are presented.

2

A STEP FORWARD: MANAGING AND ENHANCING ARCHAEOLOGICAL SITES

A NATIONAL SCHEME ON LARGE ARCHAEOLOGICAL SITES CONSERVATION AND INTERPRETATION

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Keywords: national scheme, large archaeological sites, conservation, interpretation.

DAYIZHI, A SPECIAL CONCEPT IN CHINA

Dayizhi (DYZ), or Large Archaeological Site, only officially appeared in a national scheme as late as 2005, is a long debated concept in China. The richness of its meaning could not be fully discussed here. Simply put, DYZ goes far beyond archaeology and represents the most challenging heritage conservation issues in china. DYZs are first for sure massive in size, important in history and many in number in China, their significance long been recognized by archaeologists and politicians for understanding the vast-territory and uninterrupted Chinese civilization. However more – and interacted - elements need to be understood for the uniqueness of DYZ in China. First are their fragile materials, specifically the tradition of earth and wood construction in China. What was not destroyed by human, and forgotten, tends to be very easily destroyed by nature. Second is their vulnerability to the overwhelming modern development, undertaking in the most populated country with relatively scarce land at unprecedented speed and scale. Last but not least are the decades'-long trials and practices of protection at different sites on the grass-root level. For example, a city planning to specify ancient culture zoning and preservation was issued as early as 1937 for Xi'an (XLACC 2000). Salvage archaeology had been organized since early industrialization after the People's Republic of China at important archaeological sites in historical areas such as Xi'an, Luoyang and Anyang (State Council 1953). Some areas began to explore new methods to conserve and utilize archeological sites .Yuanming Yuan Palace Archaeological Park Master Plan (Outline) was completed in 1985 (Wu, Shi 2000), and Luoyang explored the method of simulative exhibition on the original site of the backfill of Ying Tian Gate in 1985 as a pilot project supported by SACH.

When all these forces have culminated into the 21th century, coupled with the great increase of Chinese government budgetary input into cultural heritage,

a special scheme at the national level has been formulated using the tool of Five Year Plan (FYP) since 2005. A milestone policy was issued in 2005 by the Ministry of Finance and the State Administration of Cultural Heritage, DYZ Conservation Special Fund Management Regulation (MoF, SACH 2005). The concept of DYZ was for the first time recognized by the national government, and only designated DYZs are eligible for the Special Fund. Up to now there has been three specialized National DYZ FYPs promulgated by State Administration of Cultural Heritage (SACH 2006, 2013, 2016) for the 11th, 12th and 13th Five-year periods starting from 2006. Since then 176[1] archaeological sites have ever been designated as DYZs.

Based on a research project on the implementation of DYZ policy undertaken by Chinese Academy of Cultural Heritage (CACH 2016), the paper will focus on the 155 DYZs designated during the period between 2005 and 2012.

FEATURES OF THE DYZ SCHEME

Top down approach

Traditionally, central fund for heritage conservation had been allocated through a bottom up application process. The formulation of the DYZ policy has represented a more top-down approach in several ways. The designation of DYZs was organized by SACH to identify their historical significance, conservation demand and social and economic feasibility on the national level. The list of DYZ not only includes individual Protected Unit of Cultural Relics by law, but also some complexes formed by historical and cultural sites under protection[2]. Moreover, there are some trans-regional DYZs such as the Silk Road, Great Wall and Grand Canal, forming a backbone framework of "six lines, six areas, and one circle" (SACH 2013)[3]. SACH also uses the tool of the national DYZ FYPs as guidelines to set up goals and prioritize major tasks. There is also an elimination mechanism in the FYPs. For example 5 archaeological sites designated in the 11th FYP are excluded from the 12th FYP and 20 in the 12th FYP are excluded from the 13th FYP.

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1   Some of them have been taken off the FYPs now, refer to Table 1.

2   For example, the Tang Emperors' Mausoleums include 18 National Key Protected Units of Cultural Relics such as Zhao Mausoleum, Qian Mausoleum, Shun Mausoleum and Qiao Mausoleum.

3   According to statistics (SACH 2012), the 100 *dayizhi* of the 11th FYP covered 160 major heritage sites protected at the national level, 116 heritage sites under protection at the provincial level, 717 historical and cultural sites under protection at the city and county levels and 1,062 unmovable cultural relics that have not been verified.

	Planned period	Year of issue	Number of designated DYZs	Major changes over previous FYP	Line district circle
11th FYP	2006-2010	2006	100		3-line 2-district
12th FYP	2011-2015	2013	150	55 added 5 taken off	6-line 6-district 1-circle
13th FYP	2016-2020	2016	152	22[1] added 20[2] taken off	7-line 6-district 1-circle

[1] including 1 listed in 11th FYP but taken off from 12th FYP

[2] 8 were both in 11th and 12th FYP, 12 were in 12th FYP.

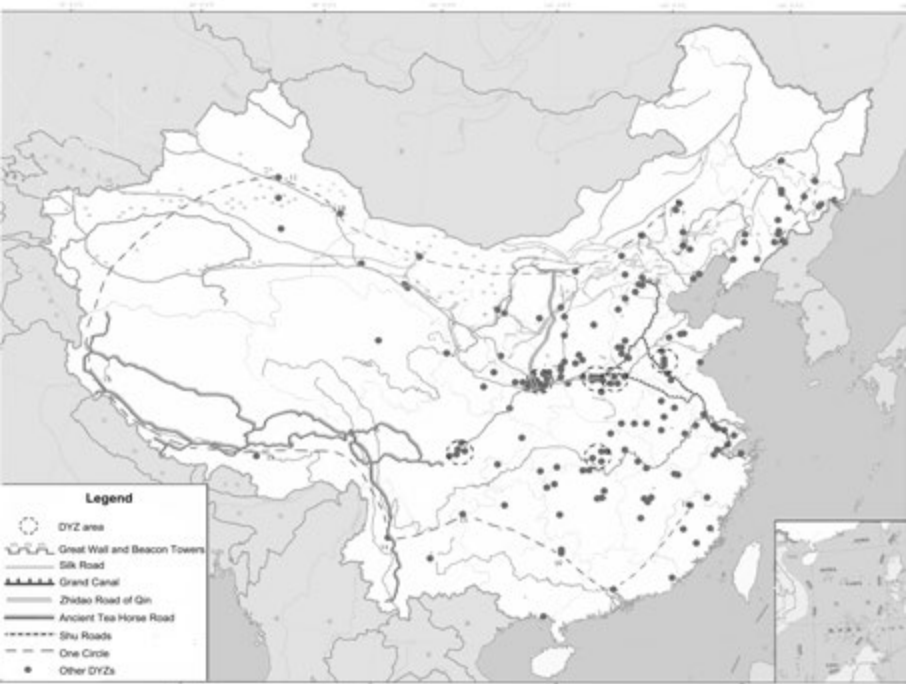Table 1 DYZ designation in 11th , 12th and 13th FYPs.

Fig. 1 DYZ layout map of China (Source: CACH 2016).

Multiple goals

Different from an intense concentration on conservation and restoration in the past, the DYZ scheme broaden its scope of policy by including additional goals such as "improving people's quality of life", "environmental benefit", and "sustainable economic development" in the 11th FYP (SACH 2006). The open attitude from central government, together with the co-funding requirement has been keenly embraced by local governments. The DYZ scheme has brought the traditionally rather professional and marginal issue of cultural heritage preservation into larger political attention and leverage broader coalition and massive support from local resources.

In addition to a broader political vision, the scheme has also emphasized capacity building of the profession. Included in the major tasks are development of DYZ management system, improvement of preliminary work (SACH 2006) and information technology application in survey and monitor (SACH 2013).

Orientation towards interpretation

Although in its early stage "utilization" of DYZ was only a vague idea in the 11th FYP in 2006, things were going to change radically. Represented by several high profile DYZ summit meetings between 2006 and 2009[4], the idea of establishing national archaeological parks was getting momentum steadily. Eventually, an important documents were issued on archaeological parks by SACH (SACH 2009), providing for the procedures of national archaeological park designation and criteria. From then on, "DYZ conservational interpretation", as the label of archaeological park development, has become the emphasis of DYZ policy, which could be evidence in terms of actual spending later.

When it comes with the spending, the central DYZ Special Fund has played a crucial role in promoting interpretation. In the fund regulation, interpretation facilities as a new type of protective facility are included as eligible expenditures, together with environment improvement within the protection zone, and management. (MoF, SACH 2005).

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4   DYZ Protection Workshop, organized by SACH and Luoyang Municipal Government, October 22-23, 2006; DYZ Protection Xi'an Summit Forum, organized by SACH and Xi'an Municipal Government, with the theme "Better Conserve DYZ, Promote Harmonious Urban Development" , October 27, 2008; DYZ Protection Liangzhu Forum, organized by SACH and Hangzhou Municipal Government, with the theme "DYZ Conservation and Archaeological Park Development", June 12, 2009; DYZ Protection Luoyang Summit Forum, organized by SACH and Henan Provincial Government, with the theme "DYZ Protection in the Core Center of Urban Area", October 31, 2009.

IMPLEMENTATION AND ACHIEVEMENTS

Before analysis of the implementation and achievements of the DYZ scheme, a precaution has to be made on the problems in data availability. It has to be kept in mind of the very complex and ever changing policy itself through the years, the lacking of relevant information due to a decentralized administration system and fragmented reporting mechanism, and the sheer scale of the scheme covering all over the country. Therefore the following two dimensions of analysis - the expenditure of central funding, and the implementation of the 11th FYP – would only provide a partial picture based on the best information we could collect.

Some statistics of DYZ expenditures

As a national scheme supported by the special central fund, the fund allocation will give a general picture of the implementation. According to the data available from 2005-2012, a total of 5.01 billion Yuan (Table 1) had been allocated to DYZ scheme into 1151 projects. We can see a substantial increase of central fund in the 12th Five-year Period starting in 2011 both in terms of project number and total sum of the fund.

	2005	2006	2007	2008	2009	2010	2011	2012	Total
projects	66	153	86	91	92	144	356	163	1,151
sum (mil. yuan)	250	380	420	400	400	400	1,768	995	5,012.7

Table 2 DYZ fund allocation 2005-2012 (Source: CACH 2016).

The fund was used mostly for conservation projects (42%), protection facilities (34%) and preliminary works (22%), while management systems were funded for a 2%. Since most "interpretation" projects have been supported either as conservation or protection facility construction projects, a more detailed search of project keyword was carried out, showing among all projects, interpretation (21.4%), restoration (15.9%) and archaeology (11.3%) were the top 3 nature of the projects.

While the designation of DYZs in the FYP was one thing, the actual support by central fund is another. Out of the 155 DYZs, the first 10 DYZs got 61.3% of the SACH funding for DYZ, while the first 35 DYZs took 87% of the overall funding. Among the top 5, Great Wall was allocated 876.8 million yuan from 2005-2012, the

Silk Road 447.2 million yuan, The Sui-Tang Luoyang City 374.2 million yuan, the Grand Canal 336.0 million yuan and the Qufu City 184.5 million yuan.

The data show a confirmation of the strategy of 6 lines and 6 district framework formation. Three of the "lines" – the Grant Wall, the Silk Road and the Grand Canal had been heavily supported, partially due to their sheer size, and partially due to their national tasks: first-ever nationwide survey for the Great Wall, and world heritage bidding for the Silk Road and the Grand Canal. Three of the "districts" got generous funding as well, with Luoyang 541.7 million yuan, Xi'an 423.3 million yuan and Jingzhou 225.3 million yuan.

Fig. 2 Sui-Tang Luoyang City Site: The Heaven Temple site foundation before.

It is difficult to have a clear picture of local government investment on a general basis. But a sort of multiplier effect is sure to happen: the more local government is ready to contribute, the more SACH would allocate its fund. Considering the huge amount of central fund available – 5 billion in 8 years – it would be the first time ever that SACH has some meaningful leverage to motivate local government, in addition to the idea of "interpretation". For example, the Sui-Tang Luoyang City Site (the top funded individual DYZ outside the lines), the municipal government has spent at least 2857 million yuan, or 7.6 times of central input, in relocation, environment improvement and infrastructure construction for DYZ "conservational interpretation". The Sui-Tang Luoyang City Site National Archaeological Park has been development at the very center of modern Luoyang City (Fig. 2).

Fig. 3 Sui-Tang Luoyang City Site: The "conservation and interpretation" facility on top of the site foundation after the National Archaeological Park Development.

Implementation of the 11th DYZ FYP

Available information only allows us to follow achievements of the 11th FYP implementation, with the 5 major tasks set out in the Plan as reference.

1. Develop DYZ management system - To strengthen the institutional responsibility of DYZ management, all sites except 4 have set up their own daily management agencies. Local legislation on DYZ has been improved, with 26 administration rules promulgated. SACH has put on trial a remote sensing monitor system for 26 DYZ areas, and signed cooperation agreements with provinces of Shaanxi, Hubei and Sichuan.

2. Prepare individual DYZ Conservation Plans and an Master Conservation Plan Outline for the 100 DYZs - Planning has been very much emphasized as tool

for integrated conservation of DYZ. The Plan Outline has been completed in two batches, the first for 36 sites (SACH 2005) and the second for 64 (SACH 2006). Among the 100 DYZs designated in the 11th FYP, 63 of them have their individual conservation plans prepared (or revised) and approved by SACH by 2013.

3. Continue to implement DYZ Protection and Restoration Projects - Preservation, restoration and safety control have been greatly upgraded due to sharp central fund increase. According to a preliminary statistics, 222 site preservation and restoration projects, 61 disaster prevention facilities, 134 presentation facilities construction projects has been carried out by 2013.

4. Establish 10-15 DYZ Conservation and Interpretation Areas (Archeological Park) and a Number of Sites Museums - Conservation and interpretation, as a rather new element in the national DTZ policy, has played an important role in realizing the multiple goals of heritage conservation and sustainability development. With the establishment of 24 National Archaeological Parks approved by SACH, 54 more in the tentative list, 31 new site museums, some of the sites have been alleviated from housing and farming encroachment, and transformed into popular public space from traditionally neglected slums.

5. Improve Preliminary Work - Archaeological work has been enhanced for plan preparation, restoration projects, and park development. 153 archaeological excavation projects have taken place on 47 sites. 45 archaeological reports have been published on 34 sites. A massive survey of the Great Wall was organized by SACH during 2006-2012 covering an area of 40,000 square kilometer in 16 provinces. For the first time in history the Great Wall is basically identified and documented as 21196km long with more than 43000 wall sections and auxiliary facilities on a GIS system. During the period of 2005 and 2014, 4 DYZs - Yin Ruins (2006), the Upper Capital Site of the Yuan Dynasty (2012), the Grand Canal and the Silk Road (2014) – had been successfully nominated into World Heritage list.

SOME CONCERNS FROM THE IMPLEMENTATION

Some problems have been observed during the policy implementation that need to be addressed.

Imbalanced implementation

The other side of the statistics above tells the story of an imbalanced implementation of the scheme. 120, or about 77% of the 155 DYZs, got only 13% of all the

central Special Fund during 2005-2012. The DYZs located in rural areas tend to get less support in terms of average fund sum (Fig. 3). So the leverage effect of the co-funding also works on a negative direction: the less attractive of a DYZ and poorer areas, the less development opportunity of utilization, the less input from the local government, and the less support from the central government. This sometimes leaves very important DYZs in helpless conditions.
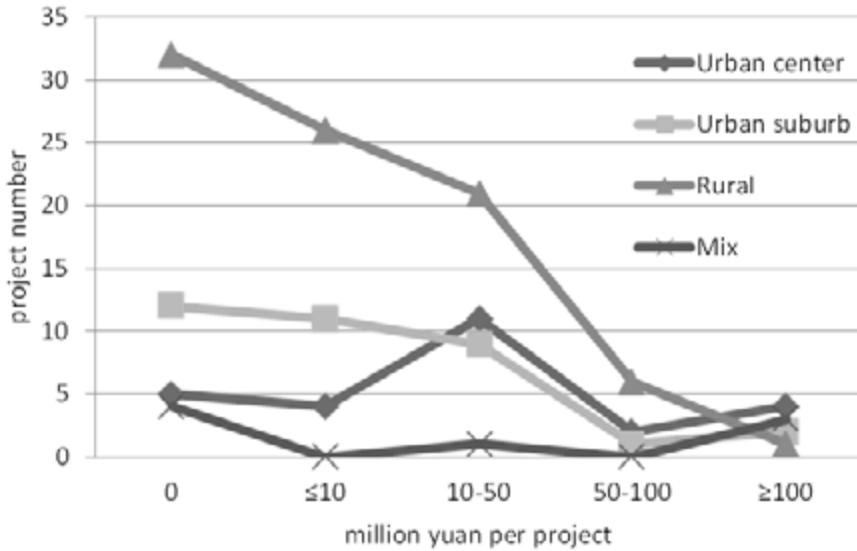
Fig. 3 Central Special Fund allocations by site location.

Weak legislation integration

The National Scheme of DYZ Conservation, including the designation of National Archaeological Park, is still mainly driven by the central Special Fund and not included in any legislation after more than a decade operation. Some of bottleneck issues faced by DYZs such as land and division of responsibility between different levels of central and local governments are beyond the capacity of a single fiscal ad-hoc policy could address.

Negligence of daily operation

Daily management and operation issues are one of the missing points in the whole DYZ policy. It is the local government that should support them, subsidizing their expenditures, in most case running shortage of financial resources, for high cost

of maintenance – higher than other cultural institutions – without relevant resources. And many times for the newly developed facilities, just after the starting of daily operations, the lack of financial feasibility emerges. The investments for archaeological park development are always huge, easily reaching in the scale of billion yuan (such as the Sui-Tang Luoyang City Site Park), yet none operation of the facilities and running costs were addressed in the planning stage at all. The lack of attention to operation could substantially reduce the performance expectation of DYZ conservation and interpretation.

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THE VILLA OF TIBERIUS AT SPERLONGA AND THE ULYSSES RIVIERA: INTEGRATED ENHANCEMENT AND SUSTAINABLE TOURISM

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INTRODUCTION

The culture, in its broadest sense, and the territory are increasingly the binomial on which to leverage to define original visions of sustainable economic growth, ie based on the development of tourism attentive not only to economic implications, but also social, cultural and environmental aspects, following the most up-to-date concepts of sustainable tourism (http://cf.cdn.unwto.org/press-release/2017-01-19/international-year-sustainable-tourism-development-2017-kicks).

A strategy of this kind can be decisive for countries such as Italy - considered by many to be a large open-air museum - where archaeological sites, monuments, museums, libraries and archives, historical city core and cities of culture represent a widespread heritage on which to base the future both cultural and economic, if properly integrated and enhanced on a large territorial scale.

From this point of view, the Cultural Routes of the European Council offer an excellent example of how the integrated enhancement, on a large territorial scale, of multiple tangible and intangible values, has the effect of stimulating sustainable economic growth, that is, respectful of the human rights, democracy, cultural and religious diversity and openness to intercultural dialogue (http://culture-routes.net/cultural-routes). However, it is precisely this model that makes clear the need to promote integrated cultural and infrastructural development policies on both national and local levels, which act as a premise and support for non-partial and unilateral enhancement strategies, as often happens under the pressing tourist market demands, but on a large territorial scale, putting less known sites with the most famous ones.

Alongside this aspect, in our opinion, the need for a critical and scientific approach in interpreting the relationship between heritage and its context remains fundamental, in order to guarantee the scientific basis for communication, which is increasingly put at risk by new models of digital communication inspired by pure entertainment.

These fundamental principles have inspired the proposal "Sperlonga and La Riviera di Ulisse." Proposal and realization of integrated enhancement based on new technologies for a better fruition of the cultural heritage located in the Lazio Region" (2010-2012), financed by the Lazio Region, which is presented here.

PROJECT OUTLINE

The project "Sperlonga e La Riviera di Ulisse" financed by the Lazio Region, within a call for proposals in "Design and implementation of integrated enhancement and improvement of cultural heritage in Lazio through the use of new technologies", was based on a partnership with private enterprises, as Syremont SpA, Novamusa Srl and Officina Rambaldi SpA, leader of the project, and public Institutions, coming from the ex - Department of Cultural Heritage of the National Research Council, now Department of Historical and Social Sciences - Cultural Heritage, represented by the Institute for Technologies applied to Cultural Heritage (ITABC) and Institute for the Conservation and Valorisation of Cultural Heritage (ICVBC).

The project focused on the coastal area and its hinterland included between San Felice Circeo and Minturno towns, known as the Riviera of Ulysses, and includes the archaeological site of the Villa of the Roman emperor Tiberius (42 BC - 37 BC) and the annexed National Archaeological Museum of Sperlonga town.

Fig. 1 Ulysses Riviera Map.

The group had a specific tourist purpose, aiming to communicate the exceptionality and spectacularity of the archaeological area of Sperlonga and of the territory of the Ulysses Riviera, and to promote the development of a cultural and sustainable tourism. It was characterized as multi-scale and multipurpose, proposing the creation of four main products:
1. the Permanent Exhibition;
2. the Interactive Path;
3. the Author's Film;
4. Tourist Routes.

	Output	Place of use	Description
1	Permanent Exhibition	National Archaeological Museum of Sperlonga	It is mainly based on the narration of the sculptural groups present in the museum, c.d. Odyssey of Marble, offering insights and comparisons, presented with animation techniques developed in the field of Virtual Archeology.
2	Interactive Path	- National Archaeological Museum of Sperlonga - Villa di Tiberius Archaeological Area in Sperlonga	It consists of a series of outdoor or indoor thematic itineraries, whose multimedia contents are available through portable devices such as Smartphone / iPhone, through QR-code technology, and on totem-like fixed stations.
3	Author's Film	- National Archaeological Museum of Sperlonga - Welcome Centre at Civitavecchia	It outlines the history of the territory, from the birth of the "myth of the Ulysse hero" up to modern times, starting from the main historical-cultural evidences. In addition to the film, the film uses 3D reconstructions of the Villa di Tiberio and other monumental contexts, specially made.
4	Tourist Routes	- National Archaeological Museum of Sperlonga - Welcome Centre at Civitavecchia -www.futouring.com -Apple Store	It consists of a series of outdoor thematic itineraries whose contents are available through Android and IOS systems devices both portable (Smartphone, tablets) and fixed (pc, totem).

Among these products, the first three were specifically calibrated for use within the archaeological area and in the Museum of Sperlonga (Table 1). Instead, the Tourist Routes widens the prospect of enhancement to the whole area of the Ulysses Riviera, including also the Sperlonga site, and was structured for on-site use, through portable devices (Smartphone, iPhone, tablets), from PC and from fixed stations (totems, etc.).

As requested by the call, all the products were realized, through the application of the most modern technologies, with architectures perfectly integrated in the General Valorization Project, through immediate and natural interfacing with the ITDTC Horizontal Portal of the Technology District (www.futouring.com), currently being updated, on which the outputs of all the projects made available in open source (Fig. 2).

In addition, some of these products can also be used at the regional visitor center, or Welcome Center, created by the Lazio Region in the tourist harbour of Civitavecchia town, where all the cultural activities of the Region are promoted.

THE STORY TELLING OF THE RIVIERA

The territorial band that stretches between San Felice Circeo and Gaeta towns is a well-circumscribed area under the historical-cultural profile and is also one of the most striking, in Lazio, for landscape morphology. Enclosed between the sea and the mountains it shows a very varied landscape, which has historically offered favorable conditions for a mixed economy of fishing, agriculture and transhumant breeding. Given these conditions, this area has been affected by an extraordinary stratification of attendance phases, from the Palaeolithic to the present day, of which many and peculiar traces have remained, both as a physical presence in the territory and in the toponymy. Given the complex historical sequence of settlements, the context offered multiple possible interpretations and enhancement approaches.

ICVBC worked on the interpretation of the territory and on the analysis of its narrative potential, and the Institute's expertise was involved transversely with the various project actions, with a role of scientific coordination and orientation, to focus particularly on the creation in the Interactive Path and the Tourist Routes, of which it formulated the contents. Specifically for the Tourist Routes, the Institute first elaborated general thematic lines, subsequently declining them in various itineraries.

This process can be summarized schematically with the following intervention phases:

1. Identification of the thematic lines;
2. Census and indexing of Point of Interest (POI);
3. Definition of the itineraries.

THE THEMATIC LINES, OR MACRO-THEMES

- Natural parks - brings together the main areas of naturalistic interest of the territory, in addition to those already included in the Regional Park "Riviera di Ulisse" (http://www.parcorivieradiulisse.it/).
- History and myth of the Ulysses Riviera - brings together a large number of cultural sites linked to the myth of Ulysses, but also significant ones for local and national history.
- Along the Roman consular roads - it brings together a numerous and varied series of cultural sites built along the ancient Appia and Flacca Roman roads, including the coastal port towns (Terracina, Formia, Minturnae) with their substantial and stratified remains (aqueducts, theaters, amphitheatres, baths, walls, etc.) and the mausoleums of the Roman period.
- Roman villas - it includes the archaeological evidences of the numerous villas of the Ancient Roman era along the coast (eg villa of the Salse, villa of Cicerone, villa Gianola, villa Rubino, villa of Emilio Scauro, villa of Tiberius in Sperlonga, etc.).

These themes were designed to structure several itineraries, conceived as a network of POIs, favoring mainly two conceptual lines. On the one hand, the contextualization of the various historical-cultural and landscape components and the comparison with other regional and extra-regional experiences, stimulating the visitor to draw a personal "cognitive map". In this perspective, it was intended to build a multipurpose product and aimed at a wider and more varied user base, for age and cultural target. On the other hand, the integration and systematization of the various specificities of the territory were pursued, so as to enhance their cultural and tourist vocations, in an attempt to create a "virtuous system" of development. In this perspective, we chose to exploit the great cultural attractions to create around them a network of physical connections (through the visit paths) and virtual links (thanks to high-tech tools) for a global promotion of the area.

THE CULTURAL ROUTES

Nine itineraries were defined, divided into:
- Naturalistic areas - The itinerary runs along the coastal strip between Terracina and Minturno, including beaches, inlets, lakes and mountain ranges, in large part, including parks, oases and protected areas.

- Roman villas - The route follows the coast line, between Terracina and Minturno, and touches the archaeological sites on which the monumental remains of Roman villas (villas of Cicero, Tiberio in Sperlonga, etc.) .
- Medieval routes from Itri to Monte San Biagio - The itinerary follows the ancient paths connecting Itri and Monte San Biagio little towns, connecting medieval villages and castles which arose in the most evocative contexts of the hinterland.
- Spiritual places - The itinerary connects the most significant places of worship in the history and culture of the territory, built and frequented in a period of time that proceeds from the Greek - Italic antiquity up to today.
- On the consular roads - this connects the remains of the ancient traces of the Flacca and Appia Roman roads, along which it is possible to find evidence of local life stratified over the centuries (monumental mausoleums, ancient settlement centers, etc.).
- Ancient settlements - Thanks to this route one can visit numerous caves with Palaeolithic remains, traces of Italian and Roman settlements. The itinerary is completed by the Archaeological Museums, which preserve extraordinary and precious testimonies of local history.
- Medieval routes from Formia to Suio - Following this itinerary, which connects the coast to the hinterland, it is possible to reach ancient villages, castles and places of devotion that arose in fascinating settings.
- Places of the Unification of Italy - this connects some of the most significant places in Italy's unification process. The itinerary is completed by Ethnographic Museums and Anthropological Demonstrations, which allow us to understand the complex socio-cultural horizon in which National Unification took place.
- Medieval routes from San Felice Circeo to Gaeta - this coastal itinerary connects villages, castles, maritime towers and places of devotion, set in enchanting settings. The itinerary is completed by the Museums which preserve precious testimonies of local history and culture.
- The Ulysses Riviera - The route connects the main coastal settlements, characterized by an extraordinary and complex historical sequence, which goes from the Greek - Italic antiquity up to today.

INTEGRATED ENHANCEMENT

The approach followed in the identification of the POIs and their subsequent incorporation into itineraries, has favored the contextualization and integration of the various historical-cultural and landscape components. To this end, an in-depth knowledge and analysis of the territory was required to fully grasp not only the "quantitative" but also "qualitative" aspects with respect to the project objectives.
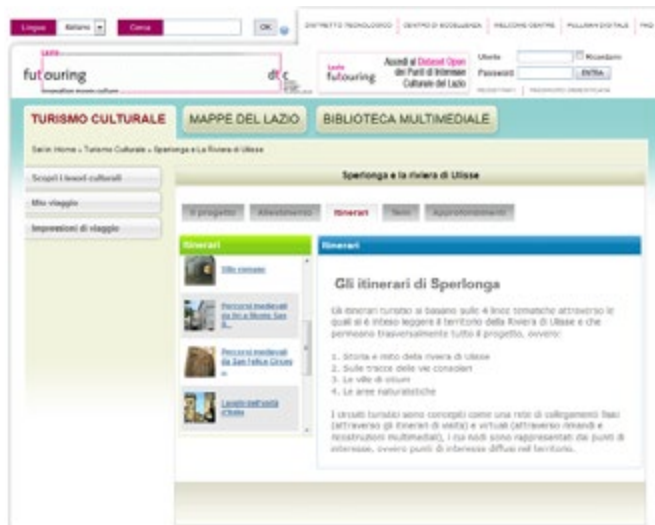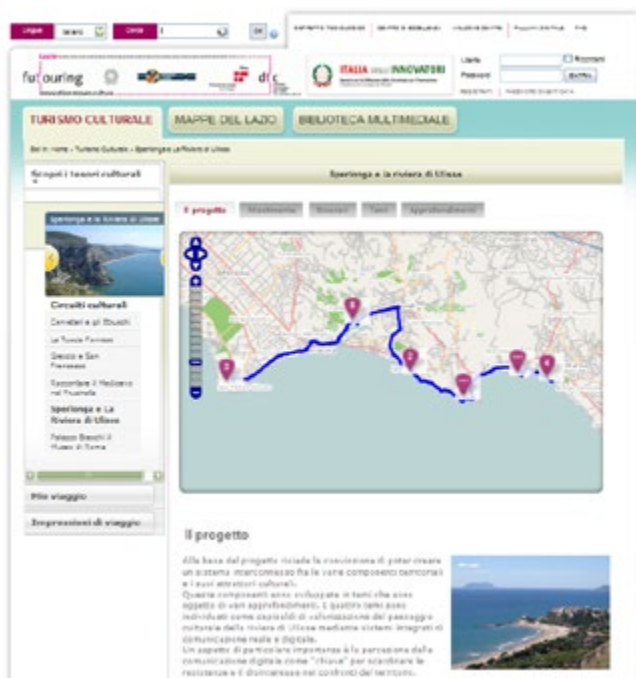
Fig. 2 – Top, introductory web-page to the project "Sperlonga and the Ulysses Riviera"– Bottom the Tourist Routes on the itDTC Futouring portal (http://www.futouring.it/web/filas/lotto-sper-longa?activetab=0).

Therefore, the selection, listing and listing of POIs were carried out with a rigorous methodology. Thus, in the selection of cultural emergencies, potentially significant within the predetermined thematic lines, the in situ survey was followed, to verify the actual correspondence to the project requirements. Then, we proceeded with the classification and classification of the POIs, according to predefined keywords and after appropriate disambiguation of the terms. The scheduling was followed at this stage.

This complex operation led to the definition of about 200 POIs, spread over the entire territory of the Ulysses Riviera and in the immediate hinterland. This is an extraordinary variety of goods, from the chronological point of view, given the historical stratification of the territory, and cultural.

In some cases the itineraries intercepted and integrated stages already belonging to ancient and well-known cultural routes, such as the ancient Appia and the Via Francigena, which is already a European cultural itinerary (http://culture-routes.net/routes/the-via-francigena).

DIGITAL TOOLS FOR DIGITAL TRAVELERS

On the basis of the technical offer concerning the Tourist Routes, the contents elaborated by the ICVBC and computerized by the company Syremont SpA, were made available both on the itDTC Horizontal Portal created by the Technology District (www.futouring.com), and through specific software, entitled "Sperlonga and the Riviera di Ulisse". Given this objective, the following intervention plans were carried out:

1. the digitization of all the cards of the POIs, in order to make them compliant with the standards of the Specifications and with the output devices, such as the Web Portal of the itDTC Portal and the devices of use such as iPhone, iPad;
2. the organization of the itineraries based on the implementation of a relational database that underlies the itDTC portal;
3. the improvement of the cartographic system of the area available in open source, by adding details and photos acquired during the survey of the POIs, through an automatic association to the GPS tracks. Therefore, the integration of each itinerary within the Open Street Map (OSM) cartography system, completing the network of roads, buildings, relevant places and rivers;
4. the creation of a technological application for consulting onsite content.

The software is usable only for IOS devices, in two languages (Italian / English), working online and off-line. It is like an interactive GIS map, developed from geospatial data to perform various functions, among which, mainly, the display of static or dynamic maps, customized by the user thanks to the

activation of appropriate filters; the measurement of distances between geographical positions, so as to give indications of times and distances of distance. The system was equipped with a special function that identifies points of interest when passing near. In this way, the user can walk in the places of history in free exploration, building his own itinerary from time to time, compared to those suggested. Furthermore, through the graphical interface, it is possible to query the system archive to organize the trip priority based on the choice of themes, corresponding to the previously described thematic lines, or of thematic itineraries (Fig. 3). Each of these groups a series of POI cards, with a brief description, images and, where present, multimedia and / or in-depth material. The application is available in free download on Apple Store (https://itunes.apple.com/it/app/sperlonga-e-la-riviera-di-ulisse/id504271822?mt=8).

Fig. 3 – Three screens shots of the App "Sperlonga and the Ulysses Riviera". From the left, the main menu, in the middle, the itinerary "Spiritual Places", on the right, the card of a POI.

CONCLUSIONS

The strategy pursued in the creation of the Cultural Routes has privileged the integration and the enhancement on a large territorial scale of the substantial cultural heritage of the Riviera of Ulysses, with the aim of encouraging a sustainable economic development based on a tourist offer respectful of the places identity. Starting from the most famous site of the Roman villa of Sperlonga and the annexed Museum, a story telling of the wider territory of the Ulysses Riviera and of mutual relations was done, thanks to an in-depth scientific research able to propose interpretative solutions respectful of hierarchies of values historically existing between a site and the other in their territorial context.

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CONCILIATING ASPECTS OF OWNERSHIP AND MANAGEMENT OF AN ARCHAEOLOGICAL AREA

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Keywords: Archaeology, Archaeological and Cultural Park, management, enhancement.

Tuscolo is a large area few kilometres far from Rome, which accommodates the ruins of the ancient Latin city of *Tusculum*. For its high environmental and cultural value, the area is included inside the Natural Regional Park of Roman Castles. This nice landscape, where nature, history and archaeology are blend in a unique mixture, is the hearth of Roman Castles and it belongs to the XI Mountain Community of the Lazio Region.

The Mountain Community is a Local Environmental Authority in charge of management of a network of several small cities selected, on regional scale, on the basis of the homogeneity of historic landscape, urban similarities, socio-cultural organization. The Mountain Community is appointed to implement policies for the social, economic and cultural development of its territory. Aiming at this purpose, in 1984 the XI Mountain Community decided to buy from a private owner the overall area of Tuscolo, having been recognized in its ancient theatre one of the most significant symbol of the cultural identity of the Roman Castles. The ultimate objective of this acquisition was to boost the cultural as well as the touristic and the economic development of the entire territory by means of enhancing of this important archaeological area (Fig. 1)

Despite the difficulties related to the management of a so complex place, over the past years the Mountain Community promoted activities that have contributed to become Tuscolo one of the most important archaeological sites on regional level. These activities have been finalized to:

1. create infrastructures for the best use of the area;
2. encouraging the archaeological research;
3. enhancing the archaeological site by means of the promotion of its historical and cultural heritage;
4. improve tourism services through a professional management.

In 2007, the Mountain Community approved a *Feasibility study for an Archaeological and Cultural Park of Tuscolo* in order to manage these activities. The establishment of an Archaeological and Cultural Park was considered the best practice for defending and giving value to the site; furthermore it was considered a strategic solution for cultural, social and economic development of the area. Some attempts were made to constitute an Archaeological and Cultural Park. In 2010, the institutions that have jurisdiction over the Tuscolo (Mountain Community, Lazio Region, the former Province of Rome, Ministry of Cultural Heritage, Natural Regional Park of the Roman Castles and the Municipalities of Frascati, Monte Porzio Catone, Grottaferrata and Monte Compatri) started an administrative path that was interrupted two years later due to the uncertainty of laws relevant to the archaeological parks. These uncertainties still remain.

Fig. 1 Tuscolo Archaeological and Cultural Park, the roman theatre.

Last year, a law devoted to constitute formally the Tuscolo Archaeological and Cultural Park was presented in the Senate of Italian Republic (DDL n. 2663 of 01/25/2017). Today, the parliamentary process is interrupted and it is to be hoped that it might to resume as soon as possible.

THE INFRASTRUCTURES

Over the past years, a lot of work and many of the available economic resources have been destined to improve the conditions of use of the whole area. One of the

strengths of Tuscolo is the close link between archaeology and nature that gives the site a unique charm; however, the position within a protected natural area involves some limitations and difficulties. The Mountain Community has over time tried to overcome these difficulties through works able to increase the quality of the visit of tourists, respecting the environmental value of the place. It is worth noting that the involvement of the other Institutions, first of all the Municipalities, is fundamental in this process.

In 2010, at the end of the archaeological research conducted by Spanish School of History and Archaeology at Rome (EEHAR) of the Spanish National Research Council (CSIC) on the monumental area, the inauguration of a visit itinerary has been one of the main actions carried out (Fig. 2).

Fig. 2 The opening of the 1st visit tour to the monumental area, April 18, 2010.

The visit itinerary, financed by European funds, for the first time has allowed to propose to visitors an organized and conscious visit through the ancient buildings of the forum and theatre, in collaboration with GAL *Latium Vetus* Association. Until that moment, the interpretation of the ancient vestiges was entrusted exclusively to the explanations of the voluntary guides without the aid of educational apparatus. The positioning of a small wooden building, used as a reception point, at the entrance of the site has helped to improve the management of visitors flows that more and more began to come to Tuscolo.

In 2012, two parking areas, respectively for buses and cars, were built along the road that leads from Grottaferrata town to the site with funds from the former

Province of Rome and co-funding from the Mountain Community. From these two rest areas people can walk to the picnic area located at the intersection of the two streets that rise from Grottaferrata and Frascati - Monte Porzio Catone towns, through a path of about 700 m. The construction of these two areas was a prerequisite for the general reorganization of the modalities of use of the entire Park that was realized with the *Tuscolo, place of legends and nature* project, also financed by European funds and concluded last year. The main goal of the new project was the transformation of the picnic area into the access point to the Archaeological and Cultural Park. For this reason, in 2013 the building used as a ticket office / reception centre was moved from the entrance to the monumental area inside the picnic area and turned in a refreshment stand to integrate the already existing tables and braziers. Another goal of the project was the widening of the visit itinerary which, starting from the picnic area and winding along the roman road called Via dei Sepolcri, also including the remains of the extra-urban sanctuary and the thermal building, found in the square placed between the two main areas of Tuscolo (forum and picnic area), until then used as a parking.

It was not easy for the Administration to decide to permanently prohibit car traffic from the last part of the access road to the archaeological area and to subtract a vast space from the parking to face new archaeological excavations. In this perspective, the Mountain Community assessed the difficulties for access to the archaeological area by the weaker groups or for the organization of great events at the roman theatre. The need to preserve the archaeological heritage and the environmental value of Tuscolo as much as possible has always been and continues to be the basis of all the choices made.

Today, the results of the archaeological excavations in the former parking area testify the goodness of this choice. In the same way, the Administration is aware that it is necessary to evaluate new solutions to further facilitate accessibility to the archaeological area with full respect for the environment and the landscape.

It should be emphasized that in 2013 - after the completion of the work envisaged by the project - the Mountain Community has experimentally entrusted the management of visitor services and cultural animation of the Archaeological and Cultural Park to the *Tusculum ATS* through a public call. Finally, in 2016, a new project, called *Tuscolo. Luogo primitivo dell'anima* (Tusculum. Primitive place of the soul) and funded entirely by the Mountain Community, has been started. This project, consecutively with the activities carried out till then, aims to enhance the three souls of *Tusculum*: nature, sociality and archaeology. The project has been the result of the joint work among the Mountain Community, the CSIC-EEHAR and the *Tusculum ATS*, and based on the research work carried out by the Spanish organization and based on the solutions of the problems from time to time presented in the management of visitors services.

ARCHAEOLOGICAL RESEARCH

Since the beginning of the nineteenth century, after a long period of neglect, the site of *Tusculum* was subject of an intense season of archaeological research. The excavations promoted by Luciano Bonaparte and Maria Cristina di Savoia and directed first by Luigi Biondi and then by Luigi Canina, led to the real rediscovery of the ancient city. Later the attention decreased until after the Second World War: the post-war period was characterized by a renewed interest in the archaeological area and above all for its theatre. In those years the Ministry of Cultural Heritage promoted some new excavation essays, especially in relation to the construction of the asphalt road leading from Frascati town to Tuscolo. The archaeologist Maurizio Borda directed the archaeological research and re-established the Tuscolan Museum at the Bishop's Palace of Frascati. The findings scattered on the territory and that ones coming from new research in Tuscolo were set up in the new museum. Borda was also able to involve the local community in his work and projects, and to create a wide interest around both *Tusculum* remains and the Museum. Inevitably, this interest diminished when, in the mid-fifties years, the archaeologist left the Tuscolan area for work reasons.

When the Mountain Community took the Tuscolo site, the archaeological activities were therefore episodic and the attention turned more to the naturalistic and environmental aspects. Historical and archaeological research increased in 1994, when the Mountain Community and the CSIC - EEHAR signed a collaboration agreement to start a systematic research on the ancient city of *Tusculum*. The important work of Spanish researchers in over twenty years has allowed to bring the archaeological site and its history at the centre of the interests of the scientific community. Please refer to Valeria Beolchini's paper present in this tome to learn about the scientific results achieved in the numerous excavation campaigns carried out to date and how the project has evolved in recent years. In this paper, we want to explain the objectives achieved with this consolidated collaboration.

As already mentioned, the results of CSIC-EEHAR research have been used to elaborate the projects carried out so far by the Mountain Community. The work of archaeologists has also been fundamental to reawaken the sense of "descent" of the local communities from the ancient town of *Tusculum*. The diffidence on the first excavations - considered by someone as a subtraction of green spaces and of the roman theatre to the free use - have slowly been replaced by the enthusiasm and the interest for what was discovered over time. Each year many people participate to the *Open Excavation days* to see the work of the archaeologists face-to-face and to attend the conferences organized in order to illustrate news and results of the scientific research.

Since 1984, the archaeological interventions promoted directly by the Mountain Community at the extra-urban sanctuary, the amphitheatre and the recently discovered thermal building in the former parking area, have been added to the research

carried out by CSIC-EEHAR. Today, for the local people, Tuscolo represents not only a natural park close to home, where one can take a walk or a picnic enjoying a splendid view, but it has also become the place of origin of local identity.

THE ENHANCEMENT

The enhancement activities proposed *in situ* have encourage the rebirth of this link as well. In the first years we have been tried above all to attract the attention of a large audience through the organization of big events. In 2003 there was a fundamental moment with the reopening of the roman theatre to performances with a memorable show of the Italian famous actor Giorgio Albertazzi in the role of Adriano Emperor. Since then a collaboration has been started with the Theatre of Rome and then with the National Institute of Ancient Drama (INDA) of Syracuse (Sicily), which has allowed the staging of classical Greek and Latin plays with famous actors for almost ten years (Fig. 3). The high artistic quality of the offer and the unique setting of the roman theatre decreed over time the success of the organized events that were always sold out.

Fig. 3 *Oedipus at Colonus* theatrical performance by INDA, 2009.

In more recent years, we have instead been chosen to focus on a regular cultural program that proposes different ways of knowing the site through less spectacular but more recurring events. The goal has been to intercept different audiences, especially young people and families, and offer them the opportunity to return periodically to Tuscolo.

The structured management of visitor services started in 2013 has been helped this process. Every year a calendar of events and initiatives has been proposed to visitors, involving both the archaeological area and the picnic area from April to September. The calendar has always been integrated initiatives promoted directly by the Mountain Community with the projects created in collaboration with other institutions, as *Tusculum ATS* and other subjects of the territory, especially citizens associations. Commonly, visitors have been able to take part in themed or theatrical guided tours, historical re-enactments, archaeo-trekking, concerts, book presentations, educational workshops, festivals, etc. many of these events have been free admission.

Since 2016 the *Tuscolo Arte Festival* (Tuscolo Performing-Arts Festival) has taken place, an event promoted by the Mountain Community in collaboration with ATCL Lazio. This Festival has generally been proposed a program of contemporary shows focusing on the artistic quality of performers, on the minimalist outfits and on the charm of the theatre at sunset.

The tradition of classical theatre has instead been entrusted to young people. In 2017 there was the first edition of the *The Tuscolane. School Theatre Festival*, consisting in performances inspired by the classical theatre by four companies of local schools (Fig. 4).

Fig. 4 *The Tuscolane. School Theatre Festival*. Picture from the *Ajax* by 'Ugo Foscolo' high school of Albano Laziale town, June 1, 2017.

The Festival was conceived in order to promote the live show and the values of classicism among the students and letting them know the Tuscolo site. The success and enthusiasm of the first edition confirmed the growing potentialities of Festival to become an annual event in the cultural programming of the Tuscolo Archaeological

and Cultural Park. Nowadays the Mountain Community is working on the second edition that will take place in spring 2018.

THE MANAGEMENT OF VISITOR SERVICES

The Mountain Community has always been aware that in order to transform the *Tusculum* into a real Archaeological and Cultural Park it was necessary to activate services appealing for visitors and above all to improve the quality of their visit experience. For this reason, over the years following the purchase of the area, a guided tours service has been promoted in collaboration with a local citizen association. This activity was further strengthened in 2010 after the opening of the visit itinerary within the monumental area and within the contest of the project *Tuscolo, place of legends and nature.* As already mentioned, in 2013 the Mountain Community started an experimental management of the Park, entrusted to local associations through a public call for tenders. The call provided for a continuous monitoring and regular opening of both the archaeological area and the picnic area, the reception service for visitors, ticketing and guided tours, the development of a program of cultural activities able to promote the knowledge of multiple aspects of Tuscolo. The Administration did not allocate funds for the tender but left the winner with the collection of entrance tickets to the archaeological area and to the picnic area and to the management of the refreshment stand.

The *Tusculum ATS*, a group formed by *Semintesta* Association (leader), the *Latino Latium Vetus* Archaeological Group, *U Lengheru Nero* Association, *Alchimia* Association, *Capodarco* Coop, Tuscolana Solidarity Association, won the tender with a management plan that included a participated cultural animation program beyond to the classic ticketing services, guided tours, etc. The Tusculum ATS provided the involvement of citizens in defining the activities to be carried out with particular attention to social issues. The management started on 20 July 2013 and ended on 31 December 2017 but the Tusculum ATS is still going on working until June 2018. The Mountain Community is about to begin public selection to identify a new manager.

At the end of this first and experimental management experience the results obtained confirmed the goodness of the Administration's choice to propose a more structured and aware fruition of the Tuscolo Archaeological and Cultural Park with the support of local stakeholders. In the last four years there was an average of 2600 annual visitors to the archaeological area. The visitors were both single and touristic and school groups. The number of visitors progressively increased, even if the data may vary depending on the weather conditions and the start of new works that partially limited the possibility of midweek visits by reservation (from July 2017). Apart from the number of visitors counted by the admission ticket, a larger amount of people has to be considered depending on free initiatives promoted directly by the Mountain Community within the archaeological area.

Fig. 5 A performing art activity in the picnic area, May 2015.

Regarding the picnic area, it is not possible to know exactly the number of users because the Tusculum ATS did not provide for the ticket payment in its management project but the free use of facilities and participation to all events and activities organized in that area. However, the attendance of the picnic area has always been very high, especially in the April-July period and on National holidays (Fig. 5). Compared to the first few months of opening, the Tusculum ATS reported in the management reports that there was a change in the type of public and in its way to use facilities. The presence of a well-defined management project encouraged greater respect for shared spaces while the many activities proposed for children led to an increase in the number of families. The foreign population was still very numerous, but it limited itself to using the services without participating in the proposed cultural activities.

THE PAST AND PRESENT OF PEKING MAN SITE AT ZHOUKOUDIAN - A CASE STUDY IN ITS MUSEUM DISPLAY AND INTERPRETATION

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ABSTRACT

The Peking Man Site at Zhoukoudian is an archaeological heritage site which records the human evolution process. The site is located in the countryside. This article has narrated the hundred years' history of the site, as well as the great shift from the traditional exhibition to a modern exhibit in heritage site presentation and interpretation.

INTRODUCTION

Zhoukoudian Peking Man Site is one of China's first six World Heritage sites. The official value justification from UNESCO describes the site as follows:

"Scientific work at the site, which lies 42 km south-west of Beijing, is still underway. So far, it has led to the discovery of the remains of Sinanthropus pekinensis, who lived in the Middle Pleistocene, along with various objects, and remains of Homo sapiens sapiens dating as far back as 18,000–11,000 B.C. The site is not only an exceptional reminder of the prehistorical human societies of the Asian continent, but also illustrates the process of evolution."

In the 1920s, geologists surveyed at Dragon Bone Hill in Zhoukoudian and discovered the archaeological sites that shocked the world. Scientists collectively referred to a large number of fossil sites as the Zhoukoudian site which had nearly complete Quaternary geological profiles in North China. Preserving the abundant prehistoric human remains, the Zhoukoudian site has witnessed many important eras of human evolution and opened a door to modern mankind to trace its origins and to recognize itself. Since 1918, when Swedish geologist Johan Gunnar Andersson discovered the Peking Man Site at Zhoukoudian, he uncovered the secrets of human

evolution in China. Since then, many paleontologists, archaeologists, geologists and experts from relevant disciplines around the world have conducted the interdisciplinary research for the site.

The centenary of the discovery of Peking Man Site at Zhoukoudian parallels with the centenary history of China's modernization. Since the discovery of Peking Man Site the site has undergone a process of transition from an archeological site, a traditional museum, to a modern museum established by modern museology theory as well as the updated concept of site preservation and display. Now it is not only a World Heritage Site, but also a part of the Global Geopark, an archaeological site which contains museum display and interpretation, and edutainment.

As an archeological site located on the edge of urban area, the site is not forgotten by history, but has continually been evolving to attract more people under the protection of the site. It can be said that the Peking Man Site at Zhoukoudian not only witnessed the exchange and progress of China's history of the past century, Chinese archeology, paleontology, geology and paleontology, but also witnessed the change of modes in terms of China's World Heritage protection, display and interpretation. I personally went to visit the Peking Man Site at Zhoukoudian and interviewed with the Director of monitoring department Li Yan and the Deputy Director of Monitoring Zhu Li. During the interview, I felt about the changes in their mind and their working method. In this article, I will narrate and discuss the change of Zhoukoudian Site Museum from a tradition museum to modern museum in concept, exhibition and education activities; and give some advice to the similar kind of archaeology sites in countryside.

THE 20ᵀᴴ CENTURY PERIOD, DISCOVERY AND ITS TRADITIONAL DISPLAY AND INTERPRETATION

During the period 1918-2000, it was scientists who focused on the period of excavation and research of the Peking Man Site at Zhoukoudian, and they were mostly negligent in the protection, display and interpretation of the excavated materials and archaeological sites. From 1918 to 1937 was the period of the discovery and excavation of the site. During 1937-1949, the excavation of the site was stopped by the war. Since 1949, archaeological excavations and research work has resumed. In 1953, the museum of Zhoukoudian site was officially opened. However, by the end of the 20th century, the site museum's way of display was still old and audience reception was largely ignored.

Before the foundation of the People's Republic of China (PRC), despite the chaos and war in China, scholars did not give up the excavation and research on the Peking Man Site at Zhoukoudian. Between 1918-1937, Pei Wenzhong, Jia Lanpo, Yang Zhongjian, Swedish geologist Andersen, the Austrian paleontologist Otto Zdensky, Canadian anthropologist David Black, and Teilhard de Chardin and Weidenreich and

other foreign scientists have conducted systematic and scientific excavations and studies until the Japanese invasion of North China in 1937. When the war began the excavation was stopped.

In 1941, during the Pacific War, the Peking Man skull was lost in the transfer process, but the research on the site and Peking man did not stop. During 1941-1948, Weidenreich completed his research and published a series of books about the Zhoukoudian sites during his tenure at the American Museum of Natural History in New York, and won a place in the evolutionary interpretation of mankind (Boaz, Ciochon 2011). Excavation of the Peking Man Site in Zhoukoudian is very scientific and detailed, and every scientist participating in the excavation preserved the value of fossils in the archaeological recording, photographs and maps. Today, the Dragon Bone Hill still retains cemetery of the scientists who were then involved in archeology activities. During the visit, visitors could also cherish the memory of those who dedicate their lives to the scientific career.

Fig. 1 The Scientists Memorial on the dragon bone hill.

After the founding of the PRC, Peking Man Site at Zhoukoudian was handed over to the Institute of Vertebrate Paleontology and Paleoanthropology for research, protection and demonstration. The institute had been focused their tasks on research, while display and presentation of the found artifacts was largely ignored.

In general, Peking Mans Site at Zhoukoudian was well known around the world at the mid-20th century as a result of dedicated excavations. However, until the late 20th century, Chinese cultural heritage professionals, archeologists and the curators had

not been aware of the importance of presentation and interpretation, whereas they just focused on the site protection and management.

THE 21ST CENTURY, THE MODERNIZATION PROCESS OF PEKING MAN SITE AT ZHOUKOUDIAN

The separation of research from museum exhibitions and preservation of sites

In 2000, Qi Leyi, a journalist from Taiwan visited Peking Man Site at Zhoukoudian, complaining about the inaccessibility of the museum, the lack of interest in the museum exhibition, few visitors, the poor preservation of the ruins, a series of problems that he called "the former glory ceased to exist" (Cao 2002). After Qi went back to Taiwan, he published a report The Loss of Peking Man Site at Zhoukoudian to appeal the Chinese people to protect and visit the site. According to my interview with Mr. Li Yan, Director of monitoring department of the site, he also pointed that Mr. Qi's report has drawn the attention of Beijing's mayor at that time. "This report is the beginning of the modernization process of Peking Man Site at Zhoukoudian in heritage protection and presentation," said Li.

Since then, Beijing Municipal Government has divided the site into two parts. First, the sections of museum exhibition and education, and site conservation, monitoring and display were transferred to the municipal government. Second, the section for scientific research, excavation, and artifacts protection and conservation still belong to the Institute of Vertebrate Paleontology and Paleoanthropology, Chinese Academy of Sciences. In spite of the division of organizations, exhibitions in the museum should be collaborated by both museum curators from the management part and the scholars from the academic part.

Overall, Peking Man Site at Zhoukoudian began its modern protection, monitoring, museum exhibition and interpretation, as well as the coexistence of scientific research archaeological sites at the beginning of 21st century.

The establishment of the new museum and the reform of the old museum

For the protection of the ruins, the Peking Man Site at Zhoukoudian not only completed the monitoring and evaluation, but also developed related implementation plans of protection. More importantly, in order to improve exhibition of the site, the manager of the site has relocated the old museum to a new place and moved the exhibition to the new one. The new museum is under the Dragon Bone Hill, outside the property area of the heritage site. Meanwhile, the old museum building has been repaired and converted into a scientific experiential museum. Therefore, the audience could visit the new museum to enjoy the permanent and temporary exhibition

at first. After they gain some basic information form the new museum, they will climb and encounter with the old museum, the ruins, the natural beauty of the hill, as well as experience the simulated archaeology excavation. A modern museum is not only in presenting their collections, but mainly in communicating with their audience (Frey 1998). A successful museum could provide a space for the audience to create personal understanding about the theme (Weil 1999). Thus, the new museum and the old museum, as well as the archaeology ruins have constituted a perfect path to present and interpret the whole site to the audience.

Fig. 2 Simulate archaeology excavation on the dragon bone hill.

The new site museum is built by adopting the shape of stone implement in terms of exterior design. Its permanent exhibition is formed based on suggestions from various experts as well as feedback of audience. At the same time, there is also a temporary exhibition in the new museum.

Education and edutainment

The modern museum has shifted its focus from objects to the audience (Weil 1999). It continues paying attention to education and aiming at being more attractive for young people with new technology and the theme park (Gamerman 2015). Based on different themes, each museum has its particular potential audience. According to Zhu Li, the Deputy Director of Monitoring the main audience of the Peking Man Site at Zhoukoudian and its museums are still the local people, especially elementary

school and high school students. Both parents and schools believe that the site is one of the best places to the students, where they can enjoy the natural beauty and learn history and archaeology. It is important for the heritage site to be attractive to the local people and their children to be audience. In addition, it will also be beneficial for the site to expand its audience from the general public.

Fig. 3 Stone shape building, the new sit museum of The Peking Man Site of Zhoukoudian.

Besides the permanent exhibition, another point of interest for the visitors is the temporary exhibition. Although a theme relevant with the general image of the site is needed for the temporary exhibition, the site manager may choose some other topics that could be more appealing to the audience. According to Zhu, the decision of the topic of a temporary exhibition is more oriented towards its degree of interest. So far, the temporary exhibitions were either popular exhibits in China or highly relevant exhibitions with great interest. "If a temporary exhibition is interesting, it may bring us more visitors who are not interested in our site before. Therefore, we could gain more audience." In addition, this tendency could be shown by its official website. If the museum has celebrated activities associated with the temporary exhibition, they could draw more local audience, especially visits by family. In general, site managers have paid more attention to audience satisfaction.

The old museum on the hill was transformed into an experiential museum, hoping to fulfill the purpose of edutainment, with modern game consoles, theme parks,

movies, etc. This setting of gaming activities will attract enthusiasm from children. As Gameman (2015) says what modern museums need to do is to use various means to attract the attention of the audience in order to gain more audience (Gamerman 2015). Although modern museums are usually criticized for being too oriented towards entertainment, it is true that entertainment could finally benefit the ones whose ultimate goal is to learn something well. At this point, the site museum has taken the lead in using various high-tech technologies such as games, 3D animation and VR imaging to represent ancient human life, fishing and hunting life and tools making, etc. It has also produced many related articles of the animation to attract young people of different ages to join the experience of activities, so as to achieve the purpose of entertaining. In addition, after being explained about archeological excavation, students can also go to the hill to participate in archaeological simulation excavations. Simulation excavation can give young people a deeper understanding of the process of archaeological excavation. Obviously, this way of using game to let students know about archeology and ancient human life is more attractive and convincing than the traditional museum exhibition.

Overall, the Peking Man Site at Zhoukoudian has not only dedicated to the conservation and management of the heritage site, but it also creates a dynamic setting of exhibition, interpretation and education. Various methods are adapted there to attract more visitors in addition to the local audience.

DISCUSSION AND CONCLUSIONS

Although the Peking Man Site at Zhoukoudian is trying to change to attract more visitors, it still faces problems. Firstly, because traffic is inconvenient for the general public, the number of tourists is still limited and visitors are mainly locals, especially students. The title of World Geopark has not brought up popularity for the site. The main challenge lies in the lack of accessibility of traffic in this area. A tourist from the city of Beijing usually takes three hours to get there, and s/he will use almost all transportation methods: walking, biking, bus, subway and taxi. Secondly, it can be noticed that domestic travel agencies do not offer trip plans that include the site. The neglect of the site reveals the actual degree of interest in the site of the tourism market. The site, though famous among Chinese people, has little potential of profit for travel agencies.

Overall, we have seen a great transition of the Peking Man Site at Zhoukoudian from an archaeological site to a research spot, from a site with simple exhibition to a complex of archaeological presentation and interpretation. It has put a great effort in audience attraction and heritage presentation. Although the transition marks a breakthrough of the very principle of site management, the site still needs to be improved. The foremost demand is a convenient transportation system that connects the city with the site. Regarding exhibitions, it is good to introduce interesting

temporary exhibitions that may bring new audiences. Furthermore, the edutainment programs in the museum could also be applied externally, namely the introduction of knowledge into classroom, in order to create a more interactive environment for the dissemination of messages conveyed by the site.

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EXPERIENCING BRESCIA'S ARCHAEOLOGY (ITALY): THE *BRIXIA LIGHT BOX* PROJECT IN PALAZZO MARTINENGO CESARESCO

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BRIXIA AND THE UNESCO SITE

Since ancient times, the town of Brescia has played a significant role in the area that is now north Italy. Founded at the base of the Alpine foothills on the northern edge of the Po Plain on a site that had been continuously inhabited since the 5th century BC, the Roman city of Brixia stood at the junction of major roads with minor routes, and was one of the region's main and most strategically important centres between the reigns of Augustus (late 1st century BC) and Vespasian (1st century AD) emperors.

The plan of the Roman town was centred on a main east-west road, the *decumanus maximus*, which is clearly visible in modern Brescia: it runs between the foot of Cidneo Hill and the *forum*, intersecting the north-south *cardo maximus* that led down to the southern city gate. On the *decumanus* were sited the focal points of the community's religious, social and political life (a tradition dating from the 4th - 3rd century BC), such as the Roman temple (the *capitolium*), the *forum* and the theatre, all still evident among the buildings of the historic centre. Together with these ancient monumental remains, the modern town also conserves interesting buildings of the Early Medieval period (7th - 8th century AD), a time when Brixia was an important duchy in the kingdom of the Lombards.

The surviving building remains, most of which are open to visitors, document a number of the most important periods in the town's history (Rossi 2012). This complex urban stratigraphy – and, above all, the integration of constructions from various epochs with the modern town – constitutes one of Brescia's most distinctive and fascinating aspects, and also helps to understand it. This feature was noted by far-sighted Brescian humanists in the 15th and 16th centuries, and again in the 19th,

with implications for historical studies and repercussions for subsequent development strategies. Thus the town's present-day appearance in part evolved around this complex and detailed stratification of diverse eras and historical events, which survives – at times strikingly – in many buildings, especially in parts of the old town centre where the underground portions of town houses and churches incorporate what once were standing walls.

On June 25th 2011 Brescia's archaeological area was included in the UNESCO World Heritage List as part of the serial site *Longobards in Italy. Places of Power* (568-774 AD), which comprises the principal monumental Lombard remains present throughout Italy (www.longobardinitalia.it). The Brescian UNESCO site is centred on the monastic complex of San Salvatore - Santa Giulia, now the City Museum (www.bresciamusei.com/santagiulia.asp), distinguished by a remarkable stratification of the town's history – in particular the Benedictine convent founded by the last Lombard king, Desiderius, in the 8th century AD. The site also includes the Roman period archaeological area that encompasses the *capitolium* and the archaeological remains of a previous Roman temple – now open to the public after conservation treatment, the *forum* and the theatre.

Thus, the UNESCO listing confirms the historical and archaeological importance of Brixia's deep and complex – but clearly decipherable – stratigraphy, and recognizes the value of the conservation and development project by means of which these ancient remains have been made accessible to the general public. Recent work represents the continuation of a long tradition of civic sensibility and involvement on behalf of the inhabitants, which has Renaissance roots but in modern times has acquired new forms due to new technological inventions (Morandini 2016).

PALAZZO MARTINENGO CESARESCO

The passage of time – illustrating phenomena of interruption, interaction and continuity – is clearly illustrated by the articulated series of remains in Brescia's San Salvatore-Santa Giulia and temple complexes – especially the latter, where the buildings' function as the community's official places of worship permits a more detailed picture of the sequence of events (Rossi 2014 with bibliography; Malnati, Manzelli 2015). Additional nearby sites also offer this possibility.

Among other historic buildings, the UNESCO site buffer zone includes the Count Martinengo Cesaresco mansion, one of the larger aristocratic residences in the centre of Brescia. It was built in 1663, between Roman *Brixia*'s *capitolium* and *forum*, on a deeply stratified archaeological deposit. Underneath and in the lower walls are preserved remains dating to the 5th century BC, the Roman period and the Middle Ages. In the 20th century Palazzo Martinengo was the first Brescia police headquarters; since its purchase and restoration by the Provincial Authority it has been used

as an exhibition centre, and has also an underground archaeological itinerary. Part of the complex is used for Provincial Authority administrative offices.

Fig. 1 Palazzo Martinengo Cesaresco, basement room.

Remains found during extensive archaeological excavations conducted in the 1990s in basement rooms were opened to the public in 1998, with a visitors' itinerary that features the walls of buildings constructed over time on the western side of Brixia's *forum*, as well as survivals of pre-Roman date in various sectors. This suggestive voyage through time is made possible by the notable vertical sequence of archaeological remains present on the site (Rossi 2001).

ARCHAEOLOGICAL ITINERARY AND TIMELINE: THE MUSEUM PROJECT

This first experiment with public visits to the archaeological remains was further developed in 2015, with a new presentation organized by the Brescia Provincial Authority in collaboration with the Archaeology Superintendence of Lombardy Region: a project involving conservation treatment and display that protected the structures and also highlighted their historical significance and atmospheric qualities. The project's principal objectives and guidelines were:

1. focus on and highlight the site's historical phases and stratigraphy, renewing display facilities where necessary;
2. design a visitors' itinerary that guarantees the protection of the archaeological remains, using empty areas and gaps for the harmonious insertion of information panels of modern aspect (simple, geometric design);
3. add a multimedia itinerary using sophisticated, state-of-the-art technology, with several components, in harmony with the simplicity and austereness of the surroundings;
4. meet all regulations regarding safety of the areas and their accessibility to all visitors, in compatibility with site organization and safeguards for historical, artistic and archaeological aspects.

Thus, visitors travel physically through the site's extraordinary stratigraphy, including archaeological finds from various eras, until they reach a large room – which originally had a public function and opened onto the *forum* (Fig. 1). From here it is easy to imagine ancient Brixia's central town square, situated just beyond the Palazzo Martinengo's solid boundary wall, which incorporates various architectural remnants of its porticoes.

The itinerary involves three rooms, and is equipped with new panels and display cases: the presentation of the finds – on a suspended surface on which stand three new glass display cases – is designed to harmonize with the 17th century backdrop (Fig. 2). These three transparent cases, with specially designed lighting, contain an appropriate selection of the most significant artefacts found in the area – mostly pottery, coins and ornamental objects that represent the various occupation phases recorded in the site, up to events associated with the 17th century building, the massive cellars of which were built directly on top of the ancient structures.

The finds are arranged to form a timeline, from oldest on the left to most recent on the right: 1) from the Iron Age village to the Roman colony, 9th-1st century BC; 2) Brixia during the Roman Empire 1st-4th/5th century AD; 3) from the Lombards to Palazzo Martinengo Cesaresco 6th-17th century AD. In front of these exhibits, new wall-mounted display cases contain two wall-painting panels, conserved and recomposed in their original geometric design; the fresco fragments were found during the excavation of a Flavian epoch baths suite.

The Palazzo Martinengo archaeological area is one of the Brescian sites where the complex and continuous historical sequence – with its overlapping series of occupation phases, destruction and rebuilding, right up to the current standing building – may be most fully appreciated. The practicalities of the visit and the itinerary, a steep descent from the garden outside into the heart of the archaeological area, help to create the atmosphere of a journey back through time. The display and conservation project was curated by the Brescia Provincial Authority – Heritage Intervention Sector.

Fig. 2 Palazzo Martinengo Cesaresco, exhibition room.

THE MULTIMEDIA DISPLAY

In 2015, a multimedia display entitled *Brixia Light Box* was installed in the main underground room, intended as the finale to the archaeological itinerary. An immersive video is projected on the end wall of Room 5 – which seems to disappear, allowing visitors to enter directly into the *forum* of the Roman city, here recreated for the first time using all the information available (Fig. 3). The video uses the ancient *taberna* as point of entry into the ancient world: its walls disappear, giving spectators virtual access to the huge Roman *forum*, surrounded by monumental buildings. The use of this wall of a 17th century mansion as an enormous screen also draws attention to the structural sequence – in particular the re-use of Imperial age architectural components over the centuries.

The multimedia display is composed entirely of 3D computer graphics (Full HD broadcast quality), and shows images of the site and the various monuments around it, with 360° immersive vision at significant locations.

Fig. 3 *Brixia Light Box*, detail of the 3D reconstruction of the Roman f*orum*.

The multimedia project was curated by Filli Rossi and the display was produced by Altair4 Multimedia for Brescia Provincial Authority, with support from the Territorial Cohesion Agency as part of the "Contemporary Senses" programme, UNESCO for the *International Year of Light* 2015, and the Italian Physics Society.

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3

ARCHAEOLOGY AS DRIVER FOR LOCAL DEVELOPMENT

CONSERVATION AND ENHANCEMENT OF FUYI GRANARY ALONG THE GRAND CANAL

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Keywords: Fuyi Granary, the Grand Canal, restoration, enhancement, cultural enterprise, stakeholders.

THE SITE

Fuyi Granary is located at the intersection of the Shengli River of Hangzhou in the southern end of the Grand Canal. It bears living testimony to the development and prosperity of the canal-based commercial tradition, such as rice market, warehousing, terminal ports and transportation. It is also a historical sediment and symbol of China's canal culture, involving transport for grain, warehousing commerce and trade, which is of important heritage value.

Fuyi Granary is located in Hangzhou, Zhejiang Province. In 1882, the 8th year of the Guangxu reign of Qing Dynasty, Tan Zhonglin, the governor of Zhejiang, ordered the gentry of Hangzhou City to buy 100,000 dan (basic unit of weight in ancient China, about 60 kg) of grains due to food crisis in Hangzhou. Originally, the grains were stored in two granaries. Due to insufficient storage space, he then purchased ten mu of land in Xiawan to build another granary. The granary was completed in July, 1884. The new granary had four rows of barns, which could store 40,000 to 50,000 dan of grains. In the same winter, Tan Zhonglin was seconded to Shaanxi and Gansu. Before he left, he named the granary as Fuyi Granary, literally affluence and justice in Chinese.

During the Republic of China era (1912-1949), Fuyi Granary was changed to Third Barn of Zhejiang Province and served as a military warehouse of Kuomintang for a short time. After 1949, Hangzhou Grain Company took over it as a civil sub-warehouse. Part of the granary was converted to a military homestay quarter and staff quarter of Hangzhou Shipyard. Fuyi Granary is the only surviving shipping and warehousing building of the Grand Canal in Hangzhou, which is of important heritage value.

Since the 1970s, Fuyi Granary has become a residential compound, occupied by dozens of households. As the home to army chiefs and their family members, the compound was allocated to the workers in need of accommodation due to housing

123

shortage. The houses were dilapidated. Residents installed electric wires and water pipes without permission. The unauthorized constructions and illegal structures were serious, leading to a severe damage to the original style and layout.

In 2005, Fuyi Granary was designated as a Provincial Heritage Site. In 2006, Zhejiang Institute of Ancient Architectural Design completed the Hangzhou Fuyi Granary Restoration and Design Project. In 2007, the restoration and environmental improvement for Fuyi Granary was completed, with ancient structures restored, and the residents relocated. Fuyi Granary was then open to public (Qiao 2014).

RESTORATION AND ENHANCEMENT

The restoration started from the reinforcement and repair on the structure of Fuyi Granary. Buildings greatly changed or partially collapsed, with the beam frame reserved, are locally restored based on evidence. Rescue effort was carried out for the buildings which have been destroyed but showing recognizable traces of part of the beam frame. In the case of some collapsed buildings with unknown remains and insufficient archival records, the principle was that only the ruins were to be preserved and the buildings would never be rebuilt. Authenticity was underscored and over-renovation was not allowed. The restoration was carried out in situ, with original materials and being in accordance to the original historical layout. A total of 13 buildings and the south pavilion were restored and renovated. At the same time, some proper infrastructural facilities were installed, such as fire prevention, water and electricity, to ensure the safety of the historic buildings.

In addition to proper conservation, the enhancement of some courtyards carried out has changed the original function of storage and residence into a business complex of cultural-oriented enterprises. During the National Day in 2007, the restored Fuyi Granary was open to the outside world to showcase the history of the canal culture and Fuyi Granary. The exhibition earned a roaring reputation. However, it was closed immediately after the exhibition. After that, only occasionally were there open air performances, fashion shows or other cultural events on holidays. By the end of 2008, authorities again invited the public and tourists to offer advice and suggestions for enhancement. There were discrepancies among the experts. Some stressed that the canal was a place where working class gathered and shouldn't be too elegant, while others thought that, "if we cannot find a suitable way to make use of the place, then leaving it alone temporarily is better than destructive utilization."

In 2010, after more than two years of suspension, 11 cultural and creative enterprises were invited to enrich the culture of the ancient canal. The main axis of Fuyi Granary consists of three courtyards. The largest storage room in Building 2 from south to north was converted into a granary café (Fig. 1).

The space at the burned-out site of Building 12 is reserved as an open air theater. Buildings 3 and 4 are used as part of the Cultural and Creative Industry Park.

Building 11 (accounting room in original) is changed to a management area. The overall floor plan of existing buildings is retained. The ruins of damaged buildings are kept. Part of the wall surfaces and interior are decorated with fashionable and modern elements transforming the overall setting and appearance of the granary as little as possible.

Fig. 1 Granary Café.

Fuyi Granary is located at the intersection of the canal with three stone bridges connecting to Xiawan Road, Hushu Road and Xiawan Park respectively, Xinyifang to the west, Dadou Road and Xiangji Temple to the north and the Shengli River Food Street to the east. The new and old residential groups around include Qingshui apartments, Cangji New Village and Jiashan Village. Fuyi Granary serves as the office for the creative enterprises, as well as a place for leisure and excursion. The tour route includes the main axis running through the granary and the waterfront promenade along the canal. The former links the office space to the interior, the latter connects the buildings around Gushui Street with the Ruins Park. This gives the users and travelers more freedom to choose where to go. The office staffs can enter the quiet office off the main axis. Visitors who come from afar or wish to taste tea can find the granary teahouse along the main axis. Visitors can also enjoy the simple and graceful canal scenery along the waterfront promenade. Residents can even organize a variety of folk activities and theatrical performances in the open space. There is also an underground parking lot of more than 2,000 square meters in

the basement of the archaeological park. More than 70 parking spaces alleviate the parking problems in the residential areas and tourist spots around this road section (Hong, Zhu et al. 2013).

OPERATION

At present, the property right of Fuyi Warehouse belongs to Hangzhou Canal Investment and Development Group Co., Ltd. (hereinafter referred to as "the Group"). Approved by Hangzhou Municipal Government and funded by Hangzhou Canal Conservation and Development Group Co., Ltd., the Group specialized in preservation and operation of the canal. Before December 2014, the Group and the Grand Canal - Hangzhou Section Conservation Committee (hereinafter referred to as the "Conservation Committee") was one institution with two titles, with a total of 64 permanent staff. The main function of the Group is to develop and sell land along the periphery of the canal, use the profit as the funding source for the canal conservation projects.

By the end of 2014, in order to separate enterprise from the government sector, to separate administration from operation, the Group and the Conservation Committee were separated. The Conservation Committee merged with Hangzhou Municipal Bureau of Landscape and Cultural Heritage, with the latter having stronger capacity to manage the canal. Under the Conservation Committee there is a conservation center responsible for day-to-day administration. The Group continues the development along the canal, including property management. Currently, the conservation center has 30 permanent staff and the headquarters of the Group has 30 employees.

In 2007, Zhejiang Cultural and Creative Group obtained the operation right. Its subsidiary Fuyi Granary Culture Company was the commissioned for the operation of the Fuyi Granary. In 2010, Fuyi Granary Culture Company invited rental applications and screened out 11 companies to open business at the site. Fuyi Granary Culture Company is in charge of specific projects, and organizes events and activities. Regarding renovation and furnishing, any project has to be reported to and approved by local conservation authority. After a five-year contract in the first round of leasing expired in 2015, the second round of leasing started and the contracts would be renewed annually. The rent is 1.5 yuan/square meter and the total area is 2,935.05 square meters.

In general, Fuyi Granary Culture Company carefully considered the business operation of the tenants when leasing, which should be mainly culture-based. For example, Han Shan Tang (Fig. 2) is a home design company and sells porcelains and tea at the same time. The company's owner Mr. Lu, born in Jiujiang, Jiangxi Province and studied in Hangzhou, advocates a new lifestyle filled with Chinese aesthetics. He chooses Fuyi Granary for its historical and cultural background which matched

perfectly with the ideology of his home furnishing company. To him, Fuyi Granary is not a retail store, but a place for business negotiations and a venue of social activities for designers.

Another distinctive enterprise is Yunhe Academy (Fig. 3). Mr. Ye, the Academy owner, has been living in Hangzhou for more than 20 years and is attracted by the temperament of the canal and Fuyi Granary. He wishes to preserve and transmit old texts like Four Books and Five Classics through this place and proposes a motto: "a hundred years of Fuyi, a thousand years of Grand Canal, and ten thousand years of classics," according to the cultural connotation endowed by Fuyi Granary.

Fig. 2 Fuyi Granary, Han Shan Tang.

Fig. 3 Fuyi Granary, Yunhe Academy.

However, both Han Shan Tang and the Academy face operational problems. Due to the high rent rate, not all businesses can get real profits. When I visited the site, other companies were not open. They earn some profits at most, but cannot make a fortune. The Yunhe Academy strives to organize high-end cultural forums and local teahouse rap shows. But the result is unsatisfactory due to inconvenient traffic conditions, lack of a favorable neighborhood with rich cultural atmosphere, as well as and other external factors. The Academy is a place where ancient books and calligraphy are collected. However, the restoration project did not consider a well-established space for ancient books. The current environment is not as good as to prevent damages of papers caused by fire, water, moisture, etc.

Being unsatisfied with the lack of cultural atmosphere, the Group asks for more tourism and cultural activities. The plan is to invite more companies that can provide interactive experience to the visitors. Meanwhile, Fuyi Granary Culture Company plans to add more events related to warehousing culture, such as food safety programs through discussions with the Provincial Food Bureau.

CHALLENGES FOR STAKEHOLDERS

For visitors, although surrounded by green environment, other than the buildings, Fuyi Granary is empty and boring for the visitors. The simple layout and quiet atmosphere serves the purpose of rendering the historical setting but fails to provide high-quality services to a wide range of visitors. It has not effectively conveyed the historical significance of the site to the tourists and residents. In terms of use, tourists

believe that the buildings of Fuyi Granary reflect well the cultural characteristics of the Grand Canal, a grain transportation system. They adore the old houses, secluded courtyards and corridors along the water edge. However, the entire site fails to bring rich visiting experience. When asked about their expectation of the site's use, most visitors want to transform the place into a collector market, handicraft market, youth hostel, teahouse, etc. So far, there are a tea house, a café and an academy, but the originally planned Yujiatai Restaurant and a sculpture area are not realized yet.

The surrounding place is a public space for local residents. However, they usually take walks or exercise along the river walkways, seldom go inside the Fuyi Granary and do not even understand the historical value of the Fuyi Granary. With regard to local residents' attitudes, some living near Fuyi Granary generally regard the rebuilt buildings as "antiques," believing that the buildings are only for sightseeing. They are not interested in changing the use of the granary. Some residents complain about the negative effects after the site's restoration. since the construction of restaurants and tourist attractions around the area, namely the Dadou Road and Fuyi Granary, traffic has been significantly increased, causing serious traffic and noise problems.

Business owners at the Fuyi Granary wish local policies and regulations, land ownership, development models and other related systems can be improved, but skeptical about the high cost and business continuation. They feel that the skyrocketing housing prices in the vicinity have caused the rent to rise gradually, raising concerns about their business benefits.

Meanwhile, as an important attraction of the canal, Fuyi Granary is not closely related with other landscapes. Both public transport and water "bus" are limited. Tourists just think of the place as an ordinary urban green space. The high cost of coffee serving at the granary is only for a handful of the riches. The open air theater can only attract a small group of curious individuals. What tourists can experience is to look at and enjoy the canal. Without interaction with the visitors, the vitality and popularity of the area will be lost, businesses in the area will also be affected (Xu, He et al. 2012).

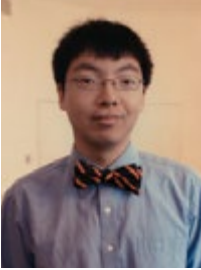Figg. 4-5 Fuyi Granary, restored structures.

CONCLUSION

The restoration and enhancement of the Fuyi Granary provides some creative approaches to the use of archaeological site in China. It transforms the site from a storage place into a public space for cultural enterprises and activities. Regarding operation, the government commissioned a company for the management, the latter sets up some guidelines to constrain the business within a cultural-oriented scope. To a large extent, the general idea of the restoration and operation seem on the right track. However, there are still some challenges. The foremost one is that even though the affairs inside the site have mostly well planned and operated, the site's external environment is not yet favorable enough to support the business. Both its local residents and visitors have not been benefited as expected, largely because of lack of attraction of the site. The intense traffic and low degree of popularity set an obstacle for tourism, which in turn prevent the business to be profitable. Overall, though the conservation of the site is well practiced, it still needs more work for a sustainable enhancement.

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UNDERGROUND ARCHAEOLOGICAL SITES AS DRIVERS FOR SOCIAL REGENERATION: THE CATACOMBS OF SAN GENNARO IN NAPLES

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NAPLES, THE UNDERGROUND CITY

The application of the newborn classification of Underground Build Heritage (HBH)[1] to the city of Naples revealed that all the types of underground functions described in the list have correspondent sites in the city (Fig.1). But there is more; covering all the stages of its 2000 years history, the relationship between Naples and its underground layers is so significant that the city may be considered, not only as an original archetype of underground city but, even as the unique city generated by its subsoil. That is true because all aboveground buildings and major urban facilities, built before the introduction of reinforced concrete, were made using yellow tuff stones caved onsite.

Underground was used for water management starting from the Greeks and Romans settlers; the historical aqueducts of Bolla (IV B.C.), Claudio (known as Augustus I B.C./I A.D.) and Carmignano (XVII A.D.) managed this fundamental natural resource till the opening of the Serino aqueduct, inaugurated in late XIX Century. Underground was also the place where food resources were managed at private or public level, it was also a safe recovery to practice religion and bury bodies. In Naples the violation of natural elements caused the continuous submersion of part of the historical center and significant changes in the coastal line, those effects can now be considered a subterranean environmental warning about the effects of violation of natural elements. Underground tunnels allowed the extension of the city and the connection with the area of Campi Flegrei during the Roman era (Cripta

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1   UBH was used for the very first time during the application to COST Action Open Call OC-2016-2 within the proposal UNDERGROUND4VALUE, Underground Built Heritage as a Driver for Community Valorisation, (Proposal Reference OC-2016-2-21333).

Neapolitana, Serino tunnel) and underground space was also the logistic solution during the Spanish domination (Vittoria tunnel XVI Century).

In XIX/XX Century, underground supported internal mobility with historical funiculars: Chiaia 1889, Montesanto 1891, Centrale 1928 and Mergellina 1931, nowadays Linea1 interacts with Naples' underground layers having included historical stratifications in Toledo and Municipio stations. Dismissed underground extraction caves have always supported local economy: tuff and trachytic rock extraction, transformation and conservation of olives, stock fish and anchovies, production of glasses and wooden works, mushrooms cultivation and animals breeding; caves were also used as deposits at municipal, commercial and or private level. Castle Maschio Angioino, Castle San'Elmo and Castle dell'Ovo had underground prisons and the Royal Palace a subterranean escaping route. Underground sewers were at the core of the Risanamento (Sanitary Naples starting from 1865). Naples experienced also rural architecture on the Pizzofalcone hill and the *bassi* (typical underground houses) are part of its iconic urban scenario. Dismissed underground networks were connected and equipped to be used as bunkers during the Second World War and their walls were painted with fascism's slogans to support the involvement of population in the war; during their stay in the underground citizens painted the walls as well, giving shape to their fears, dreams and personal affairs.
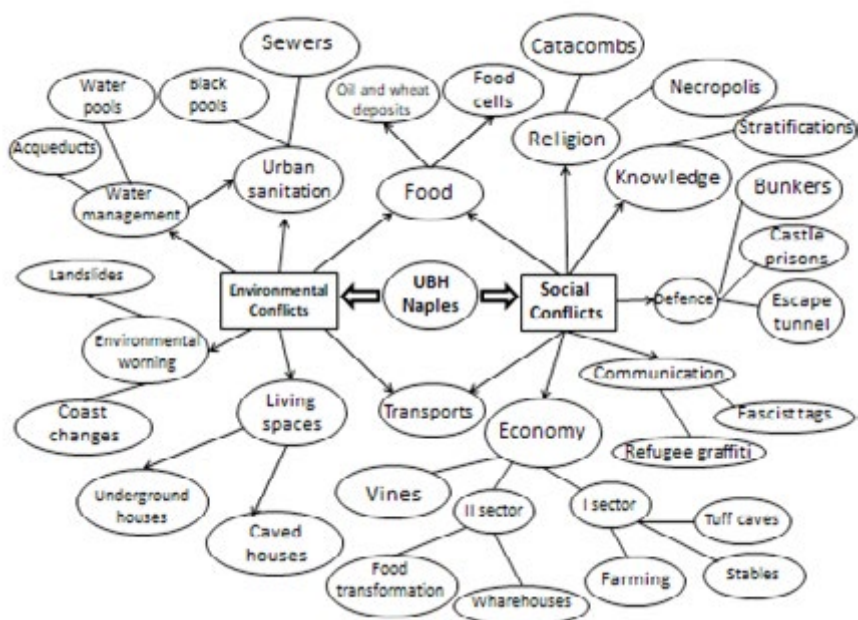

Fig.1 Underground Built Heritage in Naples classification (by the Author).

As briefly described, the relationship between the aboveground city and UBH is so strong that the protection and the valorization processes connected to the inclusion of Naples in the UNESCO list in 1995 (726bis) was naturally extended to the less visible side of the historical center, its underground layers. "Underground" became a successful brand and its networks are, at the moment, among the most visited and appreciated destinations. At the basis of this success there are several different strategic approaches for the correct use, enhancement and valorization of UBE; this diversification is connected to the variety in forms and nature of Neapolitan underground routes and to their different ownerships. Since dismissed aqueducts and tunnel used as bunkers, for example, were recently acquired by the Municipal Council (Municipal Council Low, n. 492, 31th July 2015) and are generally given under concession to private associations, religious places are owned and managed by the local Church (Arcidiocesi di Napoli) or by monastic orders. While considering this preface, however, Neapolitan underground space has got a such strong catalyzing power, that in the last decade many projects located in the under 0 level have captured the attention of private and public associations giving shape to several successful underground touristic routes: *Napoli Sotterranea* (underground networks, bunkers, touristic exhibitions), *Galleria Borbonica* (historical tunnel, networks, old cars deposit), *L.A.E.S. Napoli sotterranea* (networks, bunkers, underground route), *Museo del sottosuolo di Napoli* (networks, bunkers, reproduction of old functions for divulgation), *Celanapoli* (Hellenic necropolis), *La Neapolis sotterrata* (Roman macellum, stratifications), *Fontanelle Cemetery* (historical ossuary in a Modern Ages tuff cave), *Roman and Dominicans catacombs*.

All the listed underground attractions, not only are perfectly integrated within the aboveground touristic routes enriching the offer with sites connected to local urban identity but, also, generated new employment opportunities for local guides and economic operators. The paper describes how the underground route of Catacombe di San Gennaro (St. Gennaro Catacombs) became a resource for one of the less visible and socially depressed districts of the city: the Rione Sanità.

THE "RIONE SANITA' " DISTRICT

If Naples is the "underground city", the Rione Sanità is the Naples' district where the relationship between its urban development and underground space is stronger. Located in the homonymous hydrographic basin (Arena), Rione Sanità is characterized by its deep stratifications due to the effects of the recurrent landslides known as *Lava dei Vergini*. This phenomenon, finally managed in the 50s with the construction of Northern Naples' sewers, caused the acceleration of anthropic subsoil layers' formation starting from the Hellenic period on; due to this situation, all the history of this area is written in its underground. The first chapter of this history is about Hellenic Hypogeum system: the practice of burying the dead started

during the period of Magna Graecia when tombs where dug out of the hills surrounding the Arena's basin, selected because were located outside the city walls (*Extra Moenia*). The second dates back to the Roman Period when catacombs were built in the tuff soil of Capolimonte hill while the third took place during the Middle Ages: the Dominicans created underground galleries for both burial and veneration of the remains of the deceased. In Modern Ages the Fontanelle Cemetery wrote the fifth: built in a dismissed tuff cave, the ossuary was the place where victims of urban epidemics which afflicted the city were buried. This underground book is potentially easily located within the contemporary city: the Rione Sanità district is delimited on the north by the Capodimonte hill, where the homonymous museum is located, and on the south by the historical city center and its famous National Archeological Museum. Nevertheless the convenient location and the short distance from the most popular attractions in Naples, this district has always suffered from the logistic isolation of the area caused by the construction, in 1809, of the Napoleon's bridge which physically overcame the area. In fact, the bridge, built to improve Neapolitan internal mobility (connection between the Royal Palace and the Capodimonte Palace) and the external development plans towards the northern lands of the dominium, changed the destiny of the Rione Sanità: it was cut out from the city center and this functional exclusion caused its quick social and economic marginalization. Till that time, the district had been, not only the royal transit way which had caused the edification of beautiful buildings during XVIII Century but, overall, the place where several urban social and environmental conflicts had been managed. Since the construction of the bridge have never been integrated with the realization of any mobility network, at the beginning of new millennium the district and its underground treasure were abandoned and marginalized from the city center. Rione Sanità experienced the social and demographic effects of its 200 years isolation: criminality rates, abandonment of mandatory schools by local kids, absence of infrastructures, generalized deviance of young generations, high unemployment rates. The most significant area of the city, with reference to UBH was completely forgotten by citizens from other districts because perceived as insecure and, consequently, by touristic fluxes.

Renaissance of the Rione Sanità was a surprisingly a very fast process if compared to 200 years of its total abandonment; UBH played a fundamental role. Antonio Loffredo, the illuminated priest who moved to the church Santa Maria alla Sanità in 2001, was at the core of the transformation of "the UBH Beauty" into a resource (Loffredo 2015). He started his work welcoming kids of Rione Sanità in the gardens and in the church's cloister and rooms involving them into interactive activities, and step by step, in several training programs encouraging those boys in investing on themselves, in spite of the social contest; he stimulated their formation, organized sponsored tours abroad and laboratories of art crafts. Antonio Loffredo taught to those boys and girls that the forgotten UBH could have been the resource for their future and so they started first dreaming, then planning, development strategies.

It was not easy but these boys and girls were so enthusiastic that their energy was emotionally contagious. They started organizing spectacular visits to the Dominican Catacombe di San Gaudioso, then concerts and events in the Church Santa Maria della Sanità, they invited artists to use galleries for their expositions and, involving local food services, organized special show visits with performances of local actors and degustation of local products. Feedbacks of all these activities were so encouraging that several associations supported them, local and national press started publishing enthusiastic articles about this experience. In 2006 those guys decided to give birth to a co-operative society (*La Paranza ONLUS*) and in 2008 applied successfully for funds from *Fondazione con il Sud* dedicated to the support of activities focused on the valorization of cultural heritage with significant social impact. As an effect of this funds, the action of *La Paranza* was first finalized on the valorization of the Roman Catacombe di San Gennaro and soon later to a complex touristic itinerary including 13 touristic stops, 4 of them belonging to UBH: Basilica dell'Incoronata del Buon Consiglio (aboveground church but underground networks for expositions), Catacombe di San Gennaro (underground necropolis), Cimitero delle Fontanelle (underground ossuary) and Catacombe di San Gaudioso (underground necropolis). While working at this experience, boys and girls attended language courses, travelled abroad to be trained, attended universities: Only six years later, in 2014, *La Paranza* ONLUS turned to be financially independent with 26 fix workers and several part-timers but as they keep saying: it is only the first chapter…..

What is the secret of this successful experience? Of course the significant implementation of UBH enhanced plays a fundamental role in this process but there is more. In the next paragraph we will analyze the influence of the social experiment itself and of the involvement of well trained and motivated local boys and girls, well externalized by an effective communicative strategy, on this case-study.

LA PARANZA: THE CASE STUDY

To analyze the case-study of co-operative *La Paranza*, we decided to study two different series of data: the first, internal, addressed to the evaluation of the performances of the activity in terms of visitors, the second, elaborated on the basis of external data to explain the nature of the success achieved.

Internal data referring to the three major sites managed by *La Paranza* in the period between 2010-2107 (Fig. 2) show the general trend of visitors. The articulation of the data among the three attraction in the period 2016-2017, demonstrates how the final performance is influenced by the ticketing of Catacombe di San Gennaro.
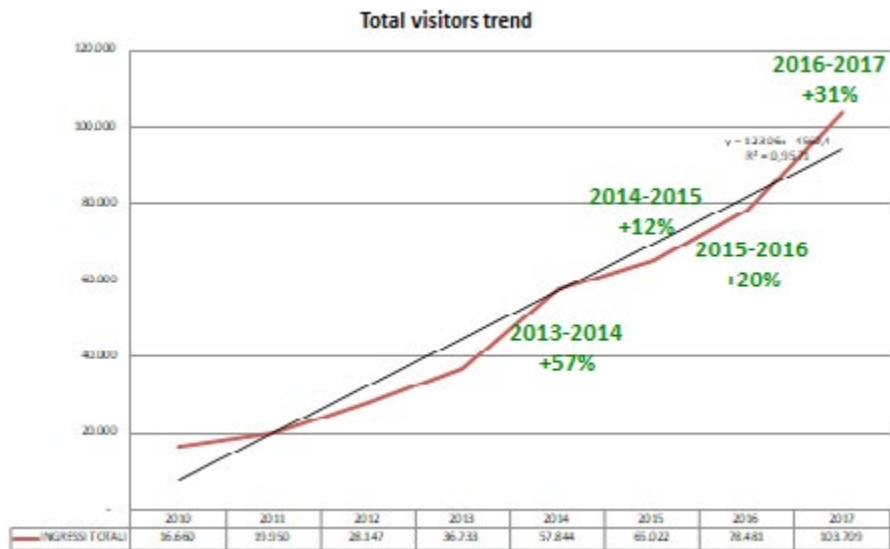
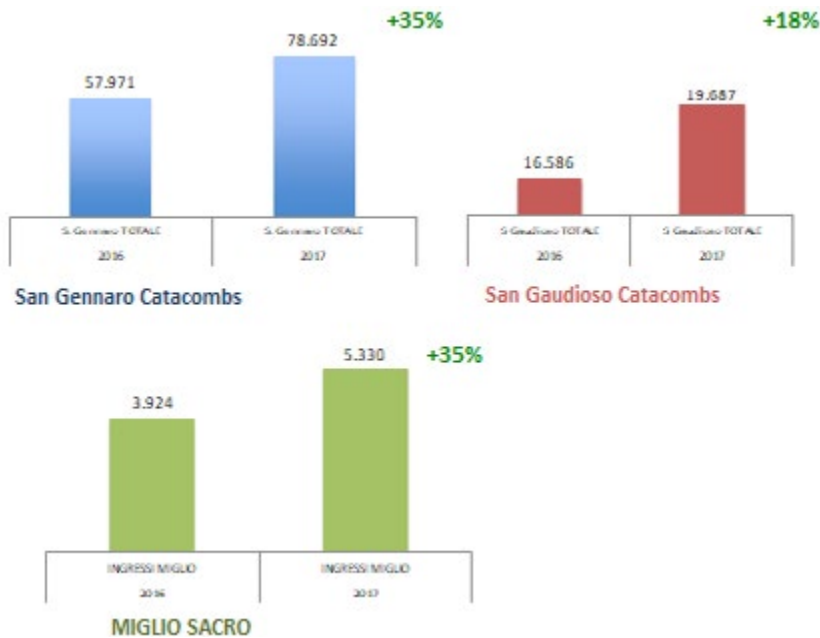Fig. 2 Trend total visitors of 3 UBH sites managed by La Paranza (source La Paranza onlus).

Fig. 3 Articulation of visitors among the 3 majors UBH managed by *La Paranza* (source *La Paranza* onlus).

The data regarding the top destination is strongly influenced by the articulated touristic services offered there and the different targets of tourists involved: night events (3790 tickets in 2017 compared to 1588 in 2016 with an improvement rate of 138%), students and under 18 visitors (13542 in 2016 and 15971 in 2017), Citysighting bus (1021 in 2016 and 1249 in 2017), senior +65 (2076 in 2016 and 3864 in 2017). Visitors are 51% Italians and 49% strangers articulated as follow: Frence (12%), Spain (5%), Germany (5%) and United Kingdom (5%).

All data are so increasing that we decided to investigate on the reasons of this success. Since the communication strategy is focused on social media (fig. 4), we decided to analyze feedbacks on the website of the major attraction, "Catacombe di San Gennaro", and the evaluations that catacombs got on the correspondent page of the major touristic website.

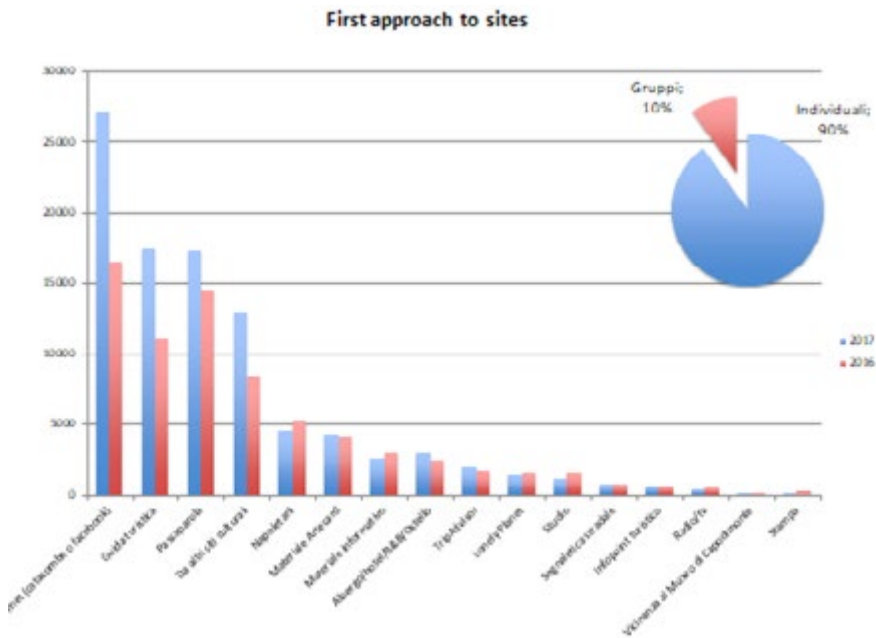Fig. 4 Comunication strategy (source *La Paranza* onlus).

Catacombs are one of the best quoted touristic destinations in Naples according tripadvisor: this archaeologic site got a medium score 4,5/5 on the basis of 3042 feedbacks[2]; the research question was: what did influence this success? Which are the motivations given by visitors, which elements influenced the final score? The

2   Last update January 26, 2018.

analysis of the texts accompanying each quotation (mandatory on tripadvisor) give information about the role played from different factors on the final mark. We decided to study the importance of empathic impact of the social experience carried on by *La Paranza* and to compare this approach with a less emotional one by analyzing the texts attached to feedbacks. We selected two series of keywords to investigate on this specific aspect: the first class is directly connected to the empathic involvement of visitors in the story of the cooperative, the second generally used for analogues archeologic sites. We activated a research to find out the frequency in the use of both the categories and at the end we evaluated the relationship between them and the final given score.

In the first list we analyzed the frequency of key-words connected to the empathy with the activities carried on by the co-operative society and the personal relationship with the boys and girls who guide the tours. In Tab.1, 91% of guests which mentioned the name of the co-operative *La Paranza* quoted with the maximum score, 5, the visit, the use of the very confidential "ragazzi" is the perfect example of the friendly and empathic relationship established during the tour: young guides include the story of their enterprise in the presentation and visitors feel like being part of the social project and feedbacks show how much they really appreciate it. The 88% of tourists who called the guides "ragazzi" quoted 5 the visit while the use of less familiar "guide" corresponds to the lowest percentage, always very significant, of the maximum score for this category: 85%. The higher percentage of 5 corresponds to the use of the keyword "social", this is the final confirm that the empathic involvement of tourists in the social project produces higher scores in the evaluation given to the tour.

keyword	score 5	score 4	total
cooperativa + coperativa (co-operative society)	453 +13 (89%)	54+2 (11%)	510+15
La Paranza	286 (91%)	27 (9%)	313
ragazzi (guys)	569 (88%)	75 (12%)	646
sociale (social)	104 (92%)	9 (8%)	113

guide (guides)	391 (85%)	61 (15%)	458

Tab.1 Empathic keywords (elaboration by the author).

keyword	score 5	score 4	score 3	total
visita (tour, visit)	788 (82%)	157 (16%)	10 (2%)	960
museo (museum)	37 (82%)	7 (16%)	1 (2%)	45
interessante (interesting)	277 (75%)	85 (23%)	8 (2%)	370
archeologia (archaeology)	10 (83%)	2 (16%)		12
sottosuolo (underground)	46 (78%)	12 (20%)	1 (2%)	59
romani (Romans)	29 (88%)	4 (12%)		33
loculi (burial niche)	9 (64)	5 (36%)		14
sotterraneo (under 0 level)	144 (84%)	25 (15%)	2 (1%)	171
percorso (touristic route)	227 (84%)	40 (15%)	3 (1%)	270
sepoltura (burials)	34 (81%)	8 (9%)		42

Tab.2 General keywords (elaboration by the author).

The importance of empathic involvement in the evaluation system, is confirmed in the analysis of data referred to the presence of neutral key words in texts accompanying the reviews. Tab. 2 shows the results of numbering the presence of very common adjectives and nouns connected to this type of location: museum, underground, archeology, etc. The first element which comes out is that among feedbacks that include those words, in contrast with the previous ones, the score 3 appears for the very first time. It is a very low presence indeed but it is a fact that this medium appreciation score it is completely absent in correspondence with the presence of words connected to the emotional involvment. The word "visita" is used very often (788) but, for example, the place is not perceived as a museum and only 37 people use the correspondent word in the text of the review. The visit is "interessante" (277) but the location underground, the connected civilization (Romans) and the name of the burial site (loculi, sepoltura), even if used several time during the description of the site during the visit, are really rarely used in the feedback texts. It seems that, not only when the visit is perceived as an emotional experience the final score is higher but, even, that the human experience overcomes the emotion for the visit to the archeological site: only 12 persons on the total mentioned the word "archeologia" itself!

In line with the communication strategy, the stories of the guys involved in the project have been collected by Chiara Nocchetti and they are published weekly on the Catacombe di Napoli's Facebook profile. Visitors are invited to be part of the community and, if guides are the bridge for this positive involvement, social networks are given the role to diffuse the experience and to motivate future visitors. In this strategy the archeological site is, not only a valuable UBH example but, it is also the meeting point with a significant social experiment.

As a conclusion, the visit to the catacombs is the access door to this special community and the involvement in the project of local boys and girls turns to be, not only a daily experience, but a long lasting relationship giving shape to a virtuous circle constantly fed by shared activities from followers/friends.

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TEACHING ARCHAEOLOGY AS A GOOD PRACTICE OF PUBLIC ARCHEOLOGY: THE CASE STUDY OF FOSSA NERA IN PORCARI (LUCCA)

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Keywords: Public Archaeology, Training, Tuscany Region.

Tuscany has been a destination for international tourism for centuries thanks to the multiplicity of historical, artistic, cultural, landscape and enogastronomic assets. Today it attracts visitors from all over the world thanks to the presence of numerous important cultural sites, among which 7 have entered the UNESCO world heritage list: Florence, the cradle of the Renaissance and the fulcrum of the Tuscan cultural identity; Pisa with its Piazza dei Miracoli; San Gimignano and the Medieval Towers; Siena and the historic center; Pienza city on a human scale; the Valdorcia with its landscapes and from 2013 also the villas and the Medici gardens.

However, scattered throughout the region there are also less known sites but of relevant archaeological interest, which testify to the life of ancient civilizations. These are generally small towns containing unexpected treasures within their territory.

Porcari is a very small town in the Lucca province, 16km² in area, it is known for being the 2nd largest district of the paper industry in Europe, and its territory is full of interesting examples of cultural heritage. Since the 80s of the twentieth century, in the area of the padule located in the south of the municipality, excavation campaigns have unearthed Etruscan and Roman artifacts revealing the existence of an area of considerable archaeological interest. Since then, the different municipal administrations, depending on the sensitivity and economic availability, have been invested funds for the development of this area called Fossa Nera.

Over the last few years, a strategy has been undertaken to enhance the site, which led to the creation of an experimental archeology center dedicated to archaeological training, inaugurated on March 19, 2016 at the Cavanis Cultural Center of

the Municipality. The Culture Office of the Municipal Administration of Porcari, in collaboration with the Superintendence for the Archaeological Heritage of Tuscany and the Arkè Association, has created this physical space making its own strands of public archeology, following the idea that educating childrens about cultural heritage, in particular that of their territory, then it will be able to create more aware and responsible citizens.

Fig. 1 Archaeological Lab annexed to the classroom.

The premises are located on the first floor of the building that houses the Municipal Library and the Higher Institutes of the territory. These laboratories have a dual function. On the one hand, allowing visitors to observe the real work of the archaeologist, because they have integrated the functions of the Operations Center of the Archaeological Research of the Piana di Lucca, which had already been living since 2004 by Giulio Ciampoltrini and Consuelo Spataro. On the other hand, look and touch the model representing the hypothetical reconstruction of a Bronze Age settlement in the Fossa Nera area. In addition, dioramas were created that represent productive activities of the same period, in particular ceramology, metallurgy, breeding, weaving and agriculture.

The project was the result of a synergistic work between local and regional authorities, the Superintendence, and the Province of Lucca through which it was possible to integrate into the project Accessit, a *Cross-border Cooperation Program Italy - Maritime France* 2007-2013 ERDF.

The archaeological site comprising the areas of Fossa Nera A and Fossa Nera B is located in the area of the former Bientina lake (Sesto), which is only accessible during the period from May to October.

Fig. 2 Porcari. Fossa Nera A archaeological site.

Fig. 3 Porcari. Fossa Nera B archaeological site.

European funds have made it possible to create a small rest area at the entrance to the site and the remaking of the educational signs along the tour route, in double Italian-English language. While the classroom was created with funds from the municipality.

The Municipal Library staff together with young people from the civil service, have been trained by the Arkè Association from Grosseto town, that is expert in Experimental Archeology, for the realization of laboratories dedicated to young people from Porcari and from the the neighboring municipalities.

Fig. 4 Porcari Fossa Nera. New didactic signs and pedestrian area.

The activities carried out by Arkè concern the handling of ceramics, hunting through archery, agriculture through the grinding of wheat and the lighting of fire, while those organized by library staff are the excavation simulations, consisting of in the excavation by the childrens inside wooden crates full of soil and sand in which reproductions of finds have been hidden. All the workshops are held in spring and summer with the school's membership and are followed by a guided tour of the archaeological site and with the help of painted panels that represent customs and habits of the time.

The activities are also aimed at an adult audience: last year, in the classroom was set up the exhibition *Fossa Nera di Porcari: daily life around 1200 a.c. between excavation materials and experimental archeology* by Giulio Ciampoltrini. The exhibition showed the public 3,000-year-old finds of exceptional value found in the Fossa Nera

in the '80s and remained for many years in the deposits of the Superintendence for the lack of an adequate location.

Fig. 5 The inauguration of the *Fossa Nera exhibition in Porcari: daily life around 1200 a.c. between excavation materials and experimental archeology.*

Archeology tells and will always testify to the identity roots of a community in a given historical period, so the creation of the experimental archeology center, like the one above mentioned, and the related didactic activities represent a new beginning for an enhancement path of the heritage and a territorial marketing that starts from culture as a driver for local development.

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PLACE MAKER: A METHOD FOR THE INTEGRATED ENHANCEMENT OF CULTURAL RESOURCES AND URBAN IDENTITIES

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The essay illustrates the results of the research project *Innovative TEchnologies for the COnservation and Enhancement of Cultural Heritage* - Italian acronym: TECON@BC - carried out in the framework of the ROP - Regional Operative Programme, with attention to the study of the medieval burgh of Sovana and its updating in the framework of the Bilateral project *Valorisation-Tourism-Participation: Developing alternative integrated solutions for less promoted historic sites* with ICVBC-CNR of Rome (Italy) and CACH: Department of Cultural Relics Research of Beijing (China). The aim of the TECON@BC project (2010-2013) was to develop methods and technologies for the conservation and enhancement of cultural heritage to the end of promoting and improving the enjoyment of the Tuscan (Central Italy) cultural heritage, with special regard for heritage located in underdeveloped areas, as a means to favour progress in these areas. In continuity with this project, the aim of the CACH Bilateral project (2016-2018) has been the identification of models and computer science tools for the planning and enhancement of the historical sites for a more durable sustainable development to be investigated in Sovana as one of the emblematic cases to be used in China.

By using the *PlaceMaker* method (Sepe 2013, 2015, 2016) – see table 1 - specifically devoted to the identification and design of place identity resources (Lynch 1960; Hague, Jenkins 2005), I was able to highlight identity-related features of the town of Sovana. The results and relative updating are explained below.

INTEGRATING CULTURAL RESOURCES

The village of Sovana is characterized by a low touristic flux despite its proximity to the Etruscan necropolis. The *PlaceMaker* method was used for identifying the identity

resources and the construction of project guide lines in order to enhance the culture of the place and create a network with the cultural resources of the surrounding area. Sovana, mainly visited for its Etruscan Necropolis tour information centre, is currently inhabited just in the periods - and hours - of major concentration of visitors, becoming "empty" in the rest of the year. In meetings to discuss the projects with the local administrations, the idea arose, which we subsequently sought to implement, that the development of Sovana required that visitors be drawn to the town, but without overloading it with mass tourism. Another observation made in these meetings, which was subsequently confirmed, is that several websites informing about Sovana and its monuments exist, but they have not led to an increase of visitors to the town, probably because it lies outside traditional tourist circuits in Tuscany.

N°	OBJECTIVES	ACTIONS	PRODUCTS
0	Construction of the analysis grid	Choice of categories Choice of parameters Choice of significant days Choice of time slices	Database grid
1	Anticipatory analysis	Preliminary observations made prior to the first inspection of the place	Map of the preliminary ideas of the place
2	Perceptive and denominative description of the elements	Denominative survey Perceptive survey Graphical survey Photographic survey Video survey	Map visualizing the results obtained from the survey
3	Identification with traditional cartography of the elements required for area description	Analysis of traditional planimetry at urban scale Analysis of traditional planimetry at territorial scale	Map with the components of the site deduced from analysis of traditional maps
4	Identification of place elements perceived by users of places	Questionnaire for visitors to the place	Map visualizing the results of the questionnaire
5	Processing the collected information	Overlay of the maps with the different elements observed from the anticipatory and effective analysis Check of the different elements observed through different analysis tools	Graphic system construction Complex map of analysis

6	Identification of identity resources	identification of the identity potential identification of identity problems identification of identity qualities	Map of identity resources
7	Identification of identity resources by users of places	Questionnaire for visitors to the place	Map visualizing the results of the questionnaire
8	Identification of the project proposal	Overlay and elaboration of data collected Definition and localization of design intervention	Graphic system construction Complex map of identity project

Table 1. PlaceMaker scheme.

The *PlaceMaker* method comprises eight phases – five of analysis and three of design (table 1) – and a Phase 0 that consists in constructing the grid required for the operations which are to be implemented later. The different types of database have to be created to contain the different types of data collected: there are data from anticipatory analysis; the denominative and perceptive, the graphical, the photographic, video surveys; the elements deduced from the study of traditional planimetries; the questionnaire administered to visitors to the places. It is necessary to decide the categories of elements to analyze, which are particularly connected to the urban events identified above, and the corresponding measurement parameters. Moreover, it is necessary to establish which days are the most significant and the most appropriate time slices for surveys. The product of the *PlaceMaker* method consists of two complex maps, one of analysis and of design which represent the identity of places and project interventions for its enhancement respectively.

THE SOVANA IDENTITY OF PLACES

Below I illustrate the results achieved in phases 5 to 8 of the method, ordered according to the succession of stages prescribed by the *PlaceMaker*. My main objective was to use the identity resources of Sovana in order to both sustainably enhance the Medieval town, and activating the roots of the new idea of territory in its inhabitants.

The identity of places in Sovana

Having merged all the data collected in the previous phases, I created symbols suitable to represent the peculiarity of the place and drew up a complex analytical map (Phase 5, Fig. 1). The symbols created specifically for this study designate

places of archaeological interest, local crafts, places for meditation, planned green spaces, flower plants, and uncultivated green spaces.
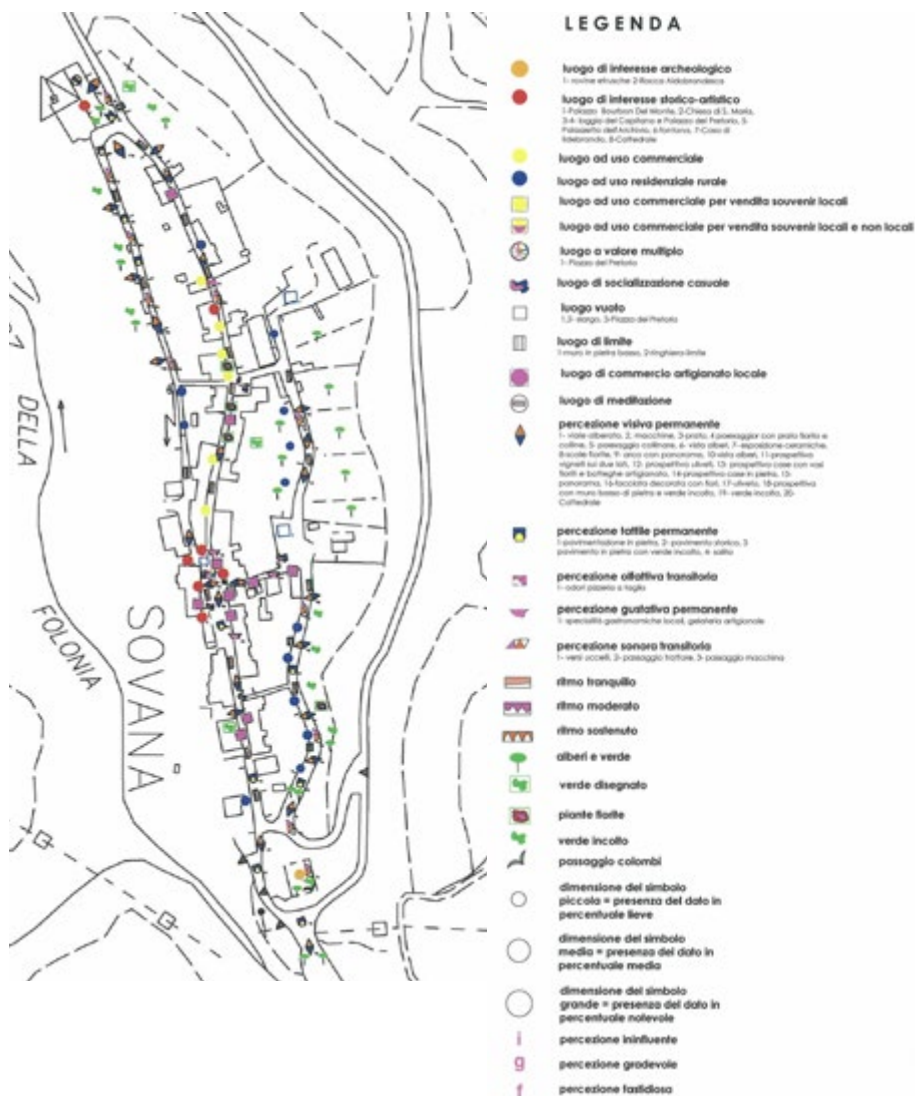

Fig. 1 Map of Sovana Place identity.

The complex map of analysis shows that the identity of places in Sovana is based on a combination of a number of factors, including the town's very ancient history,

in which the Etruscans and, later on, the Aldobrandeschi are especially prominent; its medieval layout and tuff architecture; nature in its various forms; and the peaceful atmosphere of the burgh.

The surveys conducted in the second phase revealed a place that appears to be frozen in time and dense with interesting elements and perceptions, especially on the less frequented streets and those that are less evident in traditional maps, namely, Via Dell'Oratorio and Via del Siviero. These streets, along with Via del Pretorio and Via del Duomo, each show distinctive peculiarities. Via del Pretorio and Via del Duomo form the backbone of Sovana. They are the axes that run through the whole length of the burgh and characterize and structure it, with the Rocca Aldobrandesca on one side, the Cathedral on the opposite one, the central widening of Piazza del Pretorio, and the low houses flanking these streets for all their length. Some elements, such as artisanal souvenir shop and the flower pots gracing the ground floors and facades of houses, further contribute to giving this place its character. Via dell'Oratorio is characterized by unexpected views of the hills and their landscape. Via del Siviero, with its privileged view of the Cathedral, is remarkable for the sounds of nature and of silence.

The nearness of the Etruscan necropoleis does not seem to contribute directly to the identity of Sovana, although Palazzo del Pretorio does serve as an information point for visitors to the necropoleis. In general, the place seems to be scarcely frequented. My surveys suggest that visitors spend little time here and tend to concentrate only on Via del Pretorio, Via del Duomo and monuments of historical interest. The pace is prevalently calm throughout the burgh. One does not see many locals out on the streets, and neither Piazza del Pretorio nor the other open spaces and the Piazzola are used as places for socialization.

In the phase 8 (Fig. 2) concerning the construction of the complex map of design with the project interventions, the actions which I have outlined are aimed at enhancing and promoting Sovana's identity-related resources in an integrated and sustainable way, and at addressing the criticalities I observed. Of the six actions I propose, the first three consist of the creation of thematic itineraries.

The first action I propose is Creating a Landscape Itinerary. Sovana's nature on Via dell'Oratorio is mainly experienced by the locals, who use the street to come and go from their homes, or cultivate the plots alongside it. Renovating this panoramic street with benches, adequate paving and viewpoints onto the scenery would make it attractive for visitors and tourists as well as locals. Furthermore—as specified in the fourth proposed action below—the two widenings halfway along the street and at the end of it should also be renovated to provide, respectively, an adequate access to the burgh and an agreeable stopping point.

The third proposed action is Creating an Itinerary of the Senses. All the streets of Sovana stimulate the senses in various ways. This is especially true of Via del Siviero, but Via dell'Oratorio and the piazza of the Cathedral also provide constant sensorial stimuli to visitors. Scenic views, the scents of nature, the taste of the plants, the song

of the birds, and the tactile perception of nature, if organized into a single itinerary, can make for a rich sensorial experience. Such an itinerary would make the most of the potential for meditation of the Piazza della Cattedrale and, in general, of the whole area, and invite visitors to experience these places of great sensorial attractiveness. Such an itinerary could also provide special perceptual experiences to visitors with physical disabilities.

The fourth action is Enhancing Public Spaces and Monuments. This action does not concern the monuments themselves as much as the places where they stand. The specific steps to be taken are: renovating the three accesses to town—the one on the Via dell'Oratorio widening, the one on Via del Pretorio, and the ramp near the Torre Aldobrandesca—which currently do not do justice to the historical importance of the Borgo; redesigning places with important monuments—notably the spaces around the Rocca Aldobrandesca and the Cathedral, which are both neglected, in different ways—and programming the maintenance of the buildings; creating and renovating public spaces for the socialization of locals and visitors, including Piazza del Pretorio and the Piazzola; reorganizing the currently chaotic parking system.

The fifth action is Differentiating Activities. Creating new activities, besides the currently present handicraft shops, to enhance available natural and cultural resources would favor the presence of visitors and, hence, of inhabitants at different times of the year. Steps to be taken in this direction could include organizing a festival of gardens in the summer months in an area in Via dell'Oratorio or Via Siviero, the planning of which should be assigned by an international competition to be held at some other time during the year. Other activities could include a flower-arranging festival, and training courses in the various local crafts. All these activities should maintain a close connection with the various places of Sovana and its countryside. The sixth action is Organizing a network of Artisan shops. This action should include the local food stores in the area around Sovana and the Etruscan tombs in order to enhance the whole territory. Finally, the last action is the Creation of Information Points. To improve access to cultural and identity-related resources, both information points and adequate signage are needed. Besides the Palazzo del Pretorio, where information is currently provided on the Etruscan tombs, other infopoints should be planned to provide information about the new itineraries, events and workshops, and about typical products. They should be designed to harmonize with the history and architecture of the place. Each infopoint should be equipped with multimedia devices to visualize and navigate the PlaceMaker multimedia maps of identity-related resources, and of itineraries and activities.

Monitoring the identity of Sovana

The experiment was updated after 6 years in the framework of the CACH project. The phases of the method in which the main transformation of the place were

observed in comparison with the previous experimentation include phase 2, 6 and 8. In the following, the main results of these phases are illustrated.
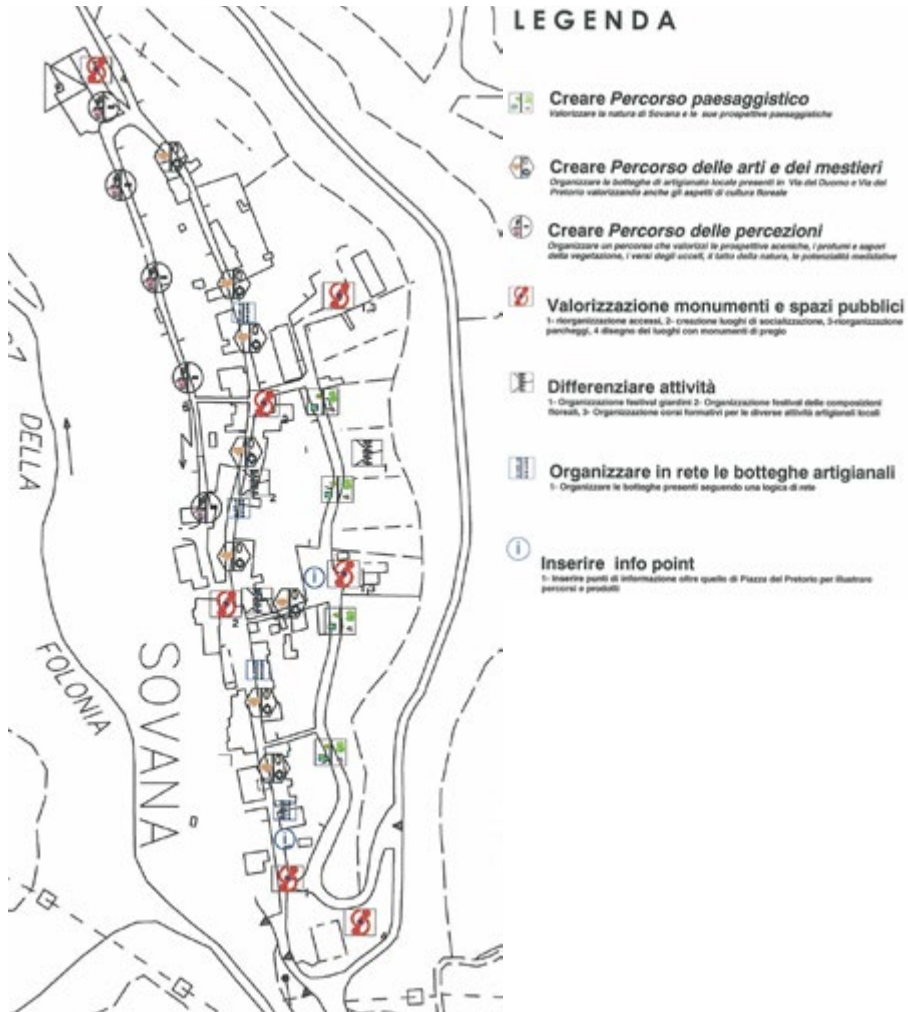
Fig. 2 Map of Identity design.

As regards phase 2, both surveys concerning phase 2 and the questionnaire were carried out. With respect to phases 2 what follows is the main elements relieved. In Via del Pretorio, it is observed that inside the wood shop the artisan shows the modalities to realize the wood objects, creating a better interest to stop there. In Piazza del Pretorio, the wine shop has been substituted by one which sell souvenirs, books

with information on Sovana and surroundings and proposes guides for excursion or visits at the monuments in Sovana or surroundings.

The Piazza del Pretorio in this way welcomes visitors immediately with information about the Village and the Etruscan necropolis also given by the Information office in the Palazzo Pretorio. On Via Duomo, which follows Via Pretorio, two new shops of typical products, the bakery with typical bread and cake, and the Mieleria (literally "honey shops") the artisan explains all the honey cycle which are produced and sell there as well. On this street, an increased presence of both tourists and locals is observed compared to the the previous surveys. As the places of socialization, a new one for children concerns in particular that of the ex School, which is now used for games and meeting by children. Women and men (mainly elderly) sit down outside their home and socialize each other. Visitors sit down on the benches which can be found both in Piazza Pretorio and on via Pretorio-via Duomo stretch. The Piazzola square is still used as a little parking but appears more lived both for the presence of a bakery with typical products and of ricreative space for children in the ex-school. As regards the means of transport, there are observed mainly bicycles, in particular mountain bikes (tourists) and city bike (locals). Few cars are observed (the street in some periods is only for pedestrian use) and are used for reasons related to the commercial activities which are presented there. As regards the natural elements, a notable presence of cats is observed. The perceptions which are modified include those of sound - due to the steps of people who walk here (medium-notable) - and those of taste (medium) – due to food prepared in the homes and restaurants. Furthermore, on billboards close to the Rocca Aldobrandesca, Palazzo dell'Archivio, Palazzo Pretorio, Chiesa di Santa Maria, Palazzo Bourbon, Museo di San Mamiliano and Casa di Ildebrando monuments,qr codes are inserted with information concerning those monuments. Via dell'Oratorio, in the summer period - due to the summer traffic rules –is used for both car circulation and parking and the end of the street for parking of camper and roulotte. The two main observations with respect to the first experiment concern both visual and sound perceptions. As regards the visual perceptions, a remarkable presence of cars parked in the open space in the village arrival and on the right side of the street is observed, while, on the opposite side, a major presence of rows of vines and other vegetation which creates a limit to the view of the landscape around. The sound perceptions concern the sound of cars (medium). With respect to Via Siviero, there are not specific transformations. The meditative atmosphere is the same. The street is little used, only few people decide to follow it completely, may be because it is unpaved and not very easy for pedestrians. For who chooses to follow it, the silence together with the nature sounds highlights the smell and sound perceptions of the place, the latter culminant in the Cathedral.

With respect to phase 6, potentials are those concerning the public spaces in front of the archeological monuments which are not particularly enhanced such as the Rocca Aldobrandesca Cathedral, and the Casa di Ildebrando. The presence of qr codes offer the possibility to have a better knowledge of the place but not to have a

good enhancement and fruition. The same happens in Via dell'Oratorio where land-scape potentials are not enhanced. As regards the Via del Pretorio and Via Duomo shops, these are well enhanced and, selling typical products, maintain alive the tra-ditions of the place. Piazza del Pretorio, thanks to a good number of visitors, which cross it with a slow pace both to walk and visit monuments, artisanal shops and bar, is perceived as a place lived and agreeable in all the hours. It is only observed, at the end of Via Duomo, a no-used building which could host cultural functions such as a local artisan school which would attract visitors during the whole year. Via Siviero continues to be a place with many perceptive potentials as already relieved. I qr codes are interesting but could be powered with further and interactive contents. Qualities are increased in particular on Via del Pretorio and Via Duomo which appear very lived without suffer of mass or invasive tourism. Shops, although not organized as a network, are many and all with local products or close to the local culture and posed long the street with a close distance one to another. In many artisanal shops the modalities of realization of products are explained, making the visitor nearer to the tradition of the place. As regards criticalities, the main problems include: the presence of accesses which are little enhanced and the presence of spaces around some monuments of cultural interest which are little cured. Some billboards are ob-served on the wall of the ex School of Sovana which give a non agreeable and cha-otic visual perception. In Via del Siviero a low degree of maintenance of the street is noted, in some stretches unpaved.

CONCLUSIONS

The paper has illustrated the results of the Sovana case – study carried out with the *PlaceMaker* method. The interest of this case study stands in the updating of the results in the framework of two research projects, namely TECON@BC and CACH, both aimed at proposing new methodology of cultural heritage enhancing.

Following the described results, a confirmation of the project interventions pre-viously identified for Sovana could be proposed, although with some specifications.

The three paths – landscape, art and crafts, and perceptive – are confirmed. Indeed, the Art and craft path has been realized although this is not defined as a path. For a tourism active all the year and a better involvement of population, the fourth intervention "Enhancement of monuments and public space" and the fifth " Differentiate activities" are confirmed. The last intervention "Inserting Info point" is, although not realized with qr code posed close to the most famous monuments, it could be furtherly powered and interactive with the illustration of maps - such as those carried out with *PlaceMaker* - with the possibility to answer to questions through blogs, etc. Furthermore, interviewees –administred to about 40 Italian and foreigner visitors – answered in a positive manner to the the questions concerning those interventions, confirming the previous questionnaire.

At the beginning of the experiment on this area, the town of Sovana attracted few tourists, in spite of the nearness of some remarkable Etruscan necropolis and the fact that guidelines have been set for its sustainable development as part of a local network.

In the following years, the development of Sovana was more focused with attention to integrating identity-related, cultural and sustainability-related resources as regards not only to urban-planning aspects, but also social, economic and environmental ones. In this perspective, for the final part of the process of regeneration, it is important to single out the current identity-related resources of the place as a means to restore the value of living in town for both residents and visitors, and develop tourism so that visitor flows will not be concentrated, but spread out over different periods of the year.

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PLANNING APPROACHES FOR HERITAGE-LED COMMUNITY DEVELOPMENT

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INTRODUCTION

It is a common belief to consider cultural heritage as a valuable resource for the sustainability challenge. It should make local communities more resilient to globalised systems of production and consumption promoting resource-intensive lifestyles and to economic crisis, which can have devastating impact on employment, earnings and public sector. In particular, the built heritage has acquired a relevant role for heritage-led urban and rural regeneration initiatives, as described by many studies (Roberts, Sykes 2000; Evans, Shaw 2004). Its integration in urban regeneration schemes can generate popular, successful urban quarters with character, where people enjoy living, and also engender economic development through job creations and influence social issues such as crime, health, education and particularly social capital.

However, planning tools are not always sustainable, and often regeneration programmes ignore local communities' needs and potentialities, producing spaces of pure consumption and gentrification (Labadi 2008) or developing 'entertainment-led regeneration' (McCarthy 2002). Several cases demonstrate that heritage alone does not guarantee the transition towards sustainability, which requires further changes in interdependent societal systems and across multiple scales – from the supply chains to the behaviours and values of communities and individual citizens. Noticeably, the transition implies complex and uncertain processes, mainly depending on experimentation, learning and sharing ideas. Consequently, transition processes demand for acquiring and testing tools for encouraging dialogue and engaging stakeholders across society "to determine where we need to go and how we are going to get there" (EEA 2016). Furthermore, public participation does not guarantee automatically development and sustainability, nor leads to either community involvement or local development. On the contrary, if sporadic and not embedded in the society, participation can incur costs through extra administration, difficulties in resolving

problems between stakeholders, and failures to develop sustainable regeneration projects. Participation impact, especially in terms of community empowerment, is critically dependent on the processes followed during its establishment and implementation. How to structure the participation, promote the stakeholders' empowerment and begin the dialogue without obstructing the planning process is, therefore, the most important challenge for this transition. Based on good practice cases of heritage-led development, this contribution introduces two participatory tools, the Strategic Stakeholder Dialogue (SSD) and the Transition Management (TM), and a way of integrating them, the Strategic Transition Management (STM). These tools do not replace any statutory planning tool, but simply promote new planning approaches based on the community engagement in new practices and behaviours, by shaping core beliefs and values, which is ultimately essential for sustainability transitions.

CULTURAL HERITAGE AS DRIVER FOR SUSTAINABLE DEVELOPMENT

Cultural heritage is an expression of the ways of living developed by a community and passed on from generation to generation, including customs, practices, places, objects, artistic expressions and values (ICOMOS 2002). It is a resource to preserve for the future generations, and at the same time to use for the social, ecological, cultural and economic growth. Nonetheless, it should contribute to the sustainable development principle of a "concerted effort towards building an inclusive, sustainable and resilient future for people and planet" (UN 2015).

Formally, the connection between heritage and sustainable development was introduced only in 2002, with the 'Budapest Declaration' (UNESCO 2002). It expresses the need to "ensure an appropriate and equitable balance between conservation, sustainability and development, so that World Heritage properties can be protected through appropriate activities contributing to the social and economic development and the quality of life of our communities". In particular, it sees urban heritage conservation as a primary approach for the sustainable development, by leading to poverty reduction through economic growth, tourism and job creation (Labadi and Logan 2016). Strategies and concerns about heritage and its reuse, as well as funding resources, strategically converged on the rich urban heritage and abandoned the heritage in rural areas, largely deprived of economic, social and institutional resources. The subsequent statement, the 'Vienna Memorandum', confirmed this trend, by promoting a harmonious integration of the urban development within the existing historic urban landscape (UNESCO 2005) and calling for drawing up a Recommendation on the Historic Urban Landscape (HUL), then adopted by UNESCO in 2011 (Labadi, Logan 2016). The HUL is a holistic approach to manage historic urban landscapes, for "preserving the quality of the human environment, enhancing the productive and sustainable use of urban spaces, while recognizing their dynamic character, and promoting social and functional diversity" (UNESCO 2011).

It aims at establishing a balanced and sustainable relationship between urban and natural environment, between the needs of present and future generations and the legacy from the past. To that end, it recommends a range of traditional and innovative tools, such as civic engagement tools, knowledge and planning tools, regulatory systems, and financial tools, to adapt to different local contexts and built heritage. Expressly, the civic engagement tools aim at involving and empowering different stakeholders, supporting their capacity building, and helping them to identify key values in their urban areas, to develop visions, goals and actions to safeguard their heritage and promote sustainable development. HUL calls, therefore, for the integration of these tools in the urban governance dynamics, in order to facilitate dialogue by learning from communities' histories, traditions, values, needs and aspirations and mediating between groups with conflicting interests (UNESCO 2011).

Although not detailed, HUL tools offer a conceptual framework, flexible and general, a "soft-law" that countries can implement and adapt to their specific contexts on a voluntary basis. By not providing a robust and comprehensive set of tools or binding regulations, the HUL opens the door to a dialogue without entering in contrast with existing planning arrangements. That activates a learning-by-doing approach, with feedbacks from countries on the critical steps to implement it, such as comprehensive surveys and mapping, participatory planning and stakeholder consultations, vulnerability assessments, appropriate partnerships and local management frameworks, mechanisms for the coordination of the various activities between different actors, etc. In 2014, the 'Florence Declaration on Heritage and Landscape as Human Values' (ICOMOS 2014) with the aim of exhorting organisations, authorities and specialists to link heritage conservation and sustainable local socio-economic development and ensure that heritage conservation contributes to sustainable development objectives, did one step beyond by expressing two important concepts: the landscape and the community-based approach. The first, "whether urban or rural, is a new paradigm for harmonious development, offering an approach that can integrate economic, social and environmental processes". The second, based on 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".

PLANNING FOR CULTURAL HERITAGE

Although a recurrent criticism on the combination of heritage conservation and sustainable development, every year new heritage-led initiatives are promoted and developed in different parts of the globe, valorising the heritage socially and economically, and effectively protecting it through planning policies and programmes. The heritage is a context-specific resource, characterised by an historical and cultural

exclusivity, which strongly influences people's sense of belonging and of 'ownership' of particular localities, as well as daily routines, local rituals, traditions, ambiences, and atmospheres. Once lost the original function, its conservation is often in the hands of local public bodies with different organisational and legal frameworks and, often, lacking of technological capabilities and financial resources. That determines a broad range of performances and results, which makes impossible to conceptualise a single successful approach or model. As promoted by HUL, new planning tools are available as part of the urban and regional planner toolkit. However, they demand for an adaptation to specific contexts and for local capacity building.

Public participation and community empowerment

There is a rising awareness that physical planning can only be part of the solution to communities' problems, other tools should "…address how people mix and connect, their motivations, and whether they 'own' where they live" (Bianchini 1999). Their integration should be simple and likely to stimulate and facilitate local communities' empowerment, by connecting natural, social, cultural, political and economic environments, gauging impacts across different spheres of life, and grasping the importance not only of 'hard' but also of 'soft' infrastructures" (Bianchini 1999). Local communities should be effectively involved right from the beginning of the identification of the objectives and the selection of the projects, up to their implementation and evaluation. Local authorities should maintain the significant role in managing/coordinating planning efforts, acting as facilitators and enablers of the local communities' participation, and ensuring that a socially mixed population can live in the new developed/regenerated historic areas. The participation could be structured in partnerships as for rural areas (Edwards el al. 2000), by including representatives of public, private, voluntary and community interests who are assumed to share a degree of commitment to specific policy objectives, at a strategic or delivery level. Other participation processes, especially in urban and dense areas, are characterised by technocratic and scientific rationales, as opposed to the one rooted in true bottom-up dialogue, or by a variable community involvement, with the local community being more commonly engaged in the initial identification of needs than in either project implementation or providing feedback and monitoring. This type of participation is based on top-down ideology and community engagement used as a 'resource', which must be enrolled and demonstrated in order to secure funding, rather than a necessary system of accountability and capacity building (Dargan, Shucksmith 2008). Clearly, there is no 'one size fits all' to the participation and more consideration needs the process by which participation evolves and adapts through its lifecycle. It is primary to recognise different contexts' heterogeneity in their legal and administrative framework, social and economic preconditions, heritage type and cultural background, and – equally importantly – participatory experiences, in order

to propose a feasible and realistic place-based approach to revalorize the built heritage without homogenising contexts and local needs.

Driving local communities to sustainability

Local communities recognise the heritage value in terms of culture and identity production, but often miss a clear cultural and technical background for releasing its potential and contributing to sustainable development. Often, instead of being a development opportunity, the heritage conservation represents a cost and a barrier to the regional and urban development. Changing that approach is a challenge, which requires a fundamental shift in the development path and implies a social innovation, that is, new practices and behaviours that enable the society to meet its needs in a more sustainable way. For supporting this social innovation, knowledge and technology should be available at community level, for supporting communities' decision-making and stimulating new competencies and skills. At the same time, the planning environment should evolve towards sustainability, by providing an insight into the conditions under which the project could develop, helping to avoid not sustainable investments, stimulating co-creation practices, and guaranteeing individual and collective identity, social inclusion and cohesion. An approach seeking for social innovation must empower the local authorities first, as enablers and facilitators, to play a more significant role in coordinating heritage conservation and/or reuse effort, by targeting resources with integrated programmes of physical, economic and social measures, creating more effective coalitions of 'actors' within localities, and developing structures for encouraging collaborative relationships.

AN INNOVATIVE APPROACH OF COMMUNITY ENGAGEMENT

The direct correlation between participatory planning tools, finalised to develop shared strategies, and communities' empowering tools misses evidence. In terms of performance, empowering and engaging new stakeholders is longer and more uncertain than delivering a shared strategic vision with predefined and strongly motivated stakeholders. In terms of planning scale, the strategic approach happens at the level of regions and cities, citizens' engagement and empowerment at the neighbourhood level. That means to define an approach able to support strategic behaviours at both neighbourhood level, urban and regional level, which characterise fields such as cultural heritage, urban and rural regeneration, and sustainable tourism, taking into account the diversity of contexts. The entire process should be realised without losing an important component of sustainability, that is, economic performance. The proposed approach of community engagement tries to combine this variety of elements, by integrating two management tools.

The first is the Strategic Stakeholder Dialogue (SSD), a structured, interactive, and proactive process, aimed at creating sustainable strategies. Developed to find a balance between collective values and the pragmatic approach of solving strategic problems, it enhances the capacity for interactive learning, transforming new knowledge into coordinated action (Brown, Bennett 1995). SSD main goals are (Van Tulder et al. 2004):

1. Achieving better solutions for complex problems by incorporating input from a wide variety of stakeholders, by seeking to incorporate new technologies, and by integrating different insights and generating new insights;
2. Bringing together the most important stakeholders and building mutual trust, preventing information asymmetry, sharing responsibilities, and creating commitment at top-management level;
3. Creating effective win-win situations, by putting people first during the searching, selecting and implementation of policy options.

To ensure that SSD achieves these goals, the process must adhere to the following principles: cooperation, effectiveness, flexibility, inclusiveness, legitimacy, learning, ownership, participation, fairness, accountability, transparency, voices (Van Tulder et al. 2004). Nonetheless, SSD is about tangible issues and responsibilities in which parties look for shared, suitable and realistic solutions. It demands for stakeholders firmly grounded in the reality. This approach is not able to put into discussion the current society's organisational patterns, behaviours and beliefs, that is, the actual 'socio-technical system'. Being SSD tool addressed to "the most important stakeholders", does not support not-empowered communities to unlock social innovation and system change. For promoting innovation and knowledge and alter current systems, two elements are required: niches, such as protected spaces for developing and experimenting new practices, and external landscapes, that is, local communities independent from vested interests, lobbying and regulatory capture, which can create significant lock-ins (EEA 2016). These niches are small networks of stakeholders supporting innovation based on shared expectations and visions, and creating new practices and behaviours by learning and experimentation. It is important to clarify that transitions cannot simply be planned and organised in top-down manner and, probably, could bring to a "creative destruction", which could affect economic interests, creating conflicts and power struggles. These processes are long-term and involve the emergence and upscaling of multiple niche of innovation over short time scales in a co-evolutionary approach. An effort for developing niches of technological innovation is the Strategic Niche Management (Kemp et al. 2005), which creates and develops protected spaces by means of experimentation, with the aim of learning about the desirability of the innovation and enhancing the rate of its application. However, it did not guarantee any institutional embedding and community empowerment. A similar tool is the Transition Management (TM), used for 'managing' transitions to sustainable energy, mobility, agriculture and the sustainable use and management of natural resources (Kemp at al. 2005). TM is a bottom-up

approach for stimulating, developing and supporting real-life experiments (Living Labs) in a goal-oriented modulation, aimed at shaping processes of co-evolution and co-creation. It allows communities to explore alternative social trajectories in an adaptive, forward-looking manner, combining the capacity to adapt to change with the capacity to shape change (Rammel et al. 2004) and is concerned with positive goals (collectively chosen by society following a process of problem structuring).

TM relies on the interaction between processes at three levels: strategic (processes of vision development, strategic discussions, long-term goal formulation, etc.), tactical level (processes of agenda-building, negotiating, networking, coalition building, etc.), and operational (processes of experimenting, project building, implementation, etc.). At each level, specific types of actors participate, specific instruments are used and different competencies are needed. Experimentation processes are aligned through a combination of four different clusters of activities: the strategic transition arena (problem structuring and vision development), tactical transition coalitions and networks (agenda-building, transition-paths), operational experiments and projects and finally the monitoring of progress (both in terms of process as well as content), evaluation and adaptation. Promoting a local community experiment generates new insights regarding the experiment and its direct context, but also regarding the long-term goals and visions. From a co-evolutionary perspective, that activates a continuous reflexive learning cycle between experiments and innovations (learning-by-doing). The acquired knowledge, then, empowers the pioneering community, which develops long-term strategic visions and goals (doing-by-learning), at the heart of Sustainable Development.

STRATEGIC TRANSITION MANAGEMENT: A FUTURE PERSPECTIVE

The community empowerment throughout TM experiments provides new realistic stakeholders to SSD, creating an integrated management tool, the Strategic Transition Management (STM), based on local communities' experiments and empowerment, and a multi-level strategic dialogue. STM approach is community-oriented, experiment-based, addressed to social innovation, and promotes co-design thinking and collective learning. It can uncover practices, imaginaries and local cultures associated with the heritage, renewing community interpretation, and stimulating knowledge and the perspective vision of communities. Heritage landscape becomes an experimentation place, in equilibrium with nature, re-associating multiple uses and giving capacity for development at all levels (regional, local) and all temporalities (short and long term, momentary and events, etc.). It will generate positive and self-sustaining 'natural' interdependencies, a place of identity and attractiveness. STM would activate such a favourable environment from both social and economic point of view. By experimenting activities through Living Labs, STM promotes a local community's positive evolution, building capacity in the involved regions,

among public bodies, communities, private companies, practitioners, academics and any other stakeholder. The acquired knowledge can finally sustain the cultural heritage vision as an economic resource and a crucial element for recovering individual and collective identity, and building social inclusion and cohesion.

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N°2

ITALY & CHINA
*Joint Initiatives for
Cultural Heritage*

PRESERVING, MANAGING AND ENHANCING THE ARCHAEOLOGICAL SITES: COMPARATIVE PERSPECTIVES BETWEEN CHINA AND ITALY

Italy and China, although they are very different in geographical scale, have the bigger number of World Heritage sites included in the UNESCO List. Thus, apart from the most famous and frequented areas there is a multitude of lesser-known sites, including many archaeological sites, suffering from poor local development, the lack of adequate conservation interventions and enhancement, and limited tourist flows.

Nevertheless, all these sites have to face daily issues related to conservation, management and enhancement.

These are not simple issues to deal with, given that these actions are part of a broader and more intricate framework of interconnections of economic, political, social and cultural factors, determined not only by local and national dynamics but, often, by global trends.

The volume collects the contributions of a multidisciplinary team of scholars and representatives of local authorities with the aim of presenting a review of positive and current cases in both nations in the field of conservation and restoration, management and promotion of archaeological sites, aiming at creating a shared knowledge base, useful in identifying joint research solutions and initiatives.