OUTCOME OF THE REPRESENTATION OF ARCHITECTURE: IMAGE AND MEMORY

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“ABSTRACT:

The research carried out the identification of territory districts and fences of urban and rural housing both in Caserta and Naples areas, both representative of the economical, social and architectonic development of their environment. The news of the studies on the birth of the modern architecture in Caserta, Naples and adjoining territories were carried out by elaborating a grid of knowledges which pointed out the key connections (attraction indexes) with which the architectonic elements and their environment are enjoyed. From the key connections, where the exchange processes among urban environment, social culture and civil society are formalized, the extent characterizing the role of modern architecture arises, whose uniformity on the territory constitutes the fences having territorial, environmental and architectonic value. The research results are: 1- preserving and valorising, within the Convention on the preservation of World Heritage Centre UNESCO, the cultural heritage, both material and immaterial, of the examined territory; 2- apply the European Convention on the Landscape through “public sensitization studies” to increase the environment quality; 3- identify and localize urban landscapes having great historical and cultural value for the Atlas of Landscapes. The realization of the research was carried out with different Work Packages (WP), among them: 1- the architectonic culture, 2- the communication process. Within the computer representation, the sector of the communication of the anthropic, urban, archaeological, environment assumed great importance being addressed to optimize: the historical and cultural value of the urban and rural environments, the images heritage with the relevant concepts of visibility of the environment.

INTRODUCTION

The research Outcome of the Representation of Architecture: Image and Memory works for the definition of the transformation processes of the anthropic environment in Campania, both at the urban small scale, such as the rural one (microcosmos), and at the urban great scale (macrocosmos). Therefore it identified territorial districts and fences of urban and rural housing (cultural, tourism, production) both in Caserta and Naples area, representing the economical, social and architectonic development of their environment. The district generally arises from an external intervention aiming at the creation of one or more factors which may give rise to mechanisms of territorial development. It has a character of great diffusion on the territory and furthermore it is concerned with a technical-scientific theme involving more sectors and production areas.

In a cultural district supported by computer science technology, the transfer of knowledge performs a role of vital importance as the innovation process is fed by the circulation of the knowledge - Knowledge in Action. The same strategy of the districts internationalization necessarily passes through the presence on the territory of actors (stakeholder analysis) being able to activate the circulation of the innovations fit for the identification of the best intersection point among processes of involvement of the entrepreneurial system, research world and successful experiences in other contexts (Italian Law no. 80/2005). The studies on the birth of the modern architecture in Caserta, Naples and adjoining territories were carried out by elaborating a grid of knowledges which pointed out the key connections (attraction indexes) with which the architectonic elements and their environment are enjoyed. From the key connections, where the exchange processes among urban environment, social culture and civil society are formalized, the extent characterizing the role of modern architecture arise, whose uniformity on the territory constitutes the fences having territorial, environmental and architectonic value (conceptual model of destination competitiveness and sustainability, Ritchie e Crouch, 2003). The scope is get by a diffused computerization of the territory districts and architectonic fences, a competences network and a Knowledge-network in tune with a strategic vision of the new design of the city (Convegno Nouvelles Villes de Design, Montréal 2005). That to stimulate the social dialogue among different cultures (2008, European Year for Intercultural Dialogue - EU) and involve the citizen-consumer on the future of their own urban environment invested by the economical globalization process. The network of competences built on an economical-cultural model – environment (prototype), has as its spin-off the preservation, valorisation and safeguard of the landscape and cultural heritage, intended as resources – income for a model of eco-sustainable development. All that considered within a Fence of goods of the collective memory, as an aggregation moment of the strategies for the territory development and for the synergic process among competences of scientific research and market. For such reasons, the competences for the modern architecture and its environment should be acquired also for the rural architecture and its landscape, preserving the historical memory of the urban social culture. The computerization process naturally gave great importance the sector of the communication of the anthropic, urban, archaeological environment aiming at optimizing: 1-the historical and cultural value of the urban and rural environments according to the directives of UE, Ministry for Cultural Activities, UNESCO; 2- the images heritage with the relevant concepts of visibility and recognizability of the environment, as well as the value of identity of the places of the new cultural districts. The computer technology allows to us to reconstruct the urban fences with the architectures. In these virtual environments it is possible to input our project ideas to manage and control the transformations of modern urban environments.
and forms of architectures, in tune with the social, infrastructural and technological mutations. The research aims at: 1- identified territorial districts and fences of urban and rural housing, 2- elaborating a grid of knowledge which pointed out the key connections (attraction indexes); 3- constitute a cultural presence interfacing with technical and cultural institutions, universities; 4- safeguard the collective memory.

Reference to related work

The research is the result deriving from more aspects of the activity carried out for the: 1- Draft Agreement between MIUR, Ministry of University and Scientific and Technological Research and CNA, National Council of Architects PPC (1999); 2- Convention between Naples University Federico II and the Company BONIFICA s.p.a.: Progetto Urbanistico dell'Area Costiera Vesuviana: analisi del sistema di scambio tra i Distretti Territoriali e i Recinti Architettonici- Italy; 3- C.N.R., three-year research: L'Ecosistema Vesuviano, Analisi dei sistemi territoriali significativi nell'area costiera (Napoli); 5- the 11th International Forum UNESCO, Florence (2006); 6- the Publication of the research Architettura Rurale tra Villa Literno e Carinola (Ce), Alinea Editrice, Firenze 2006 (Second Publication of the research, Florence 2006; 7- the Publication of the research, Univ. of Naples, Italy) and distributed both in Europe and United States (M. Shamansky, Bookseller Inc. – N.Y., Frances Loeb Library – Harvard University). N°18 Patronage: European Council, Ministry of cultural heritage and environmental conservation, University of Malta – Links Campus, European University Centre for cultural Heritage, etc.; The research was selected and synthetically reported in the Final Reporter of the 11th UNESCO International Forum – University and Heritage, Florence 2006; 7- the Publication of the research, Le trasformazioni dell'Amiente Casertano dopo i Borbone, Alinea Editrice, Firenze 2006, (Progetto Giovanni Ricercatori - Second University of Naples, Italy). N°12 Patronage: Ministry of cultural heritage and environmental conservation, Università de Valencienes (Lille), European University Centre for cultural Heritage, etc.; 8- the Publication of the research European Network per la Gestione e la Comunicazione della architettura moderna a Napoli: Indentify, Connect, Elevate, (University of Naples, Italy) Officina Editori 2007 (protocollo tra l’Università e la Società Bonifica s.p.a.). The paper is included in the proceedings of the XXXIV IAHS World Congress, Naples, Italy 2006.

MAIN BODY

The general objective of the research was followed by including three levels of investigation applied to the territory and the architectonic manufacts: First level (L1)-Work Package (WP) of the Communication, Second level (L2)-Work Package (WP) of the Fences Territorial and Architectonic, Third Level (L3)-Work Package (WP) of the interchange between environment and society. Figure 1

Each level was developed by different Work Packages (WP), each of them being characterized by a specific objective and including specific project actions (SWOT analysis): WP0 Check Plan, WP1 Analysis and Diagnosis of the territory, WP2 Analysis and description of the architectonic heritage, WP3 Survey and Representation of the architectures, Final Report.

Research guidelines

The territorial systems being object of the investigation are:

A) First level (L1) n°5 Work Package (WP) of the Communication

Urban architectonic culture of the Vesuvian and Flegrean coast area of Naples – Italy.

Final Report: WP1,WP2,WP3 (Surveys Drawings on sight – Geometrical analysis - Typological analysis – Graphs)

WP1.1-Organicity and Propotion; WP1.2-Architecture and Models: 3D Building Information Modelling; WP1.3 -New technologies used for sustainability of conservation; WP1.4-Architecture and Light; WP1.5-VRML, Interaction with the model and the architectonic fences. For the first level a protocol of Visual Communication is designed for spreading the acquired documents, and for designing new modes of visibility and use of sites with innovative technologic systems.

Thus, the network system is intended as a means of visibility for the urban history and encounters among different cultures. It constitutes a permanent training of competences. Organicity and proportion are concepts being present in the constitution of fences having great architectonic value where the modern function joins the culture of the past. These architectonic environments, being complex due to the joint presence of functional and formal parameters defining the character of the architecture landscape, are considered fundamental for the psychological equilibrium of the citizen-user and for the improvement of the cultural life of the future generations. Yet, it appears necessary to report Gregg Lynn opinion who thinks that the proportion and composition concepts are old and residual from the Modern Movement as they can be harmoniously achieved with some numerical series of algorithms of the computerization process. The computerized systems aim at defining a protocol for vector drawing and 2D and 3D stereophotogrammetry of the architectonic space. The study on some modern urban environments in Naples is able to utilize part of DASSACH modular system, Data Acquiring and Sharing System for Archaeology and Cultural Heritage, (University of Naples Federico II) providing for DATARCH applicable, a module referring to archaeological cultural assets. DATARCH system, besides offering the management of a data base on the net, may be utilized for these studies, as one of its specific modules, Variable Transparency Image Stacker, by overlapping layers at controlled transparency of the orthophographs of the architectonic plans, introduces the synchro-diachronic photograph. In fact, the Stacker allows the user to select various orthophographs of the different layers, to overlap them in order to dynamically reconstruct a three-dimensional vision. The working steps were articulated as follows: 1- Photographic documentation of the architectonic site; 2- Image Enhancement (IE): 3- Identification of the significant geometric elements; 4- Referencing and orientation; 5- Model scale and elaboration of the geometrical elements necessary to describe the solid; 6- Texturing e texture mapping; 7- Production of stereoscopic model; 8- Exportation into suitable formats: dxf, VRML. It is possible to safeguard the sites under exam using specific technologies for the territory, the environment (Multibeam RESON SEBAT 8125 System, CASI 1500, ADS 40) and architectual creations (3D laser scanner, ThermaCAM SC.

![Figure 1. Documents and technological information](image-url)
exists, and for the ways of its diffusion, it may be considered a constructive element constituted by the form and the colour of the space”.

VRML. VRML light model is a useful instrument for modelling virtual environments, above all if they should be distributed through the Internet and the presentation, at a visual level, of the geometrical objects follows a conceptual model providing for the physical characteristics of light. The programmer has the possibility to easily represent virtual environments composed by many objects by the addition of multimedia elements.

B) Second level (L2) Work Package (WP) of the Fences Territorial (Ft) and Architectonic (Fa)

The second level details:

1-The rural-naturalistic “fences” delimiting architectures having a remarkable rural historical cultural value, such as those of the area between Volturno River and Monte Massico (Caserta), and the urban fences of Naples and Caserta areas,

2-The fences network. The territorial (Ft), urban and architectonic fences (Fa)

The territorial fences having naturalistic and anthropic value, environmental value and architectonic value can be found inside the “network system” where it is possible to give a full visibility to the cultural emergences and support the preservation and sustainability of the places. Through the fences network, it is possible to give visibility to the urban history of modern architecture and to the different cultures succeeding over the time and therefore: identify the sustainable development of the areas to be protected, constitute a cultural presence interfacing with technical and cultural institutions, universities (7th UE Framework Programme).

Moreover: 1.1,1.2-communicate the historical and cultural value of the Vesuvian and Caserta anthropic environment, 2.1, 2.2-represent and spread the image heritage of the modern architecture of Naples and Caserta by utilizing the parameters of visibility, identity and recognizability of the environment.


a) Fences having territorial value (Ft). The Vesuvian coast area ecosystem

Fences: Cultural - archaeological, production-tourism

The structure of the Vesuvian territory, from west to east, is constituted by two great systems: the anthropic system, identified along the coast and the Vesuvian naturalistic and geological system included in the Park of Vesuvius. Figure 2.

The coast area is identified by the consistency of housing, production and cultural systems (Pompeii, Ercolano, Stabia), landscape and infrastructural systems determining the local recognizability and identity. The territory is crossed by the motorway A3, by the highway SS18 and by the railways managing the linking with all the coast centres and the interchange among the same systems but, above all, overcoming the movement of persons and goods from North to South of the country, stressed by the transformations intervened in the coast centres both after the war and after the earthquake occurred in 1980. Ft1-The ecosystem of the Vesuvian area: The central and eastern coast areas; Ft2-Sites protected by UNESCO: Pompeii, Ercolano, Stabia; Rt3_Urbanization to the Municipality of Torre Annunziata area (Naples) – Italy

1.2 – Reference: Publication of the research Rural Architecture between Villa Litterna and Carinola (Ce), Alinea Editrice, Firenze 2006.

a) Fences having territorial value (Ft). The rural landscape and the historical cartographies

Fences: Cultural - archaeological, production-tourism and agricultural. Final Report: WP1, WP2, WP3 (Rural landscape – Farmhouses – Royal Sites)

The research followed the reconstruction of the rural world from the territorial, social, urban point of view in the area of the ager Falernus, ager Statanus and ager Campanus. Furthermore, part of the study was referred to the Royal Sites (Shooting Lodges) as they constitute a rural settlement type particularly remarkable under the architectural point of view. The basic topics which gave elements of great novelty to the research are reported here: 1. The rural landscape and the historical cartography, 2. The Roman urban culture: Centuratio, 3. The great Farms, The Typology of the great Farms, 5. The Royal Sites, 6. Historical development of Urban Centres from Romans to Bourbons in work field (Caserta);

In the cartographies, the farms mostly built on the villae rusticae, constitute an important topographical reference, both for the localization of the ancient agglomerations - pagus, vicus...
and disappeared cities (Forum Pompeii e Urbana) – and of the road maps being joined with the Roman planning organization. The farms Limata, S. Janni e Angiolillo are important evidences of ancient Roman sites whose remembrance is still present in the social culture. The layout of the gully drains in the Roman parcelling out is still visible in the I.G.M.I. charts, recovered from air photographs, and it is more interesting if compared with Savarese cartography (1856). He marks the practiced roads with a continuous line and the ager Falernus roads (decumans and cardines) with a dotted line. Figure 3

It is thus found, with sufficient accuracy, the ancient organization of the territory with its centuriation and the hatching of the gully-drains of the hills waters. The infrastructures of the territory were represented by the centuriation including small rural centres and urbanized commercial area with autonomous administration.

b) Fences having architectonic value (Fa)

Great Farmhouses (Fa1). Farmhouses–Monastery Pelliccia, Villa Literno (Ce), 2-Great Farms Annunzata, Bianca, Bevilacqua, Cardogna, Diana, Pelliccia, Villa Literno (Ce) 3- Great Farms Angiolillo, Carinola (Ce); 4- Great Farms Casoni Saraceni (Ce); 5-Great Farms and Limata Vecchia Chapel, Carinola (Ce); The farmhouses are production microcosms animated by simple and essential relationships whose memory is preserved by the tradition. Being built on ancient Roman villae rusticae structures, and strategically located for the economical development and military organization of the territory, they were located on great road junctions (cardines and decumans) linking with pagnus, vici and statio and with the urban centres between the coast and the hinterland and they are still nowadays topographical references of historical places and infrastructures of the territory as occurs for the farmhouses Limata, Angiolillo, S. Janni or Santoianni, S. Aniello, Aceti, S. Angelo and Starza. Figure 4

The position of these factories was strategic for the economical development and for the military Typology of the great organization of the territory as they were located, as nowadays, on the great road maps linking the coast to the hinterland farmhouses. In he course of the present research, the building. The environments for the residence of the peasants, animals shelter, deposit of tools and farming products, the Figure 4. The chapel, oven and well were grouped in the following scheme: Residence: a) bed area, living area – kitchen and great fireplace-larder, c) oven, d) well, e) stairs f) WC. Work: a) stable, b) hay loft, c) working tools, d) warehouses. Place of worship: a) Inside chapel, b) Outside chapel. From the analysis it emerges that, from the distributive point of view, the farmhouses may be divided into two great typological blocks with all the above referred organized functions: a) inside a compact architectonic volume; b) inside architectonic volumes arranged around the astrico.

Royal Sites (Fa2). Royal Sites of San Silvestro, San Leucio. The presence of Bourbons in the Work Land should be put into relationship with the rural settlements which they realized in their great possessions on the plain and on the hills for the organization and management of the whole territory, besides the important realization of Caserta Royal Palace.

The Royal Sites in the Work Land gradually become real farms, differing under the production profile. They gave a remarkable impulse to the economy and required the realization of roads and drainage works in a programme of “integrated intervention”, adapted each time by the Bourbons according to the new production needs.


Final report: WP2, WP3

The studies on the rise of modern architecture in Naples (western, eastern and hilly areas) were carried out in relationship with the Vesuvian environment. The realization was performed with different Work Packages (WP): 2.1- Flegrean western area, taken into examination starting from the Aagnano bonification until the transformation of Fuorigrotta area from a suburb to a modern urban area; 2.2- Vesuvian eastern coast areas and the eastern areas of Arenaccia, San Giovanni a Teduccio, etc. in Napoli; 2.3- hilly area.

Le typological-functional analyses were elaborated by identifying the environmental and urban fences of public and private residential housing having a great cultural value. The Vesuvian and Neapolitan territory was examines according to the tourism, historical-archaeological, production and planning- architectonic aspects as they, due to their extension, come within the urban planning systems.

Architectonic fences (Fa)

The urban renewal plan of 1939 of Fuorigrotta area marked the modern urban transformation of the western city being limited to the area of Chiaia. The plan provided a large road, having separated lanes from Piedigrotta tunnel (restored in 1940), until to the great piazzale Tecchio (already Empire square) seat of the entrance to “Mostra delle Terre d’Oltremare” which still develops on 70 hectares of land covered by buildings divided
The remarkable dimension of the intervention performed in 1940 produced irreversible transformations in its ancient tissue. In the post-war period, in fact, a great housing expansion took place with Rione Traiano, Rione Torretta, Rione San Paolo and parts of area adjoining the great interventions.

The modern architecture in Naples in the western area (Fa1)

A- Mostra d’Oltremare, Quartiere Fuorigrotta, Napoli, Italy; 1- Torre del PNF, Venturino Ventura architect, 1940; 2-Palazzo degli Uffici, Marcello Canino architect, 1940; 3-Fontana dell’Esedra, Carlo Cocchia architect, 1940;

B- Stazione Mostra della Cumana, Stazione Leopardi della Cumana, Quartiere Fuorigrotta, Napoli, Italy; Frediano Frediani architect, 1939 Napoli, Italy;

C- Ville residenziali, Quartiere Posillipo Napoli, Italy; 1-Villa Crespi, Pacanowski architect; 2-Villa Oro, Luigi Cosenza e Bernard Rudosfky architects;

The modern architecture in Naples in the eastern area (Fa2)

1- Areas of public residential housing.

The subdivision in architectonic fences of the western and hilly territory of Naples is reported here below with the surveyed works Fa1. Figures 5, 6, 7

2.2 – Reference: Publication of the research transformations of Caserta Environment after the Bourbons (Caserta), took into examination the transformation process of the rural area of Caserta farmhouses from Roman century to urban structure

Fences: Cultural, tourism, production (Research Centres)
The eastern area of Naples, with the tangenziale, became a zip-area among the city, the circumvallation to the Vesuvius and the Campi Flegrei. The great cultural-tourism-archaeological systems (Park of Vesuvius, Vesuvian vilas, historical parks, archaeological excavations, coast), transportation systems (SS18, A2, railways, ports) “urban systems” (historical, environmental and economical housing) and the “productions systems” (agricultural, industrial, collective services, commercial and artisans centres) defining all together the “great Vesuvian system” are all linked to this zip. This system, heritage of the international Community, is a territorial fence to be preserved for its peculiarity. The above referred territorial systems interact among them, upstream and downstream of the road and railroad The structure of the interchanges which was analysed on al the coast Napoli. (WP) whose paragraphs are “spin-off” of the investigation and research work. Figure 8

WP9 The Municipality of Torre Annunziata. Subtitles: - the urbanization of Torre Annunziata -l zoning,- the texture of the roads and railroads infrastructures, - the plain roads and the housing expansion, - the collective services in the urban and production tissue, - the lava and artificial channels of the Municipality,- the exchanges upstream/downstream of the channels among the main systems of the Municipality, typology of the 7 main exchanges. Geometry of the interchanges or a high number of interchanges concentrated on the same knot express a difficult relationship with the urban and natural (environmental pollution) and the large archaeological areas protected by UNESCO (Pompei, Ercolano, Stabia). The collected material was organized into eleven Work Packages area, duly divided into 15 study areas being significant and equipped with the relevant synthetic files showed that a remarkable number of knots concentrated in a restricted place, plans, in points defined “critical knots” of the environment.

Results

The research aims at: 1- preserving and valorising, within the Convention on the preservation of World Heritage Centre UNESCO, the cultural heritage, both material and immaterial, of the examined territory; 2- apply the European Convention on the Landscape through “public sensitization studies” to increase the environment quality; 3-identify and localize urban landscapes having great historical and cultural value for the Atlas of Landscapes (European Convention of Landscapes).

Conclusions

The architectonic culture of the anthropic environment of Alto Volturino. Thanks to the third level, the critical knots (indicators) were found which characterize the territorial fence, corresponding to the intersections of the Roman century. Such critical knots define the urban planning systems as well as the cultural-archaeological, architectonic, production-tourism and agricultural systems prevailing on the territory.

Urban area of Caserta. The production, cultural and architectonic systems (San Leucio monumental and industrial complex, Reggia di Caserta) and the landscape systems (Caserta Royal Palace, Park, road infrastructures) interchange with the landscape and architectonic emergences being distributed at a strict contact with the Roman century of the city of Caserta. The urban architectonic culture of Naples (western and hilly areas).In the latter one, the two levels are characterized by critical knots or indicators of the environment favouring the interchange among the images heritage and the citizen-user (Mostra delle terre italiane d’Oltremare).

References from Books


Acknowledgements

In May 2006 the publication of the research, Architettura Rurale tra Villa Littorio e Carinola is was presented at the Commission for the Competition “Alla Ricerca di Talenti, Premio Nazionale Roberto Marrana” - ITALY, was thought worthy of mention and it was synthetically published in the volume edited by the Editor il Sole24ore. Moreover, Alessandro De Masi was included in the Team Research “The Rural Vernacular Heritage International 2007-2011” by the World Heritage Centre UNESCO, with 14 partners: University of Aix-Marseille I, Universidad Politécnica de Madrid, Simmons College, Boston, etc.