CITIES IN TRANSITION

La scuola di Pitagora editrice

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editrice

Faculty of Architecture and Urbanism
POLYTECHNIC UNIVERSITY OF TIRANA

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CITIES IN TRANSITION

- Sustainability
- Formal and informal settlements
- Memory of places

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FOREWORD

While living, working and contributing in our cities, it is quite impossible not being confronted with the frenetic development of their [our cities] reality. This is often an uncontrollable development, which is deeply connected with important economic, social and cultural factors, but at the same time connected with many complex problems. Therefore, they deserve the special attention of researchers, especially the researchers in the fields of architecture, urbanism and urban planning and development. In this regard, IFAU Tirana 2017 – 1st International Forum on Architecture and Urbanism: "Cities in Transition" have been an important contribution, which transforms these complex problems in constructive debates, studies and scientific research, and by proposing sustainable and scientific solutions.

On the other side, IFAU Tirana 2017 have been a very good opportunity for the Polytechnic University of Tirana, Faculty of Architecture and Urbanism, to identify and present the best values of the scientific studies and research, not only in the fields of architecture and urban planning, but also in regards of the doctoral school attached to the Faculty, through these three important research topics: Sustainability, Formal and Informal Settlements and Memory of Places.

The most important merit of IFAU Tirana 2017, stands in the fact that the topics and problematic raised in this forum were part of a solid collaboration and partnership with international partner Universities and researchers in Europe and beyond. IFAU17 has gathered scientists, researchers and scientific academics to exchange and share their experiences, their research results in relation to broad aspects of Architecture and Urbanism, but also to present and discuss over innovations, new trends and concerns, challenges, encountered practices and solutions approved for cities in transition.

My sincere appreciation comes for all the researchers and scientists, Albanian and international ones, and for their valuable scientific works, selected by a very competent International Scientific Committee, composed of Albanian and international prominent personalities in the fields of architecture and urban planning.

Gratitude, respect and encouragement for the organizers of IFAU Tirana 2017 – 1st International Forum on Architecture and Urbanism "Cities in Transition", for their maximum dedication, and their competence in the successful organization and progress of this forum.

For all the above reasons, I express my highest considerations for these publication with the best papers presented in the IFAU Tirana 2017 – 1st International Forum on Architecture and Urbanism: "Cities in Transition", and for all the great work done with professionalism, passion and dedication, and most importantly with a high level of scientific research, which deserves not only higher appreciation, but it gives faith and encouragement to continue organizing further successful scientific research activities in these fields.

Prof. Dr. Andrea MALIQARI
Rector of Polytechnic University of Tirana

INTRODUCTION

IFAU Tirana 2017– 1st International Forum on Architecture and Urbanism organized by Faculty of Architecture and Urbanism, Polytechnic University of Tirana-Albania, and Faculty of Civil Engineering and Architecture, University of Pristine - Kosovo aimed to bring together leading academic scientists, researchers, and research scholars to exchange and share their experiences and research results about all aspects of Architecture and Urbanism. It also has provided the premier interdisciplinary forum for researchers, practitioners, and educators to present and discuss the most recent innovations, trends, and concerns, practical challenges encountered and the solutions adopted for the Cities in Transition.
The forum aimed to address various aspects of the urban development of cities in transition. Of particular interest for the conference were sustainability development,formal and informal settlements and memory of the cities. These cities are undergoing one of the fastest rates of development in the world. However, this rapid, often erratic, and sometimes traumatic growth has not occurred without unwanted consequences in the built environment. The "Cities in Transition" forum aims to examine and discuss solution-oriented, practical methods for implementing sustainable development, and to stimulate more ideas and useful insights regarding architecture and urbanism within the context of sustainable development. It has been organized into three parallel sessions.

SUSTAINABILITY

The increasing urbanization of the Cities in Transition coupled with other globally critical issues such as environmental pollution, energy consumption, and resources shortage are resulting in major urban crises in many parts of the world. A strong emphasis nowadays is placed upon improving the sustainability of the urban environment. This is attributed to the growing public awareness of the importance of "sustainable development" practices, which also enhances the quality of life. Municipality governance and the construction industry in the cities are confronted by the push for sustainability. A fresh and holistic approach to designing, constructing and managing the built environment addressing building and spatial environment of the Cities in Transitions required. New sets of regulatory practices, indicators, measurements, and priorities are emerging with the application at all scales – from individual buildings to the district and city-scale level.

FORMAL AND INFORMAL SETTLEMENTS

There is a growing attention for informal settlements and economies as important urban phenomena worth the attention of urban planners, designers, and policymakers. We are witnessing a big raise in studies and projects on informality by architects and urban planners. There is a general belief that these informal structures possess an untapped potential to contribute to urban development.
Nevertheless, there is a substantial lack of knowledge on the concept of informality. In the first-place, informal systems are strengthened by the public sector's neglect of socio-spatial exclusion in cities. At the same time, the incorporation of the

informal structures in the formal urban development framework can erase the unique qualities and opportunities which informality brings to urban life.

MEMORY OF PLACES

Heritage is deeply linked to the concept of identity, providing a shared way for people to identify with the world around them, the past that has led to the present, and the future that may unfold. Heritage buildings exhibit a set of features, that guarantee a particular place's distinctiveness and continuity in time and are endowed with meaning through their use by successive generations.
Continuing the discussion of rapid urbanization, this session will examine how identities shift as heritage evolves in urban contexts, looking at the formation of community, memory in architecture, the economic potential of built heritage, and the need for both construction and destruction to allow traditions to continue to adapt to retain their relevance.

Prof. Dr. Florian NEPRAVISHTA
Dean of Faculty of Architecture and Urbanism
Director IFAU

Sustainability

Sustainability

1

CROSSING SIGHTLINES – LOOKING ACROSS THE ADRIATIC

Lorenzo Pignatti

Abstract

The article presents a series of crossing sightlines spanning the Adriatic, originating in Pescara and looking toward the cities of the Adriatic Euro-region and the Balkans (Rijeka, Zagreb, Belgrade, Split, Durrës, and Sarajevo).
The article addresses the reading and interpretation of contexts, defining processes and strategies of urban regeneration and recycle mostly of abandoned urban sites. The work presented has been done by students and a research group of the Università G. D'Annunzio, Dipartimento di Architettura - Pescara, Italy, through a series of international design workshops held in different cities of the two sides of the Adriatic.
The work is founded on an updated geo-urbanistic vision of the entire Adriatic and Balkan region that sees culture, creativity and the strength of ideas as the principal tools for creating bridges and establishing connections. To a similar degree, the relationship between geography, urbanism, and architecture is adopted as the possible new matrix of its identity.

Keywords: Adriatic, Balkans, identity

Introduction

The privileged view afforded to the city of Pescara looks east. Not only because it faces the waters of the Adriatic Sea, but also because it looks toward a world that, for certain aspects, is different, fascinating, and filled with complex stories. Pescara looks toward the Adriatic/Balkan region.
In Italy, we are perhaps all too accustomed to looking toward the West, toward nations we consider more familiar, countries we have crossed and visited many times and which feel closer to our culture and our expectations. We have certainly traveled less frequently through the countries to the east of the Adriatic, in the Balkan region. We are not accustomed to this region, perhaps owing to its relative isolation prior to the 1990s, to a lack of rapid and commercially competitive itineraries and, surely, also to a lesser familiarity with these contexts.
These crossing sightlines from Pescara toward the Balkans and from the Balkans back toward Italy offered us the chance to know and to critically appreciate many aspects of the culture of the Adriatic/Balkan region. A region that is physically close, but whose many complexities mirror the strong diversification of ethnic groups, cultures and religions that has developed throughout the centuries in a geographic environment that, for social, historical and cultural reasons, has always been a middle ground, a region "between" East and West, between Islam and Christianity, between capitalism and communism.

The Adriatic as an ellipse

As already mentioned, the privileged view from Pescara is undoubtedly that which faces east. Toward the space of the Adriatic, an enclosed basin of water, contained and familiar, effortlessly crossed by navigators, merchants, pirates, and fishermen through the centuries. This sea is the deepest gulf in the entire Mediterranean, once the Gulf of Venice. A contained and "small" sea that in many maps is represented with the form of an ellipse whose vertex is Venice, enclosed at the bottom by Leuca and Buthrotum. An ellipse does not have a center, but instead features two focal points; it transmits the concept of a dynamic form in a process of becoming, which is not absolute.

The ellipse creates equality between any point and the sum of the distance between it and the two foci. In an ellipse, any point positioned along the curve and linked by two straight lines to the two foci generates two points on the opposite side of the curve. The points are thus doubled with respect to a normal circle, creating a dense pattern of reciprocal correspondences, where one corresponds with two on the opposite side. Unlike the circle, an ellipse is a cylindrical form that creates multiple relations and thus movements, flows, and correspondences.

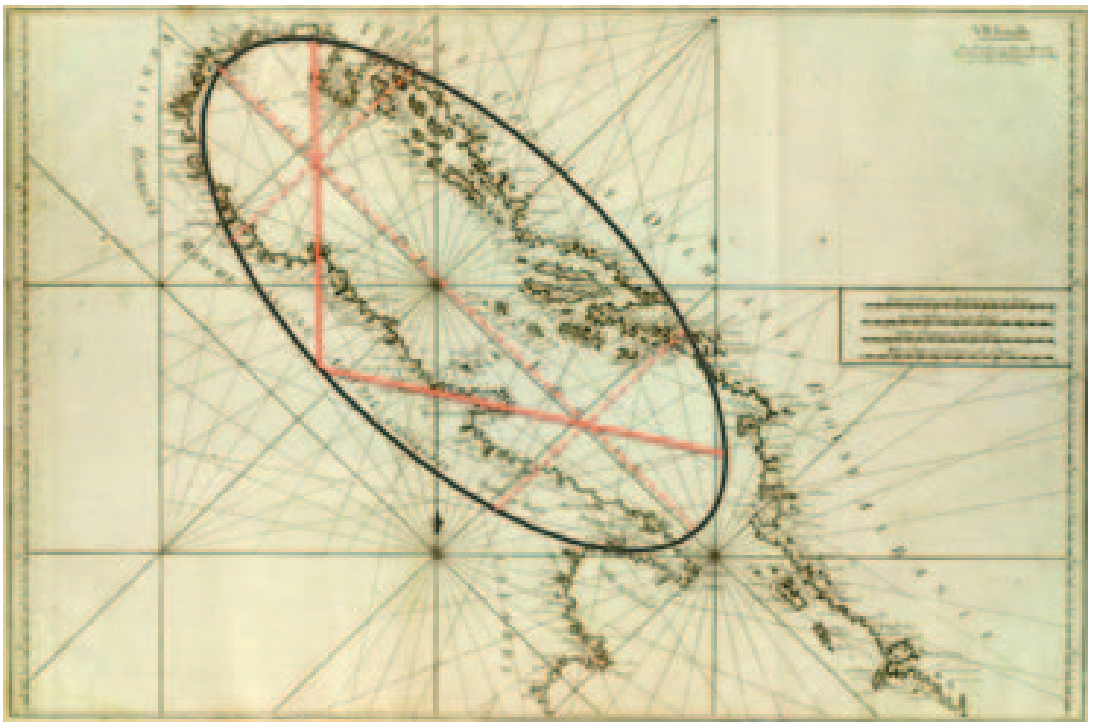

Figure 1: The Adriatic as an ellipse.

The ellipse is the virtual geometric form that contains the Adriatic and functions as a connection between its two coasts: the western coast, home to one nation, language, culture and religion – Italy – and the eastern coast, home to many nations, multiple languages, numerous cultures, and different religions.

Thus the ellipse belongs to the Adriatic. The elliptical form of historic maps depicts a closed space, a sort of "Lacus Nostra", or "Gulf of Venice". It was dominated by the city of Venice, whose domain extended along the line of the ellipse, primarily along the eastern coast of the Adriatic Sea, and beyond.

This means it is possible from any point along the western coast to draw two lines, or itineraries, originating at the focal points and observing two points on the opposite coast. These lines are our crossing sightlines, drawn across the Adriatic, and beginning in Pescara.

An account of a number of different sightlines

Rijeka

The first sight-line looks toward the northernmost city of the Eastern Adriatic: the city of Fiume/Rijeka, straddling the border between east and west, between Italy and the Balkans. In Rijeka, we experienced the concept of limes, a frontier condition. For many years the city was a difficult and severe border, coinciding with the river running through the city, from which the city takes both its Italian and Croatian name (Fiume and Rijeka, respectively Italian and Croatian for river). In Rijeka we experienced a double culture: the Venetian, walking through the city's main public space, the Korzo, and the Austro-Hungarian, evident in the beautiful buildings defining its edges. In Rijeka we also observed the presence of the modern city of residential towers rising in clusters on the hillsides, offering a curious, and for us unusual, skyline. In Rijeka, we worked with the river's edge and in particular its mouth. Over the years a small island formed here, an island that is now empty and partially abandoned, yet with the potential to become a new and vital piece of the city. No longer has Roman, Venetian or Austro-Hungarian, but a piece of the contemporary city, fully aware of belonging to the Adriatic/Balkan region and representing the identity this region wished to transmit. We worked with the edge of the city and the river, between the city and the sea, looking toward the Adriatic.

Figure 2: Workshop "Public L", Rijeka 2011. Model Group the Unversity of Pescara.

Figure 3: Pescara and Rijeka face to face.

Zagreb

Zagreb is located deeper into the heart of the Balkans, leaving behind Venice and traveling toward Middle Europa and Austria. In Zagreb, there is a stronger Croatian identity in the character of the city, its inhabitants, its architecture and its monuments. We observed how the socialist city was developed according to the classical canons of the Modern Movement and twentieth-century urbanism. In Zagreb, we worked in the interstices between the old and the new city, in the industrial spaces of the early twentieth century, now abandoned ruins, forgotten and lying alongside the vast spaces of modern mobility. In Zagreb we did not perceive the Adriatic because it was far from the city: however, we did perceive the true sense of the Balkans and an unrelenting sense of national pride.

Split

We then turned our attention toward the Croatian coast, to Split. Here we found the Roman remains of the impressive Palace of Diocletian. We rediscovered Venetian architecture and appreciated the Riva, the beautiful and unique public space between the Palace and the sea. We also re-encountered the beauty of the Croatian coastline and its landscape. In Split, we also found fragments of the modern city in the large broad corridors of the ambitious Split 3project from the 1970s, whose backdrop is the sea itself. In Split we worked with three different waterfronts: the first, the most historic, near Diocletian's Palace and the existing commercial port; the second waterfront is located in Poljud, where sport, tourism and outdoor living are fused in the nautical port; finally, the waterfront of Kopilica, a severe and tough location, near the large shipyards and in an area suspended between heavy industry and socialist realism housing. DWe sought to establish connections across new ecological urban corridors that could substitute decommissioned infrastructures, imagining that Split could acquire three portals toward the sea and expand its relationship with the Adriatic.

Figure 4: Split. Three urban water fronts. The group University of Pescara.

Durrës

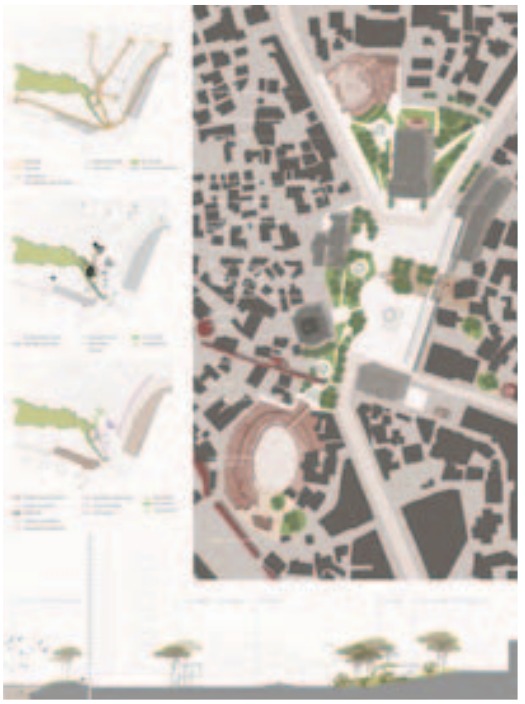

Figure 5: a), b): Durrës. Design for Illiria Square 2008.

Further south, in Durrës, Albania, we perceived a more difficult situation, as well as a strong desire to reclaim a position expressed by a population that has suffered so many deprivations and was subjected for so long to a single ideology, and is now determined to make up for the cultural and historic shortcomings it faced. In Durrës, we rediscovered Roman culture in the large Amphitheater and Byzantine culture in the fortifications and the beautiful Byzantine Forum, both archaeological fragments trapped inside a city that is unable to fully distance itself from an overly chaotic transformation. In the main square of Durrës, Illyria Square, we found the contemporary presence of a mosque, the Governor's Palace (now home to City Government) from the Italian Fascist years, the House of Culture from the Communist era and a truly ugly and clumsy skyscraper, a symbol of the new era of internationalist speculation plaguing the city. In this one place, we found a concentration, accrued over the years, of the symbols of different powers, religions, ideologies, and economies, concealing and substituting the historic Byzantine pattern that once defined the city. In Durrës, we once again worked with the waterfront to give a new identity to the city and create a diverse relationship between the city and the sea in front of it, unfortunately largely avoid.

Belgrade

We then traveled toward the inner regions of the Balkans, visiting Belgrade, though no specific activities or research were planned here. Belgrade, one of the most ancient cities in Europe, occupies a site of mythical importance to the region, at the confluence of the Danube, the most glorious river in the Balkans, and the Sava. Here a promontory is occupied by a complex and powerful fortress that militarily and symbolically controls a flat and vast horizon that extends into distant and unknown territories. The fortress, the two rivers and a Roman ship, evidence of the city's origins, can all be found on the city's coat of arms. Belgrade was a space at the margins of the Roman Empire, which ended here. Trajan built one of the longest bridges that ever existed across the Danube not far from here. It was the border between the Western Roman Empire and the East, as well as the border between the Ottoman Empire; Belgrade is thus the final border along the limes of the Danube.

In Belgrade, Tito built a new city, Novi Beograd, perhaps the most successful attempt of the post-war socialist modernization in the Balkans and in Europe. It is a vision in which modern architecture and urbanism play a leading role in defining the identity of place. It is a city that has become a model of the wonderful equilibrium expressed by Tito with the Non-Alignment policy. At the confluence between two rivers, he built the seat of the Federal Executive Council, an urban node in the new city that develops in urban lots immersed in a natural setting. Few other sites have been subject during modernity to such an ambitious and modern project.

Sarajevo

We then turned our attention toward the center of the Balkan Peninsula, arriving in Sarajevo. Our amazement could not have been greater. In the midst of the soft and narrow furrow cut by the Miljacka River, Sarajevo is a place where religions, ethnic backgrounds, cultures, languages, and traditions have coexisted for centuries, side by side, commonly and peacefully. Sarajevo is s small Istanbul, or better yet a small Jerusalem in the heart of the Balkans, not far from our Europe, or more precisely inside today's Europe. The first evening in Sarajevo we climbed the bastion of the Zuta Tabija (Yellow Fortress). Here we enjoyed a view of the entire city, whose foreground is dominated by the white stele of Muslim tombs (many killed during fighting in the 1990s); the background is dotted with the minarets of the Islamic mosques and the bell towers of the city's Christian churches. Almost as if in a dream, the mullah's call to prayers invaded the natural bowl that describes the form of the city and our minds; we became aware of being somewhere else, in a different and very powerful place.

Figure 6: Design Thesis by Danilo Crivelli, University of Pescara. Master Plan for Marijin Dvor, Sarajevo.

We learned to understand the city and how it grew in successive phases, built one beside the other, and not one atop the other. The first city in the Ottoman city (neither Roman, nor Venetian, as we had become accustomed), with the area of the market, the Baščaršija, constructed around a sequence of closed courtyards that form a dense and irregular urban pattern; the second city in the nineteenth century of the Austro-Hungarian period, with its symmetries and regular grid of streets, reminiscent of a small Vienna. This was followed by the modern and socialist city, imagined by visionary architects and urban planners who proposed a Le Corbusian city in the Orient, without ever fully achieving what they had hoped for. We thus learned how the city itself speaks of co-existence, as it grew in horizontal sequences and not in vertical stratifications, by which the new city covers and conceals the old one. In Sarajevo, we also observed evidence of the dramatic recent fighting; not only in the still damaged buildings and numerous urban voids created by bombs but above all in the hearts and minds of people, unable and unwilling to forget. In Sarajevo, we were drawn into the enthusiasm and charismatic strength of Enver Hadziomerspahic', who, during the bombings of the Serbian assault of the 1990s, imagined that Sarajevo could be reborn only through art. We thus worked with his idea, with his art collection and his project for the Ars Aevi, a museum of contemporary art that, together with two other existing museums, would testify to how culture can trigger urban regeneration.

We learned about "cultural resistance", a new term for us, accustomed to uniting the adjective "cultural" with such others as programme, initiative, function, etc., but never with a term that implies "resistance" to some horrible act. We learned that the power of culture can resist the massacres of war. This was a great lesson for us. In Sarajevo, all of the complexity and significance of the Balkan region dematerialized before our eyes. The Ottoman and the Austro-Hungarian Empires, Socialism and the new Europe, all exist very close to one another. The (prevalent) Islamic religion coexists alongside the Serbian Christian Orthodox, Greek Christian Orthodox, and Catholic religions, alongside that of the Ashkenazi and Sephardi Jews. Serbian and Croatian ethnic groups alongside Macedonians, Albanians, and Kosovars. All inside a relatively small city, though enormously complex and stratified in its diversified historic, religious and cultural traditions. As Predrag Matvejevic wrote, Sarajevo is "a city whose center is home to four sites of prayer, located a few hundred meters from one another; a situation that exists nowhere else in the world".Višegrad, the city of the bridge over the River Drina and Ivo Andric' is not far from here.

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2 CULTURAL VOIDS IN TRANSITION IN THE URBAN MULTICULTURAL CONURBATION OF NOVA GORICA–GORIZIA

Alenka Fikfak

Abstract

The research into "cities in transition" presented in this paper focuses on exploring border environments. Namely, the expansion of urban economies in Europe is experiencing an asymmetric process of regional integration and metabolization. This phenomenon has created a "new geography of centrality and marginality" (Bayat, 2000), which is characterized by contestation and continuous transgression between "formal vs. informal systems" in borderlands and border settlements. Border conditions are connected to the establishment of isolated urban voids and (dis)connections, which defines the occupancy of every-day spaces in cities and their spatial features. They are presented as zones of transition, significant to explore via historical maps and data as cultural landscapes and heritage, as a connection or disconnection between two or more nations. These environments in conflict can be analyzed through trans-urban (between various towns or cities) and trans-regional (between more regions, states, or countries) levels. Border conditions are manifestations of the complex dynamics of the built environment: transformation, mobility, transition, and interconnectivity between urban and rural, formal and informal, dense and vast, and existing and future morphology/typology of urban forms.
This paper discusses the cross-border context of a multicultural urban conurbation made up of Gorizia in Italy and Šempeter - Vrtojba and Nova Gorica in Slovenia. This adjacent urban tissue in the cross-border area forms an urban multicultural conurbation, which represents the regional center of the Goriška region. Nova Gorica was established after Second World War; in 1947 Božidar Gvardijančič drew up its first master-plan. This young city was the first part of Yugoslavia and since 1991 it has been part of independent Slovenia (with Slovenia an EU member since 2004). The Europe Square was opened at the border. The discussion is focused on spatial changes in border environments and questions of cross-border cooperation regarding connectivity of spatial voids.

Keywords: border conditions, transition, culture, voids, Nova Gorica, Gorizia

Introduction

Spatial dynamics as changes in urban morphology, due to economic and cultural globalization, demographic changes and migratory flows, urban planning strategies, social networks, and other factors are happening under diverse relations. Like all living organisms, cities are evolutionary open systems (Salat et al., 2014: 79). Research on the connectivity of urban forms indicates that the most functional towns are those with multiple numbers of interconnections at all scales, according to the fractal-like tree diagram (Zappulla et al., 2014). In exploring the questions of border conditions, in relation to voids and trajectories of transitions, it points to the identification, inventory, and evaluation of interconnections in urban morphology patterns.
Rypkema (2005), in Celebrating Our Urban Heritage on the Five Senses of Competitive Cities, defines the question of the cultural identity of the city as: "The second sense is the Sense of Identity. In economics, it is the differentiated product that commands a monetary premium. A city that in the long term wants to be a 'valuable place', however that is defined, needs to identify the attributes that add to its differentiation from anywhere else. The cultural, as well as the physical attributes of a city, will be critical to that differentiation", and cities or individual locations could greatly contribute to the recognizability and quality of cities.
If we take into account the parallel process of dynamic mobility within the social space (in terms of functional status and stratification), this indicates a tendency to DE structuration, flexibility, and fluidity, or even a transitional, short-term nature of different forms of social life (Mlinar, 1994: 149). Space and place operations in modern mobility represent a new spatial

organization (a grid or mix of networking spaces) connecting the key points in the built and natural structure, and the mix gives a new value to space/location: multi-layered forms of settlement patterns where settlement structures mosaically intertwine with each other. This value is based on awareness of the importance in experiential space: identity and attitude - a key concept of Eco-consciousness. The networking events not only include the physical and economic space, but also a place that is not physically tangible, and includes values, beliefs, symbols, and meanings - the value of each individual. Experiential space is the place where we come from and from which we stand out; a question is: what are the connections between two points in space, "where we never know which the starting point is and which one the end they are never the same". The networking space is limited to key points, but it expands in relation to the current users and their policies. But we are also networking with the guidelines that may specify and show inter-penetration and emptiness. As the sociologist E.V. Walter wrote in Place-ways: "The quality of a place depends on a human context shaped by memories and expectations, by stories of real and imagined events - this is by the historical experience located there" (in Rypkema, 2005). Historic buildings are the physical manifestation of that historical experience (Rypkema, 2005). The networking space as a borderland it is a question of relations between cultural voids, dynamics, in transformability of motional built environments (cultural voids) in a complex, apparently empty border location with specific urban configurations.

Conurbation of Nova Gorica–Gorizia

Nova Gorica (Slovenia) and Gorizia (Slov. Gorica) (Italy) are two cities divided by the border between present-day Italy and Slovenia. The region had a complex historical development, where Slavonic, Latin, and German ethnic groups were in contact and often also in opposition (Meinhof & Galasinski, 2000).
Nova Goricawas created as a substitute for the lostheart of Gorizia, which was connected to Italy after the Second World War. The idea of a new center of Gorizia in the fall of1947 started to be implemented by a special committee headed by Ivan Maček. The urban plan was made by the architect and urban planner Edo Ravnikar and was changed and revised several times. The foundation stone for construction was laid on13June 1948. Youth Brigades from all over Yugoslavia started to build a new city. First, they created the so-called "Russian blocks", the municipal building and the Skyscraper. The first buildings were important for building the identity of the new town with new inhabitants. Architect Vinko Glanz designed the new administrative building with a monumental facade in the reference to the main square of Nova Gorica. Its location was set at the end of the diagonal Erjavčeva Street, which connected the center of the existing Gorizia (in Italy) with the new town Nova Gorica (Slovenia).
Nowadays, this modern, lively, young town with 31,789 inhabitants (SI STAT, 2016) represents the core of the conurbation Nova Gorica–Gorizia–Šempeter-Vrtojba. Nova Gorica has links with the old settlement of Solkan and many housing settlements with single-family housing situated along the valley, along the main arterial road – Kromberška Cesta. Due to its position and historical experience, Nova Gorica was designed to represent the administrative, economic, cultural, educational, and sports center of the Municipality of Nova Gorica and the Goriška Region, as home to many important buildings and institutions.

Methodology – comparing structural features

Urban tissues express the form of images, words, sounds, or gestures through various structural urban geometries of every-day flows. The morpho genesis of patterns, in their stability of formal, visible, and passive urban form (architectural units with dimensional relations and information about geometry and form), invisible, active and informal cultural significances (elementary relations and interactions), and semantic capacities (expressions in the way of living), has to excite or objectify responses.
This research is based on observational fieldwork and morphological readings of border locations between the city of Nova Gorica and Gorizia. It was expected that after the fall of the border between Italy and Slovenia, the city would start to live a common story, a conurbation with new activities, functions, a mixture of cultures, people, places, etc., with specific sensitivity and fillings in micro open spaces (voids). The methodology employed for this study consists of a literature review, mapping, and a workshop exploring the potentials of cross-border towns for implementing urban design projects. It involves the critical review of relevant archives (mapping and photography). This study articulates elements

of geometrical, urban, and landscape morphology with an emphasis on "border voids in transformation". In doing so, it implements the following research methods to study the complex dynamics of the built environment regarding the topics of transformation, mobility, transition, and interconnectivity:

a. Compilation of historical maps (urban history and morphological evolution of Gorizia and Nova Gorica), from the earliest mention of Gorica to the inter-war period and modern developments:

- Anton Laščak: General regulation plan 1917 (Chiooza, 2005); Riccardo Del Neri: City regulation and expansion plan, 1919 (Delneri, 2000); Max Fabiani: Regulation and expansion plan 1921 (ibid.); Max Fabiani: the regulation plan of the Soča River with a navigation canal (Pozetto, 1997); Luigi Piccinato: general regulation plan, 1969 (Angelillo, An. et al. 1998); Costa Roberto: variant of the general regulation plan, 1981 (ibid.); Edvard Ravnikar: the first variant of the Nova Gorica master plan, with a tunnel in the axis of Kidričeva and the second variant of the Nova Gorica master plan, with a new bypass road Vojkova and a tunnel in the axis of this road, 1946–1949 (archives of the Department for the Environment and Spatial Planning of the City Municipality of Nova Gorica); Viljem Strmecki: draft of the master plan, 1958 (ibid.); Tomaž Vuga: Nova Gorica master plan, road network, 1975 (ibid.); Andrej Pogačnik: professional groundwork for the municipality social plan, 1979 (ibid.); Vittorio Gregotti, Augusto Cagnardi: general municipal regulation plan 2000 (Cagnardi, 2000); and other projects concerning both towns, such as:
- Analysis at the level of regional development of urban sprawl, etc., and expert guidelines of the regional spatial document, which the Goriška statistical region, partnered up with the municipalities in the region and in collaboration with the (former) Ministry of the Environment and Spatial Planning, approached via a cross-border project, which involved all the municipalities of the Province of Gorizia and the autonomous regions Friuli-Venezia Giulia, which was later, since 2010, formalized in the European Grouping of Territorial Cooperation. "The cooperation in the multicultural and administratively diverse environment calls for significant efforts of the administrations, and a subtle understanding of the cultural character of the area. It is difficult to maintain the appropriate relationships in the representation of the various cultures, which must be able to recognize themselves in all the activities connected with the management of the area. This is also a question of promoting equality between the diversities, which is definitely seen as beneficial; however, the process is very demanding in the sense of finding and developing solutions in all areas" (Arčon, 2015).

b. Digital imagery of historical urban views as relevant data of urban history and morphology survey: Pokrajinski Arhiv Nova Gorica; CAAD drawing and planar/axonometric representation via digital simulations and graphic-based computer programming (i.e.: CAD, 3D Max); data collection of case studies; fieldwork and photographic recording: Site-specific visits and panorama street views; typology of open spaces in the urban structure of Gorica–Nova Gorica.

c. Advanced selection of specific locations (in vertical axes including locations from the Soča River in Solkan to horizontal line of highway connection in Vrtojba) and further the selection of the largest (in terms of size) location on the Gorizia–Nova Gorica border, which includes a heavy-industry brownfield site in transformation (shopping centres) in the railway station area. The site selection followed the idea of the concept "zones in transition" as an opportunity of connection or disconnection between two or more nations (according to the changing of the cultural environment), as a question of urbanity in transformation regarding the "disappearance" of border conditions.

In exploring the criteria of defining voids, by considering the aspects of transformation, mobility, transition, and interconnectivity, we adopted the idea by Gasparini (2016: 311-312) on values that justify the integration between the two towns: 1) co-existence as partial integration (passive and active), meant as the ability to value the specificity of cultural differences; 2) mutual enrichment: the focus to the results of co-existence with those who are different; 3) urban centrality: this places the town as a whole at the center of the community, where the town (or the city) is the higher expression of human creativity; 4) community creativity: the value on which urban centrality can be built. In the presented scenarios Gasparini (2016: 329) built a system, which describes, as the most probable, the scenario that sets out to establish a new town within fifteen years, starting from the separate towns and passing through a phase of highly intensive differentiated integration.

In the border area, its location at the railway represents the biggest void and at the same time a restriction in physical and cultural associations between the cities (administrative restrictions sometimes provide more significant obstacles than others). It borders the industrial zone to the north, the housing area to the east, the Erjavčeva Cesta Street to the south, and the railway to the west.

The site's surface area is 60,528 m^2. The area is an infrastructural area (railway, tracks), which lacks a vital, let alone contemporary, function. The landmark in the area is the Remiza building (industrial heritage), which is scheduled for renovation as a building that will house creative practices. Prior to the recession, a design competition for new building construction was held, Majske Poljane (2007), which is however constrained to the vacant land along the street Prvomajska Ulica.

The following criteria are underlined: types, quantity, density, grain, a local organization, and general spatial distribution. Thereafter, according to the size of the void, a group of students of urbanism at the Faculty of Architecture of the University of Ljubljana checked the possible formats of the new developments at this site (Fig. 3, orientation to the North, scale of project design 1:1000), including both the developments restricted to the area on the Slovenian side only, which closes off toward the railway (Fig. 3a); to developments that open up in the direction of the railway with public green areas, with a connecting element, i.e. a bridge – a connection in only one point (Fig. 3b); organization of a development reaching across the railway area, i.e. a broad scenario involving the removal of infrastructure and organization of a new interregional and interstate connection (Fig. 3c); development that involves an overall introduction of new buildings of various sizes and shapes – a site that is not confined by existing road and other connections (Fig. 3d).

When considering the various scenarios we concluded the following: railway tracks are, indeed, in the border area between Slovenia and Italy, but they are located on the Slovenian side, while there are also roads on both sides of the state border. There is the Europe Square (Transalpina Square) in the area, whose opening in 2004 marked the beginning of connecting the towns into a single urban whole. We find that the infrastructural element is an insurmountable obstacle, which still restricts the common development of both towns. It presents the dividing line that in the inhabitants' awareness presents the "border" of the town and at the same time the "void" that cannot be circumvented, filled, changed, or no special value can be added to it. According to Janson and Tiges (2014) "physical masses offer resistance to our own bodies, while the voids between them afford us space for movement and for vision". In the study on the cross-border context of a multicultural urban conurbation, we find that isolated urban voids are areas of disconnections. The vision, based on shifting the outlined border conditions encourages vitality and provides a new opportunity for both towns, regardless of whether they will follow the vision of new common urbanity or pursue separate stories.

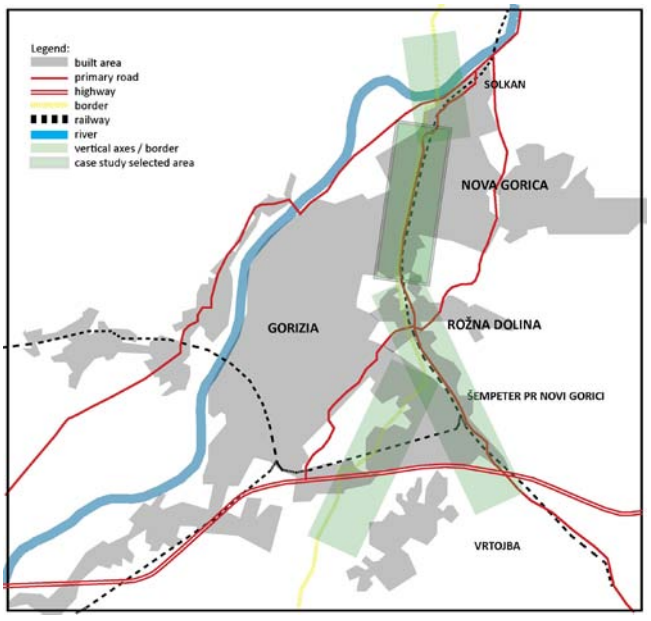

Figure 1: Vertical axis with locations of "cultural voids" of the conurbation Nova Gorica–Gorizia–Šempeter-Vrtojba (position left; schematic presentation).

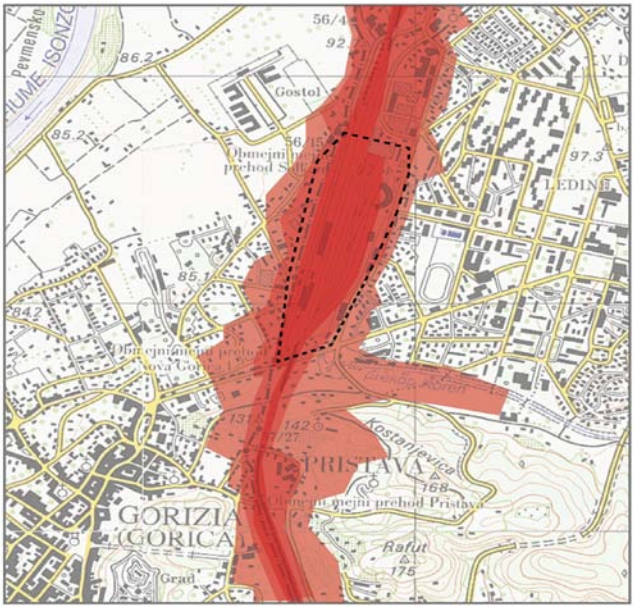

Figure 2: Definition of voids in the area between Nova Gorica and Gorizia – 3 levels of "cultural voids" in border areas. The first barrier is presented as an infrastructural void of railway; second is the border area of open spaces directly in connection with the railway; the third area presents open spaces in perceptual, visual connection with the border area/railway. The location, which was as part of the workshop selected as a case study – various development scenarios.

Figure 3: Various development scenarios in the railway station area in Nova Gorica through which we studied the relationships between urban and rural, formal and informal, dense and vast, and existing and future morphology/typology of urban forms (source: Kuk, Pibernik, Bafqari and Rumpler, 2017).

Conclusions

The complexity of contemporary urban morphologies and their pattern structures in border conditions can be understood via processes of transition, which are under reaction of unstable dynamic flows of historical/contemporary cultural and spatial changes. By studying the urban patterns in borderlands, we can discover that the idea of the re-activation of voids through the street connectivity and non-defined open spaces can provide a new opportunity to develop and protect the historical and cultural composition.

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3

RENEWABLE MICRO-ENERGY: WHICH IMPACT ON THE CITIZEN, HIS BUILDING AND URBANISM?

Paul Louis Meunier

Abstract

Needless saying energy is the key factor for social organization. Throughout the last two centuries, the energy production became dedicated to "electrical energy" shaping our urbanism and Homing organization. Out of city Mega production centers dispatched the energy to each individual through a huge widespread network. At the last 20th century decade, Technological disruptions brought micro Physics law (semi-conductor, photonics) to a "product" level, and as such opening a new frontier for energy production: Renewable Micro Energy Paradigm transforming urbanism and changing citizen behavior consumption towards the old model of energy. This article reviews the major factor illustrating this assertion.

Keywords: micro-energy building, micro-energy urbanism, photovoltaic, piezoelectric, thermoelectric, bio-energy

Introduction

Embedding this subject within a century (1900-2000), I would like to walk the reader through my analysis and recommendations concerning "Energy generation" over the next decades. During the twentieth century, Progress was the leitmotiv. Energy power was requested over the countries taking a strong part to industrial manufacturing and development. The Energy production became centrifuge over the years building bigger and further from the consuming centers. A solid and widespread network was being built to connect the Mega Watt Production centers to urban or suburban customers. At the turn of the year 2000, renewable energies became more reliable thanks to digital technologies popping out of the "computer only" industry. This fact is a fact generated by users, hardly forecast by energy specialists. Why? This is the modest ambition of this presentation which took place at IFAU17, at a symbol of "new world transition", I name the capital of Albania member of the Balkan countries which is inventing the 21st-century model.

What is the meaning of energy in 2020?

The electrical energy grew from almost nothing at the turn to 22610 TWh on 2010's (1) which means an average of 6650kWh per inhabitant in the EU. For centuries, energy was "fossil and on the spot" it would have been inconceivable to bring heat kilometers (2) away by any mean. On the eve of electricity, raw fossil still remains but is used to generate the production of electricity. Then electricity becomes the major source of energy for the "END USER".
From urban generation to "countryside" generation of electricity. Circling out the production by fossil and nuclear energy (79%) (1). As a result, each country developed a huge network to bring the "electron" to each household. Let's quote France: 100.000Km Very High Voltage, 1,3 Million Km for Medium Voltage, 2 Million Km for Low Voltage meaning billion of tons of copper spread over the French territory. Even though these figures seem huge it is understandable and no negative comment about it. This network took root in a structured and technological need. As a matter of fact, the network is efficient but costly to maintain and quite complex to rule even though the smart grid technologies help.
But, the production and consumption of energy are now living a full transformation, thanks to the convergence of Physics discoveries (the 1950's) breakthrough (semiconductor, photonics, micro/nanotechnologies) and Digital technologies (1995) for energy pervasive daily uses. Local micro energy (few Watt) becomes a trustable source for LEDs- Mobile devices- Health wearable systems - microrobots…

What IF?

The electrical energy was produced in the close vicinity of consumption;
The electrical energy amount produced was the « necessary » quantity to be used;
The electrical energy was numerous and locally renewable.
Turn of the Digital technologies era nurtures low energy consumption demand…
As an example: the 2015's Display consumes 1% energy compared to the 1990's TV Tubes, White Goods (Washing machine-Kitchen robots…)need less power (divided by 5 over two decades)… memories, microprocessor consume much less power (even at 128 to 256 times more capacity), and MOBILE Devices became less greedy in energy consumption (3).
The success of sustainable micro-energy generation will mean The RIGHT Energy at the RIGHT Time at the RIGHT Place.
Time monitoring the need and the use of dedicated addressable "low energy request" is changing the "20th-century energy paradigm" along which the consumption was produced first, and fairly adjusted to the request.
In 2020, the time has come to install the "21st-century" energy era: a palette of various energy production technologies seamlessly matching the citizen for his daily uses.

Impact of renewable micro-energy for building / housing

In 2020, what is the "renewable technologies" palette available to the citizen for a micro-energy generation?

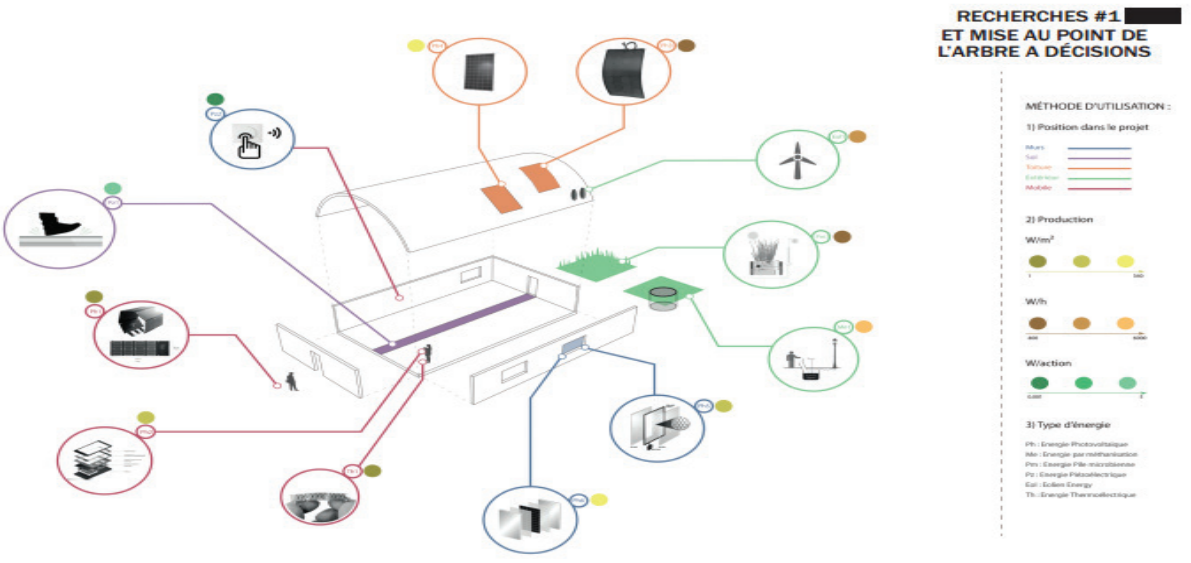

Figure 1: Schematic of the micro-energy palette.

Photovoltaic

Photovoltaic Panel, a 1970's technology is now reaching a mass market. Thanks to the optimization of industrial production in Asia, the photovoltaic panel can generate 300W/m² this specification being an average value and depends on many factors such as localization, house orientation, weather. So far the efficiency is stuck to 15% and research is being done to break this wall…These panels are suitable for apartment buildings, private house, Surface parking. They request a fixed infrastructure.
Easier to install: Folded panel encapsulating soft panels. Among the different photovoltaic technologies, the applied physics generated mono-crystalline, polycrystalline, amorphous, thin layers of photovoltaic material were developed within the last 20 years. Each of them retrieving less and less watt per m².

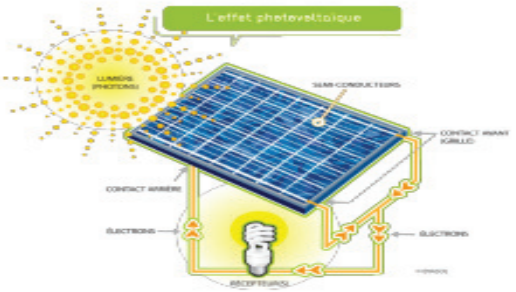

Figure 2: Hard panel: 200-800W/m². Eligible to the office-private apartment-private buildings.

a)

b)

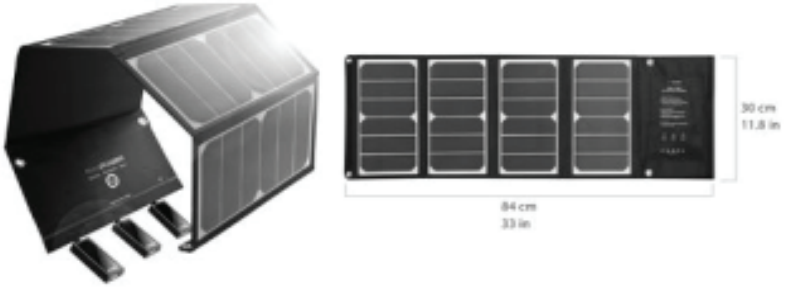

Figure 3 a), b): 10- 30W/m²: Folded panels allowing different configurations – easy to install/ to maintain. Suitable for easy re-use, local matching.

Figure 4: Few W/cm²; Mobile Devices. Giving breadth to knowledge autonomy.

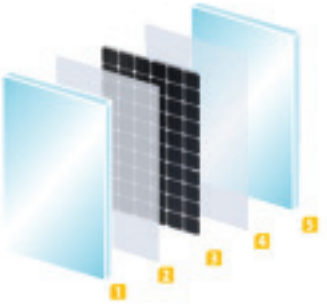

Figure 5: 100 W/m².Soft Glass,easy to install, architecture-friendly. Light and energy intimacy.

Piezoelectric: micro energy generated by action (human-nature)

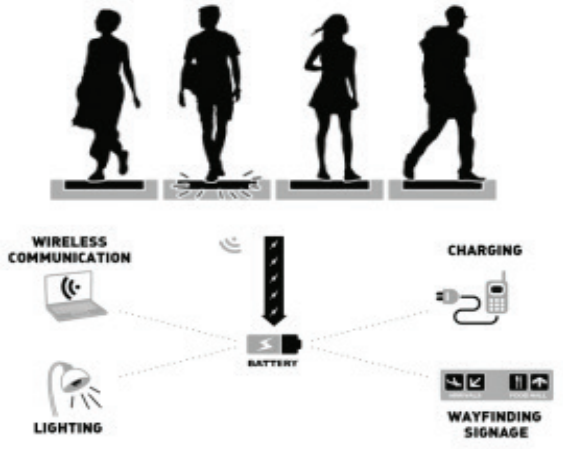

Figure 6: 5W/action. Pedestrian steps,wheel actions. Applicable walk,gym training, to road bumps and... artificial Piezo-TREE leaves generate few mW oer stem generating few watts per tree at about 5m/s wind. And... wireless switch. By pressing the knob a small limited amount of energy (0.01mW) is enough to generate a Bluetooth signal to trigger the LED lamp power being about few Watt consumption.

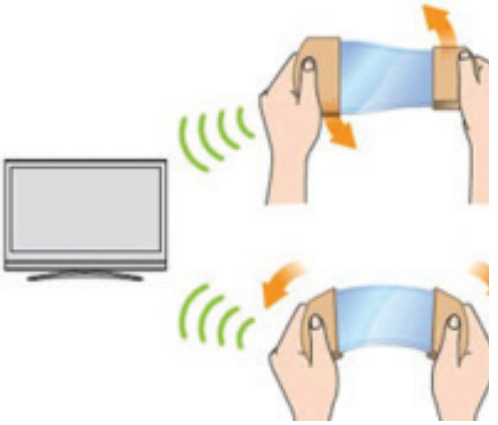

Figure 7: Fostering pieyo sheet, a few % of milliwatt can be generated, enough to generate or maintain a low frequency signal(SIGFOX) for domestic and security applications.

Thermal micro interface generation

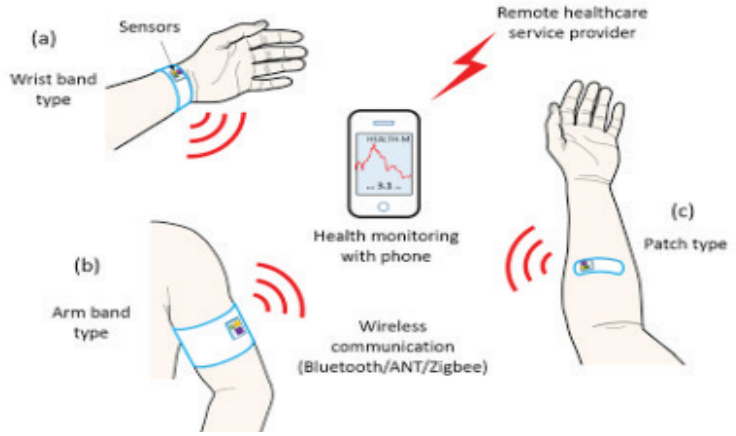

Figure 8: Thermal micro interface generation. Energy 10mW generation for 10cm² with T=11C Thermoelectric energy.

Bio Energies

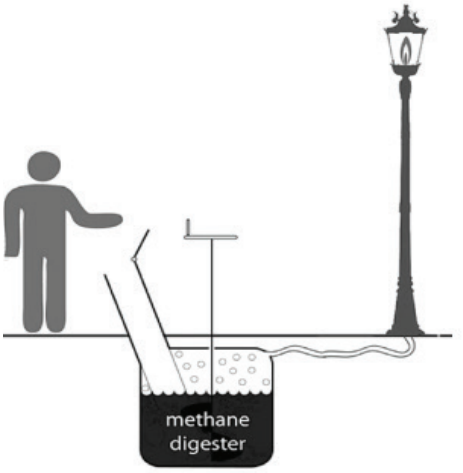

Figure 9: Bio-Energies.

Mechanization has a double "benefit" effect: Energy generation & Recycling dumped goods. Generating few 0.1W by Biogas production. This effect needs a «turbine» system…long-haul energy generator suitable for urbanism enlightening. Coming to very local "biogreen" effect, the Marjolein Hedler plant can generate by Biochemistry 0.1 W standing inside or outside an apartment.

Vertical Windmills

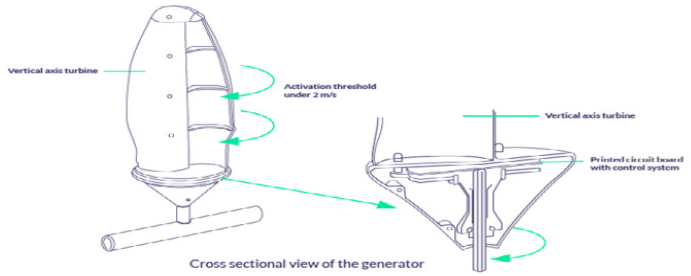

Figure 10: Vertical Windmills. 0.2 W energy generation per 2m/s wind speed average can reach few watts for strong winds.

Figure 11: Practical implementation at the Environment Ministry office building in Tirana.

A human being is poised to be in action and mobile as such. The micro energy generation offers the possibility to rethink the "energy paradigm" avoiding the need of socket and fixed "energy refueling". The present paper contemplates the "energy autonomous" citizen as a stand-alone or belonging to a family or a group. The citizen commutes, travels, emigrates… each of the scenarios requests enough energy to be guided, informed, heated or cooled down.

Which objects could fulfill the requirements of renewable energy sources?
Solar energy applications

Semi-hard or Soft photovoltaic panels generate few watt energy and can fit add-on garments, school bags, office lamps, cooling-trays, suit-cases producing real-time energy to refill mobile devices, tablets, LED apparatus or to keep up with heating garments, mobile fridge, food moderator.

Figure 12: Solar energy applications.

Personal Wind energy applications

Moving is a positive action for steady wind direction generation. Then the small size fan bears the maximum of the air energy flux. Below, as examples the runner, the bicycle, the skateboarder, is able to harvest few mW keeping some of his portable devices alive.

Figure 13: Personal Wind energy applications.

Thermo-electricity applications

The heat of our body radiates and is able to warm up thermos electric threaded garments. If major of the sportswear put self-healing garments, yet little energy (few mW) can be drawn from these materials being able to be active throughout a working day or a night sleep. Below examples show transportable systems based on these technologies.

Figure 14: Thermo-electricity applications.

Piezoelectricity and triboelectricity applications

Triboelectricity is generating little mW energy, having the strength to be also suitable when fingers, hands, feet rub the material. This energy is "on demand" and can boost up some devices which need peak energy.
Most popular Piezo electricity personal application is the "hoof shoo" bearing piezoelectric material into the socket. Other means such as bagpipe, elbow socket, wrist bracelet…can fit the model. Nevertheless, the amount of energy is still very weak, but enough to get light LED or bip alarm in case of an emergency.
The seamless renewable energy devices EMPOWER the individual to be his own power generator for outdoor products. Even though, each system generates little energy (less than mW) it has to be put in perspective with material efficiency improvement and very low consumption needs (mW) addressing new wearable and portable products. This philosophy of autonomous energy opens a vast field for the citizen.

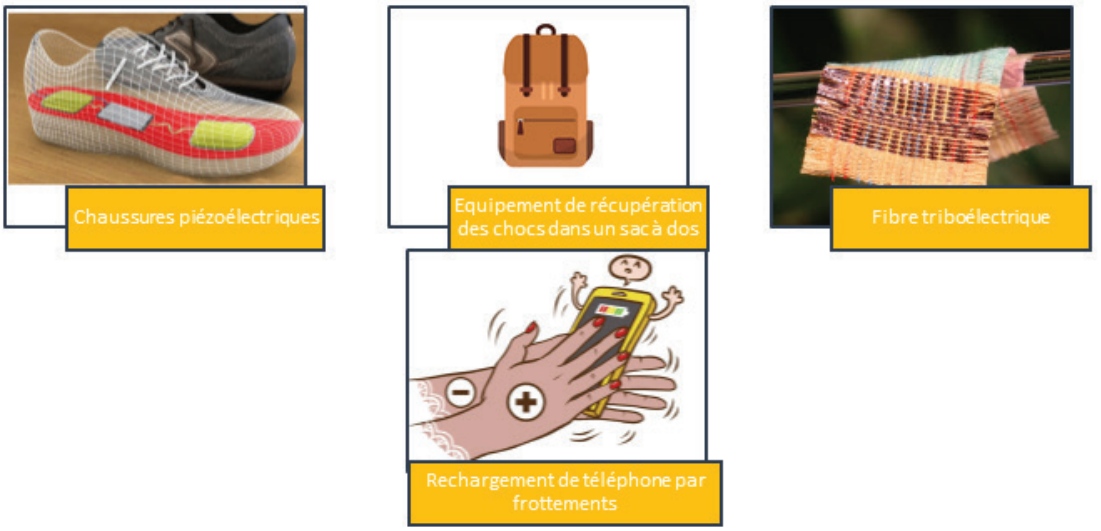

Figure 15: Piezoelectricity and triboelectricity applications.

Conclusions

Twentieth Century has been soaked with BLIND belief in PROGRESS and as such developed highly concentrated Gigantic Energy Provider and the relevant architecture scheme for Energy distribution. It seems this model reached its limits when the urbanity became gigantic with a dozen million inhabitants urban areas. The disruptive technologies in the field of media, communication, mobility, wellness, requesting much less energy power opens a new era for energy Generation and Energy Consumption. This is the role of RENEWABLE MICRO-ENERGY which will impact the Urban Planning, the Housing/Building architecture and the citizen of the City/Village gearing us towards a "balanced Progress". Dare we saying as the LOCAL "FIRE Energy" shaped the eve of humanity thousands of years ago, MICO-ENERGY will shape the next centuries society? The MICRO-ENERGY empowers any citizen to trade energy, generating a pier to pier model… a model which is just at its birth sizable for any country.

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4

SUSTAINABLE DEVELOPMENT OF URBAN WATERFRONTS A MODEL FOR TIRANA

Heinrich Haass

Abstract

The urban Development of the 60/60s was oriented with the „backside“to waterfronts and occupied the land sides more and more. Renaissance of waterfronts starts at the end of 80s and begins waterfront development worldwide (Toronto, Boston, Genoa, Barcelona etc). This brings new ecological and economical benefits in towns.
9 Recommendations for a successful waterfront development shows what are must-haves and no-goes. The relationship between this recommendations to the Tirana Master-plan identify some aspects which should be important and attractive for Tirana. Waterfront development are the onliest and last opportunity for next generations to work with urban planning in a bigger context/scale. For this the waterfront areas should not alone green-areas, they must be developed in a economic sense. Waterfront development actives new capital for economic business, create new jobs and optimize the urban society.

Keywords: urban waterfront, recommendations, ecological and economic benefits, creating jobs, optimize urban society

Introduction and basics

In the history of urban development, water has always been an important factor in the settlement. The main cities are therefore located on the waterfronts, especially in the Mediterranean regions. The urban development of the 60s / 70s was oriented with the “backside” to water fronts and occupied the land side more and more, so that at the end of the 80s, a renaissance of the water fronts begins. Finally, urban waterfront developments have begun worldwide (Genoa, Barcelona, Oslo, Monte Carlo, etc.) Urban waterfronts get a new meaning and bring environmental and economic benefits.

Important recommendations for successful waterfront projects

For the implementation and planning of the project Tirana we now make some important recommendations for successful waterfront projects that shows must-haves and no-goes. It is important to know that examples and best- practices shows only single aspects and not completely concepts. The Tirana Matserplan use only aspects and parts from international examples which are compatible for Tirana (no “Standard” ideas). In addition a changing of images and identify for the town could be possible, so there is no reason to be afraid of because the cross section is working. The Tirana Masterplan use waterways as a connecting ribbon for the urban structure.
Another important point which helps the development is the acceptance. Far-reaching changes for the city must be accepted (e.g. new center and urban hotspots, new traffic concepts, etc.). The riversides in Tirana’s master plan are not only attractive green spaces, they building new centers and connecting lines. Furthermore, you can develop the water fronts in an attractive way (not mono-functional) mixed by using gastronomy, culture, shopping and leisure. The Tirana Master-plan not only takes into account “green” riverside, but also economically more attractive uses (gastronomy, shopping, offices, etc.). Potential and opportunities for the city economy must be identified. For example Upgrading of areas, brown fields, new branches and shops are creating more business opportunities by riversides. New design and architectural concepts are inevitable (floating houses, submarine structures, use of water surfaces for urban settlements, etc.). The Tirana Master-plan Integrate water uses into urban life.
Vital working with other regional waterfronts is very important. It shows benefits at Tourism, traffic, economy and more. The

shoreline have to be modified by innovative and attractive forms. No longer linear shorelines rather better use of rivers or lakes by land and water. You have to understand flood risks as the goal of sustainable urban development. Accept flooding and design flood protection systems. The Tirana Master-plan shows an innovative water management for floods and natural disasters.

Conclusion and recommendations

Urban waterfront development are the onliest and last opportunity for the next generations to work with urban planning in a bigger context/scale. There are no comparable sized and attractive areas in towns for development similar projects. Riversides and lakes are not only "green"-areas, much more economical used areas. They are not profitable, but necessary too. Urban waterfront development actives capital for economic business, create new jobs and optimize the urban society.
Short collection for Ideas "Tirana Master-plan"

- Using the chances by development in a wider range
- Create new centers, hotspots at the water/ shorelines
- Connect new areas by the water, possibilities for small boats, canoes etc.
- Make the water areas usable for many activities
- Integrate at hotspots and riversides gastronomy, culture, shopping and leisure
- Create new brand "Tirana Waterfront"
- Search and cooperate with international partners of waterfront cities
- Use innovative ideas and concepts by universities and experts

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5 METROPOLITAN CITIES FROM BOTH SIDES: SOME QUESTIONS ABOUT TIRANA AND BARI

Francesca Calace

Abstract

In a contradictory panorama, in which the large cities of Italy and Europe are experiencing the structural phenomenon of stagnation or declining growth, although soil consumption is anyway increasing, on the other side of the Adriatic in the Balkan countries, large cities grow by population and extension and live, in an amplified way, the conflicts and contradictions between wealth and poverty, tradition and projection to the future.
So geographically close but far from each other in terms of urban and political history, shape and character, the large cities on both sides are facing the same challenges: fragility towards natural phenomena, climate changes, soil consumption, transformation of the population and its needs. Both need a renovated design and new infrastructures, not gray, but green and blue, based on new projectual ingredients to rethink the metropolitan and urban system: water management, landscape and open spaces, history and heritage; and also new densities, new utilities, new ways of living. These are new ingredients compared to the urbanism of the 1900s, which are nowadays necessary for both stagnant and growing cities. Starting from the comparison between two case studies of the metropolitan cities of Tirana and Bari, characterized by spatial situations, urbanistic and institutional histories that are profoundly different, we want to analyze and compare the specificities of the territorial and institutional contexts, and also the differences and convergences of the approaches and methods of intervention - where they exist - concerning the problems that metropolitan cities today have to face. The paper therefore aims to analyze the ways in which planning tackles these challenges in the two metropolitan cities, trying to outline new approaches and possible projectual trajectories and to define the new ingredients of transformation projects at different scales.

Keywords: metropolitan areas, green infrastructures, regeneration

Introduction

Comparing two realities as different as the metropolitan cities of Bari and Tirana can seem like a forced or unfounded operation: two urban and political histories completely dissimilar, two different peoples, two countries living in different and in some ways opposite seasons. The first is immersed in the stagnation of the western world, the second in the convulsive growth of the east. But both realities have something in common, which makes it possible to build comparisons between the two situations. First of all, some parts of recent history shared, when the Italian presence in Albania in the 1900s left a tangible mark in the town-planning culture of the country of the Eagles; secondly, geopolitical proximity (on both sides of the Adriatic Sea not more than 250 kilometers away), ancient and modern trade and human exchanges, membership of Europe and Albania's forthcoming accession to the EU; but above all, both metropolitan cities (and not only them), need today a renewed design and new infrastructures, capable of responding to the challenges we face, first and foremost climate change. Therefore, examining the possible responses to the new common challenges from different conditions and stories can be useful to retrace similar elements, criticality and reasons for inertia and difficulties.

Tirana and Bari, some comparisons

As is known, the city of Tirana, born for the progressive conurbation of the various villages formed, starting from 1600, around the mosques, acquires the status of capital in 1920; then crossing the decades characterized by the political and urban influence of Italy until 1945, and by the communist regime, first linked to the Soviet Union, then to China,

until 1991. The post-Communist period sees the greater urbanization dynamics not planned for a long time, the result of the political and administrative chaos that characterized the years after the collapse of the communist regime. In this period, urban growth is determined by the massive migratory flows from the countryside and smaller towns, dramatically marked by the sudden process of de-industrialisation, towards the capital and abroad (although still significant flows). This is how an extensive informal city was born, which within a few years became 70% of the total urbanized territory. The growth of the informal around the city corresponds to a controversial and unregulated urban transformation, the result of widespread substitutions and significant real estate transactions within a land regime and an uncertain ownership structure. In the 2000's the first operations of re-qualification, above all environmental, of the territory of Tirana began, but the real process of reorganization of the institutional and planning context takes place starting from 2013, with legislative and planning initiatives inspired by western approaches and experiences. Sustainable development and efficiency of the administrative system are at the heart of regulatory developments. In a short time, the law on territorial planning and development 107/2014 is issued, which will produce the National General Plan and the Integrated Inter-sectoral Plan "Durana", a strategic plan that deals with economics, urban development, infrastructure, environment; this starts the process of territorialisation of the strategic choices of the territory between the capital and its port, Durazzo, the most important economic area of the country. Durana's strategic objectives and keywords correspond to the whole European vocabulary of good practice in sustainability and regeneration. In 2014, with Law 115, the important administrative reform takes place, which drastically reduces the number of municipalities (from 373 to 61), bringing Tirana to 800,000 inhabitants through the merger with neighboring municipalities; immediately after the Albanian government promotes the start of the planning of the new municipalities, in order to consolidate and make the reform irreversible through planning. In December 2014, the Tirana Green Crown was established by law, with the aim of preventing air pollution, nature conservation, environmental protection and improvement and the promotion of sustainable planning. Already endowed with a 2013 PRG, Tirana sees at the beginning of 2017 the approval of the new Plan - the Tirana 2030 Plan, not discussed here for space limitations - also strongly oriented towards greening and sustainability, as well as foreseeing a remarkable further urban growth.

Talking about the metropolitan city of Bari means observing a rather different history, in which it is first of all necessary to refer to different territories, depending on the observation of settlement dynamics rather than institutional ones. The former, characterized by a conurbation with characters of contiguity and strong interdependence, mainly limited to the capital and to the centers of the first belt, of about 570,000 inhabitants (ISTAT, 2011); the latter, on the other hand, characterized by the establishment of the "metropolitan city" as the competent subject of the territory of the previous province and therefore an articulated, uneven and decidedly unpolarized space on the capital city, if not for the rare services. Among the Italian metropolitan cities, the city of Bari is actually the least polarized on the capital: the weight of settlement of the crown is far greater than that of the central city (about 75% of the total), thus highlighting a decidedly polycentric settlement system and, in the more peripheral cities, integrated and interconnected with the neighboring provinces and regions. The distribution of the productive sectors also shows distributed and molecular logics; on the contrary, only the large public tertiary sector appears polarized in the most central areas.

The population of the capital city has grown intensely and uninterruptedly since the founding of the Borgo Extramoenia (1813) until 1991, when the census shows the phenomenon of housing decentralization (Bari since 1991 loses population, stabilizing in recent years) in favor of the neighboring municipalities and beyond; at the same time the large cities of the metropolitan area, especially the farthest from the capital,"hold" without knowing periods of decline.

Bari sees an urban management characterized by a planning that we could say "una tantum": in 1952 and 1976 were approved the post-war general plans; the new plan has been in gestation for some time. This situation is widespread among the large Italian cities. But what impresses most with respect to the previous case is the difference in institutional dynamics, decidedly more inertial. The year 2014, the year of the Albanian legislative "turning point", Delrio law produces exclusively the consecration of the "metropolitan city", without any innovation and discontinuity with respect to the provincial structure, while the regional norms will provide in 2015 and then in 2016 the reorganization of the functions. The metropolitan city will take its first steps by adopting an incremental and informal strategy, an approach "for projects", only partially intercepting the planning and programming tools outlined by the law.

So, two very different situations. In particular, thinking about the history of the settlement dynamics of Albania in recent decades is like reviewing the Italian one in the middle of the time, with a speed of ascent and decline in the processes of

industrialization and urbanization more violent and dramatic, but also with a dynamism that Italy knows little about. Also from an institutional point of view, the production of norms and instruments is characterized by a completely different dynamic, even because of an institutional apparatus decidedly centralized in Albania, in which the central government plans and assumes the task of starting, accompanying and controlling the planning activities of the municipalities.
Yet the problems and challenges faced by both cities are similar: from the more global ones - climate change, changing communities and their needs, industrial decommissioning - to those related to specific local conditions. Here, only a few of them are to be addressed through two researches that interpret environmental regeneration as a basic strategy for the city's intervention. The first one concerns a development hypothesis of the Tirana Greenbelt defined by the law previously mentioned; the second one reinterprets the central Bari area and traces the lines of its spatial reorganization using water and abandoned spaces as elements of structure.

Planning issues and scenarios for cities

The idea of creating a Greenbelt for the city of Tirana, developed in collaboration with the Albanian institutions and in implementation of the founding law, runs on different scales and makes use of a multiplicity of strategies at different scales and different elements, all accumulated by the objective of introducing elements of quality - environmental, landscape and settlement - in each element "touched" by the plot of green of which it is composed.
At the territorial level, characterized by the presence of natural reservoirs in the mountainous and eastern areas and by the intense urbanization in the two large planes of Tirana and Durazzo, the strategy consists in recognizing and integrating the structuring elements of the green belt: nature parks, agricultural parks, water systems, cultural heritage, and in making these elements accessible through an articulated system of sustainable fruition. In the urbanized plain it is the very settlement itself, for which a widespread reappearance is hypothesized that has to act as an environmental connector.
At the level of the urban system as a whole, it involves first and foremost the securing of the territory, both through the consolidation of the slopes through naturalistic engineering interventions, and by intervening for the restoration of the building heritage contaminated by radon; it also involves the re-naturalisation of the two rivers that cross the city and widespread interventions on urban tissues, for sustainable mobility, for the green system, with the techniques of green urban infrastructure that can be implemented in the large road sections in the planned city (absorbent channels and flower boxes; rain garden; green roofs; permeable pavements, retention ponds etc.). Finally, at the level of specific nodal places of particular landscape and cultural value or particularly degraded, pilot projects are planned for the reuse of disused industries in strategic places at the interface between the city centre and the greenbelt, or for the creation of new urban places, to be conceived as sustainable open spaces and "landscape nodes", as well as urban ones.
But one of the major unavoidable themes, common to Albania as a whole, is the redevelopment of the informal settlement. This is 70% of the Tirana settlement, which poses the problem of how to build a sustainable regeneration process that is economically, socially and environmentally sustainable. In this case, a participatory retraining process based on "assisted self-construction" is hypothesized, in order to ensure that the urbanisation drive is channeled towards a horizon of sustainability, through a combination of public and private actions.
There are different contents of the research carried out for the central Bari area. It is conventionally defined as the surface area of about 22,400 hectares covering the city of Bari, the contiguous urban centres and the entire rural land enclosed; it is the place of the maximum concentration of settlement dynamics and human flows. The area is characterized, like the whole of central Puglia, by the almost complete absence of the surface hydrographic grid, due to the karst nature of the soil that quickly absorbs the rainwater in depth preventing surface runoff. It is furrowed by the' lame', erosive furrows expressions of karst activity, periodically receptors of rainwater. Due to slopes and geomorphological conditions, the lame that convergein the central Bari area occupy an area of 1900 ha, about 8.5% of the territory; but the current conditions make the hydraulic function compromised by construction and improper uses. In the same territory, 2,500 hectares - 11% of the land - are decommissioned or abandoned; it is evident that this is not an episodic fact, but a structural layer of the territory and the city. It is a varied set of places and spaces that, by their position, size, memory incorporated, have a potential that is today used to a minimum extent, through case by case solutions and at the cost of complex and extremely long procedures.
In theory, in this way, spaces of considerable dimensions are available for environmental and urban regeneration

processes, which add up to almost one fifth of the territory; even though in the complexity and heterogeneity of specific situations, they could constitute precisely the reinforcement aimed at increasing the resilience of the territory and re-establishing conditions of settlement quality that are today largely insufficient. Looking at the territory from this viewpoint, the road is drawn: in addition to a policy for securing the territory and for capillary and thrifty management of water resources, in this context the protection of water spaces is able to give shape and quality to the city, because they are those durable signs that have structured the urban form and shaped the landscape over time, before the explosion of settlement; on the other hand, due to their diffusion and their different dimension,the decommissioned and abandoned spaces can constitute a wide heritage at the disposal of a strategy aimed at selecting places and choices of operations, in order to maximize the benefits in terms of connectivity and environmental and urban regeneration.

Conclusions

We want to draw some provisional reflections within the dynamics and analysis still in progress: what are the coordinates emerging today from these researches and from these design scenarios and what is the feasibility of these scenarios in the two institutional and territorial contexts?
In both cases, an attempt was made to tackle the problem of environmental regeneration of the city, starting from the constituent materials of the existing city, from its hidden resources, from the re-emerging of profound natural and anthropic values, as key elements of the project. In both cases, the design ingredients consist of reinterpreting the places with ecosystem goals, from the point of view of ecosystem services that each type of space, whether installed or not, can provide. Moreover, by providing for the integration of this dimension into urban planning, by incorporating it into every urban transformation. The game is completely open on how to get these results.
In theory, Albania is advantageous given the dynamism of institutions and regulatory innovations, the declarations of intent in the national instruments of territorial governance, the importance of public resources, investors and donors. However, Tirana does not seem to escape the fate of the eastern capitals: on the one hand, to catalyze the population and thus to see a large city grow, which will hardly be able to overcome the informality that characterizes large areas; on the other hand, to host huge real estate operations whose sustainability can only be guaranteed by a very firm public hand that can expect public benefits adapted to the allowed transformations. In this perspective, a tool such as the Greenbelt can be beside decision-makers to assess choices and to know what to expect from transformation processes.
In Italy, while today the Ministry of the Environment is preparing its National Climate Change Adaptation Plan, metropolitan cities - and therefore also Bari - today suffer greatly from the inadequacy of their instruments for managing change and the difficulty of pursuing structural solutions on the subject. And in fact, practices are oriented towards smaller, incremental, temporary greening interventions, almost always in the absence of a general strategy; they run the risk of remaining epidermal and extemporaneous and therefore obtaining local and non-structural effects. The reuse also suffers from the absence of a strategic and system vision, losing the opportunity to make a system between an ever-increasing demand for spaces for services, activities, residency and the supply that the disused areas show to possess. There is also a risk that the implementation of the NCPACC will lead to a further plethora of sector planning that does not dialogue with the others.
The current state of reflection does not allow us to go beyond these brief notes, within an ongoing process; however, it is evident that setting new common goals in different situations does not appear linear, and it is very difficult to take advantage of experiences gained elsewhere, because urbanistic histories and institutional behaviors, inertia and thrusts to transformation overlap and amplify the specificities.

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6

RESPONSIVE SKINS – EVOLVING PARADIGM IN CITIES

Benida Kraja

Abstract

What if we could design a building that, at any given time, was optimized for the environmental conditions around it? And what if, by doing so, we can obtain better performance and enhance the aesthetics of our design?
The sustainable revolution has based its studies, for the topic, in nature itself. As during its lifetime, nature changes and adapts its skin, in the same way, the building should act as a movable, responsive and changeable mechanism when confronted with different indoor and outdoor conditions.
In the last years, the world of engineering has experimented with different types of dynamic, intelligent systems. We can mention "User Control Dynamic Facade" – where users can control individually each motor for lightning; "Light Control Dynamic Facade" – where different geometries of sunshades rotate or move according to the needs of the building for light or according to the sun movement; "Wind Responsive Dynamic Facade" etc. We can find a lot of other examples inspired by and using natural factors. After all, can any self-working mechanism be more perfectly sustainable than nature itself?
Innovation solutions like these, allow us to design self-optimizing buildings, which make architecture more sensible to the climate and culture of the space. At the same time, they bring a new quality of life to the users of the buildings, by engaging them more with the surrounded environment.
There are a lot of discussions and questions whether these types of facades are our final destination to sustainability, but for the moment let us be also like nature – change, adapt, reinvent again.

Keywords: sustainability, environment, facade, innovation, dynamic

Introduction – Redefining the built environment

The aim of this paper is to bring a new perspective on buildings skins. To understand and study how with the evolution of cities in transition also the definition of the facade is changing according to the needs of the society and global changes. The paper is divided into three main parts. In the first one, the building environment is redefined in different approaches to the building. In the second part, it will be presented a concept idea of a responsive skin project on an existing office building. In the last paragraph, as a conclusion about how can we first act upon cities in transition, like Tirana, to think about the responsive environment.
To start with, let us go back to basics. Except being the first impression of a building, a facade also is the first point where all the forces acting on the building face. These forces which are human agents, information, climate, energy are not static and fixed, but rather mutable and transient. The facade is not anymore a layer but is considered an envelope.
Powler and Kelbaugh (1990) defined a "building envelope" to be any surface that separates the thermally conditioned interior of a building from its environment. The building envelope includes exterior walls, roofs, ceiling slabs, and foundation walls.
Taking into consideration the sustainability, in order to determine building requirements, the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) classified the building envelope into two parts: the exterior plus the semi exterior portions of a building. "The Building envelope, the exterior is defined as the elements of a building that separate conditioned spaces from the exterior. Building envelope, semi-exterior defined as the elements of a building that separate conditioned space from unconditioned space or that enclose semi-heated spaces through which thermal energy may be transferred to or from the exterior, or to or from unconditioned spaces, or to or from conditioned

spaces"(Stein and Reynolds, 2000).
The semi-exterior is the key point where engineers are paying attention to introduce strategies to control solar shading, heat gains, daylight, ventilation etc. by including new technologies and smart materials. This brings us to the contemporary definition of the building envelope, which is the one this paper will be based on. "Building Envelope can be considered quite literally as a complex membrane capable of energy, material and information exchanges. It can be designed to operate as part of a holistic building metabolism and morphology, and will often be connected to other parts of the building, including sensors, actuators and command wires from the building management system" – "Intelligent Skins" by Michael Wiggingtion and Jude Harris.

Approaches to the building envelope

This contemporary understanding of the building skin has fundamentally changed the way in which architects approach building design, having shifted questions of performance away from the traditional formal and physical properties of building envelopes to reposition the discourse within a more expansive definition of how they behave. These new parameters have resulted in increased architectural collaboration with the disciplines of mechanical and electrical engineering, computing and the physical and social sciences. However, as argued by Michelle Addington and Daniel Schodek in their seminal book Smart Materials and Technologies for the Architecture and Design Professions, relative to the aforementioned disciplines, architecture has evolved without a common language, problem-solving methodology or common basis of knowledge, and this often stops the design process. In response, this paragraph frames a provisional lexicon of descriptive, behavioral and methodological terms to assist designers in navigating the field of high-performance skins that incorporate materially innovative and feedback-based systems, through four main approaches: "smart" "intelligent" "interactive" and "responsive".

"Smart"

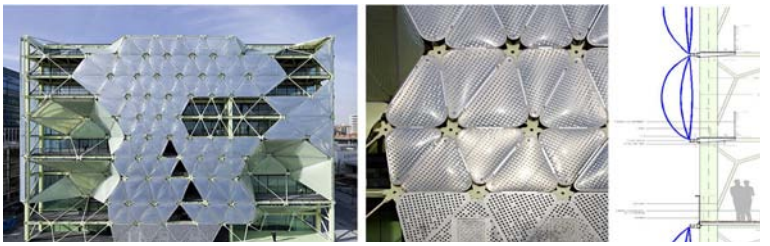

Figure 1: Media-Tic Builidng Facade, photo by Iwan Baan..

The word "smart" is used mostly to refer to materials and surfaces. As a definition; based on the book " Smart materials and technologies in architecture" by Addington and Schode; a smart material is: " A system possessing 'embedded technological functions' that involve specific environmental responses, operating either through internal physical property changes or through external energy exchanges.". They define the main characteristics of smart materials as a real-time response-"immediacy", responsive to more than one environmental state-"transiency", internal intelligence-"self-actuation", a response which is local to the activating events-"directness".
Smart materials can be used in the small scale of a pavilion, but also on a larger scale, by being part of modular facades. An example of a smart envelope is in Barcelona, Spain for the Media-TIC building. The envelope features a pillow cladding system made of the polymer ETFE with encased lamella fins whose pneumatic mechanisms are automatically activated by light sensors that respond to the presence of solar energy
Even though smart materials offer advantages for sustainable buildings, their performance is often limited within a specific range of climatic and predictable conditions. In this case, smart materials are combined in more complex building skins which also incorporate a thermal management system. This combination would be named "intelligent".

"Intelligent"

This term has been extensively used in the construction industry since building automation became more pervasive in the 1960s and 1970s, and it became especially used in the 1980s when designers started studying the programmable zones of a building's heating, ventilating and air conditioning (HVAC) systems. It represents a higher level of performance than

the "smart envelope". In the general sense, the goal of an intelligent building skin is to optimize the building's systems relative to climate, energy balance and human comfort, typically based on predictive models. Brian Atkins in his book "Intelligent Buildings has given a definition for intelligent buildings as buildings that "know" what the environmental conditions are both outside and inside, that "decide" how to provide a convenient and comfortable environment for occupants, and that "respond" promptly to the occupant requests.

Figure 2: The terrence Donnelley Centre for Cellular and Bimolecular Research facade, photo courtesy of Behnisch Architecten.

The Terrence Donnelley Centre for Cellular and Bimolecular Research of the University of Toronto is a good example of an intelligent building. It was completed in 2006 by Architects Alliance and Behnisch Architecten, who pays attention to the type of facades which are dynamic and flexible to the environment needs. The south facade of the building is a double skin with intelligently controlled internal blinders and ventilation louvers that work together to manage light, heat gain and natural ventilation in this energy efficient, all-glass building.

In a smaller scale, residential buildings have also engaged the question of intelligent building skins. The Technische Universitat Darmstad for the 2007 US Solar Decathlon Competition, designed an exterior one-floor building facade with computer controlled wooden louvers with integrated photovoltaic panels that generate power while at the same time providing shading for the interior of the house.

The performance profile of intelligent envelopes is typically more variable than that of smart skins; the operation of smart skins is typically binary and more limited in control, while intelligent envelopes typically require external power to achieve their goals. Hence, when committed to overall building energy reductions, intelligent envelopes should ideally be developed with smart materials that are self-powering and self-actuating.

"Interactive"

The term interactive is mostly used in reference to computer-enabled artworks, installations and other such environments encouraging active public participation. Kethy Velikov and Geoffrey Thun have given the upcoming definition: "A system that fundamentally requires input to initiate response".

The Digital Water Pavilion in Zaragoza, Spain was built with this concept. This pavilion is refreshing the micro-climate by creating "walls" if water, which stops when people cross inside the pavilion.

Interactive is a very important quality to take into consideration since it represents that the building environment, it doesn't matter how technologically "smart" and "intelligent" is, it cannot function properly without the user's participation.

"Responsive"

The term "responsive" is often used interchangeably with "interactive" and "adaptive", but most simply it is used to describe, "how natural and artificial systems can interact and adapt" The best definition for a responsive environment comes from Kethy Velikov and Geoffrey Thun "An environment that empowers an operational definition of building ecology and that functions through the combined and co-evolutionary agency of building, technology, inhabitant and environment."

A responsive building skin includes functionalities and performance characteristics similar to those of an "intelligent" building skin including real-time sensing, kinetic climate-adaptive elements, smart materials, automation and the ability for user override. But it also includes interactive characteristics, such as computational algorithms that allow the building system to self-adjust and learn over time, as well as the ability for inhabitants to physically manipulate elements of the building envelope to control environmental conditions.

Hidden Trees Project

The paragraph will show a conceptual project of the transformation of an old office facade into a responsive one. The project is a product of a student's group work during the ASA-Advanced School of Architecture Workshop, Polytechnic University of Milan. Also, the project won the first prize in the workshop, due to its original concept, well thought and practical solution.
The building taking into consideration for the project is an existing office building of the university, named by Building nr.20. The facade is facing south and is facing the sun all year round.

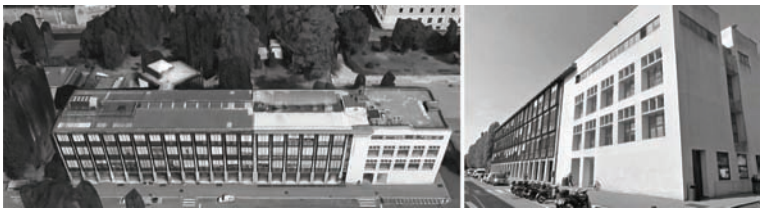

Figure 3: Photo of Building nr. 20.

Figure 4: Functions in elevation.

Figure 5: Working hour's diagram.

Figure 6: Light needed diagram.

The Analysis

The first step of our study was trying to understand the challenges of our project.
The climate plays the main role in the sustainability of the city. Milan has cold and foggy winters and very hot and humid summers.
This means that the facade must control the heat transmissions from outside to inside, the solar load from outside to inside and also the air flows.
At the same time, our building's function is an office and there are some factors that make the use of it better as the high utilization of daylight, allowing privacy, allowing view outside, creating a comfortable and suitable environment for the workers.
The second step consists in studying how to spread the challenges on the facade. Three main analysis is important in this step. The functions of the building, the hours that these functions will have workers, the light needed for function.
The diagram of functions shows that the offices take most of the surface, but there are present also other functions like laboratories, auditorium and meeting room. The diagram of working hours shows how many hours approximately these spaces are used. The offices, for instance, are going to be used 8 hours all day, but there are other functions like laboratories or auditorium that could be used four to eight hours. The diagram with the light shows with darker color the spaces that need more light and lighter color the functions that could be used under low levels of daylight.
Overlaying the three diagrams we understand which area is the one to prioritize.
The office area is the most important part of the project and which represents a real challenge. How do we design a facade that uses daylight, allows privacy, but at the same time prevents the heat waves in Milan to influence in the building?

The Concept

Building no. 20 is situated in one big park, even though this is in contrast with its own level of sustainability. In order to solve the main challenge, we based the concept of our project on the transparency that the tree gives.
The ground floor to be opaque and slightly transparent and the upper floors, where the offices are, to intersect like the branches of the tree.

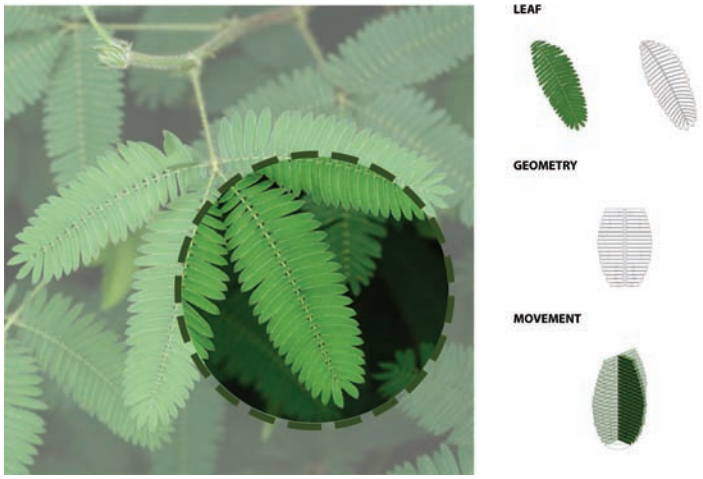

Figure 7: From nature to geometry diagram.

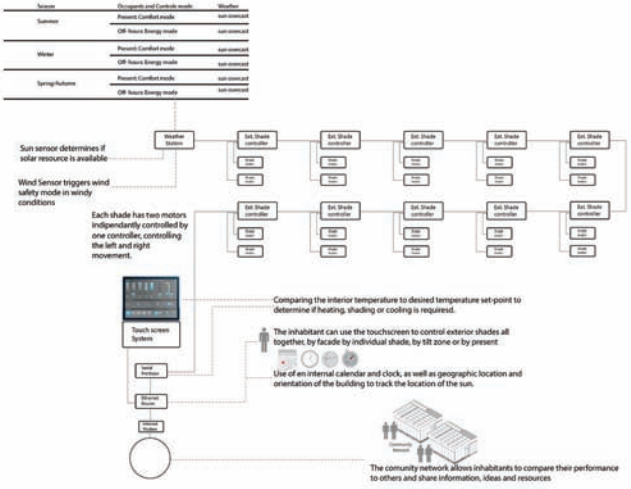

Figure 8: Shaders Controlling System Diagram.

Even though this concept, of shaders resembling trees, solves the problem of the daylight and privacy, it doesn't give us the ideal solution. As we said, in the beginning, the forces which face the building are not static but dynamic. In different seasons the need for light and heating can contradict each other, which means we need to search for a deeper solution.

The Responsive Skin

The solution we found in nature itself. "Mimosa Pudica – The sensitive plant" is a movable plant that closes it leaves whenever you touch them. What if we design a system that closes and opens according to the needs of the building, triggered by an outside natural source?

Taking the first concept from the flower, we designed a responsive skin with computer-automated exterior shading louvers capable of continually adjusting their configuration, according to the weather conditions and movement of the sun.

A weather station is positioned on the roof of the building, where sun sensors determine if the solar resource is available and wind sensor triggers wind safety mode in windy conditions (closing all the shaders). The system of the station, for any specific geographical location and climate, defines 12 basic control situations (Figure 10). The shift between seasons is defined from mean daily temperature and typical solar intensity, whereas the border between 'sun' and 'overcast' should be defined in terms of solar intensity and hours of sun. This weather station is connected with each of the external shaders controllers. Each shade controller has two motors controlling the right and the left movement. The shaders move according to the movement of the sun in seven different positions. (Figure 11)

Of course, the strategies in winter and summer are clearer, but in the mid seasons, there are some challenges between increased use of solar heating and daylight and reduced transmission loss. In this situation, the system must understand if there are users in the building. When there are users in the space the control system goes into comfort mode and of course, prioritizes users' needs by meeting all comfort criteria. While when the users leave the system turns in energy mode, keeping the energy efficiency of the building still working.

A truly responsive skin not only includes mechanisms but also the inhabitant's feedback and semi-control of the system. Each office is equipped with a touchscreen panel, wherein the 'comfort mode' they can use to control the shaders until some degree of freedom of their one. This screen is connected to the Internet system of the building creating a community network where workers can compare their performance to others and share information, ideas, and resources.

The facade shown in the photo represents a collage of different position of shaders, in different periods of the day. The shaders are connected as a second skin the building, leaving a 50 cm space for maintenance.

The Sustainability

Through computer programs, we checked the performance of the building before and after placing the dynamic facade and the result is a decrease in the heat losses of the building.

While the total energy need with the traditional static facade cannot be lower than app. 50 kWh/m² per year, simulations of a typical office building have shown that it is possible to meet the requirements, as low as 25 kWh/m² per year, by using dynamic facade components with a smart control system:

- Reduced transmission heat loss and increased utilization of solar gain cut the energy for heating to 2 kWh/m² yr;
- Increased daylight utilization and improved control cuts the need for electricity to lighting to 8 kWh/m² yr;
- Effective control of the solar gain almost eliminates the need for mechanical cooling, reducing it to 1 kWh/m² yr;
- Preheating of venting air and increased time of natural ventilation cuts energy need for ventilation to 6 kWh/m² yr.

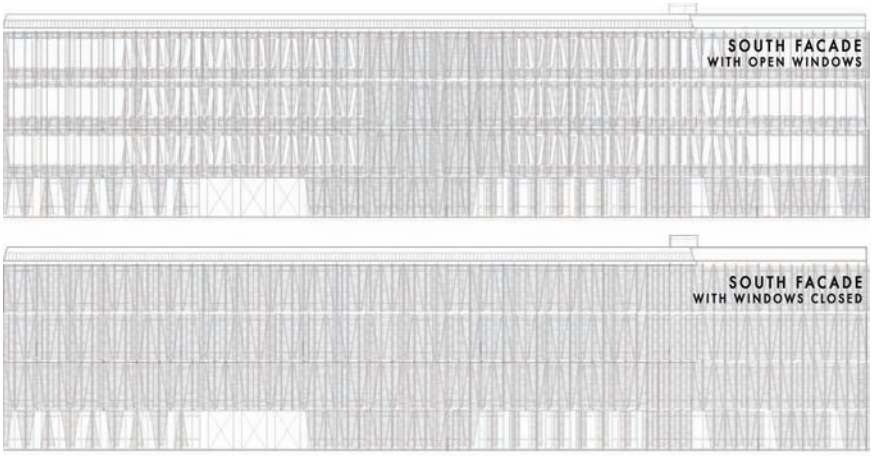

Figure 9: South Facade Collage.

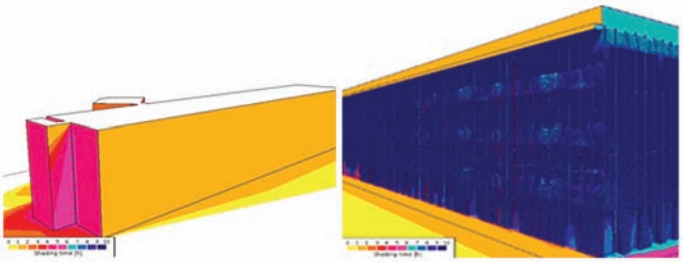

Figure 10: Before vs after.

Conclusions - "Windows of Tirana" cities in transition

In cities in transition like Tirana where residential buildings take most of the space, the framework between the building, the inhabitant and the larger environment, becomes more important.
Different building technologies can be studied and be used in the city that can help the reduction of energy consumption. Yet research has shown that while approximately half of the energy used in the home depends on its physical characteristics and equipment, the behavior of its resident's accounts for the balance. Social scientists have long recognized that motivations to consume or conserve energy are socially dependent and the social, political, and personal dimensions of a building's energy consumption and resource management areas critical to addressing as the technical ones.
Differences in individual behavior have been shown to produce large variations in energy consumption – in some cases as much as 300 percent – even when accounting for differences in housing types, appliances, HVAC systems, and family size. Availability of information and feedback loops are effective means for encouraging building occupants to develop more energy-conscious lifestyles and building use patterns. In a "responsive" design paradigm, where building, inhabitant, and environment are all agents, the positive and negative feedback loops that individuals have with their built environment, the active co-evolution that they necessarily share with it, as well as the agency of both buildings and their inhabitants, are all potentially powerful tools for promoting social responsive change.
Responsive skins may not be the final step towards sustainability, but they are an important way for us designers to understand better how the environment around us works. Like Nicholas Negroponte has said:
"The manipulative environment is a passive one, that is moved as opposed to one that moves. In contrast, responsive… means the environment is taking an active role, initiating to a greater or lesser degree changes as a result and function of complex or simple computations… maybe a house is not a home until it can learn to laugh at your jokes"

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7 THE WIND FLOW EFFECTS AND HIGH-RISE BUILDINGS IN URBAN SPATIAL MORPHOLOGY

Elton Hala, Florian Nepravishta, Ani Panariti

Abstract

City centers are evolving continuously and there is high demand for large structures derived also to high-rise building. On the other hand, pedestrian comfort depends also from the wind conditions which are strongly guided by these man-made multistory structures inside spatial morphology. The main objective is to explore the relationship between air flow and high-rise buildings in a dense urban context. A 3D model was used to perform simulation analysis in order to evaluate the effect of wind around the simulation domain. For this simulation was used a Computational Fluid Dynamics software which was compatible with the 3D model. Results show that high rise buildings can prevent at large the ventilation. Also, high rise structures with considerable straight surfaces should be analyzed otherwise they can turn in extremely unfavorable to natural ventilation. Architectural forms and urban corridors should be examined considering comfort ventilation perspective, otherwise they can turn to an unpleasant experience, especially to people in the ground level. The prediction of wind effects should be assessed during the design phases, where changes in projects are frequent.

Keywords: high-rise buildings, man-made structures, CFD, air flow, air tightness, infiltration, ventilation, packed architectural shapes.

Introduction

As global warming drew attention internationally, there is a growing interest in natural wind ventilation for moderating the temperatures inside the urban patterns along with the need of turning them in much more cleaner areas. There are ongoing efforts to improve air fluidity in and between packed urban areas. This issue turns sensible especially for pedestrians moving in packed architectural shapes, where an adequate air circulation is needed to enhance the quality of urban life. The performance at pedestrian level, however, is often less than satisfactory, due to poor urban spatial design. Also, indoor air quality may go poorer due to inadequate ventilation at lower level (Seo, et. al., 2010).
The inability to visualize air motion is only part of the problem (Dias, at al., 2015). The way that an air mass moves over and around forms in the environment is a complex fluid flow phenomenon (Johnston, 2000). Relying only to the designer's perception regarding the wind flow, has led to misjudgment and confusion of this phenomena. Studies have shown that good air distribution relays so much on avoiding stretched structures which turn in obstacles for air flow (Hala, 2017). Elongated structures should be sliced otherwise they are extremely unfavorable to wind ventilation. In doing so it is possible to move the polluted air entrapped in corridors where the wind can't penetrate (Guo, et. al., 2015).

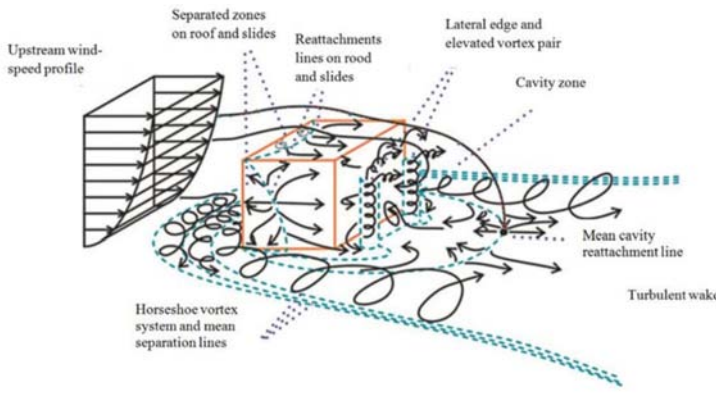

Figure 1: Regions of high surface wind spend around a tall building.

These multistory buildings often present fascinating vertical shapes therefore they are exposed toward high velocity wind flows, because it is known the higher we go, the faster air moves (Emil & Robert, 1996). Designers of these buildings should find solutions not only on getting possible strength and stability against damage for high-rise structures caused from wind loads as lateral loads and, but they should solve

aerodynamics issues as well. The high-rise buildings can prevent the wind flow causing, downdraught effects, vibrations, vortexes shedding, counter-currents and Venturi effects or turbulences around them. Emil and Robert (1996) had classified number of different flows on the rise building as seen on the Fig. 1 (Emil & Robert, 1996). In contrary with the issues of poor ventilation in perimeter buildings, when the air hits a high-rise building, with nowhere else to go, is pushed up, down and around the sides. The air forced downwards may increase wind speed at street level. If a high-rise building cause unpleasant downdraught effect to pedestrian level, it simply cannot be demolished because it is built costs. A high-rise building can be advantageous or also disadvantageous on the pedestrian level, depending on the shape, obstacles, orientation, altitude, size obstacles and so on.

Therefore, architects should control beforehand the wind effects in their planning choices throughout different methods. For several years researches carried out in depth analysis to visualize and direct the wind flow, although it remains a complex fluid flow phenomenon. Wind loads can be calculated in several ways. For example, the formula contained in the American Society of Civil Engineers (ASCE7-95) Standard for Minimum Design Loads for Buildings and Other Structures (Crosbie, et. al., 2008).

The usage of these formula by an architect today is relatively rare, as most wind load analysis is conducted by engineers and aerodynamic specialists (Crosbie et. al., 2008). Therefore, architects nowadays rely so much in simulation approached from Computational Fluid Dynamics to better understand, the wind flow and its effect in man-made structures. Although architects test buildings design with the help of CFD and Wind Tunnels to ensure that would be no damage to the structures, wind can affect potentially people living and working down below. Pedestrian level wind (micro)-conditions is one of the first micro-climatic issues to be considered in modern city planning and building design (Wu&Kriksic, 2012).The air at higher altitudes is cooler, and when downdraught air from high-rise buildings happens it can create unpleasant effects leading to disturbance for pedestrians. On the opposite end, proper tall buildings may provide sheltered areas for pedestrians, and if there is insufficient air circulation (wind speeds), it can lead to accumulation of traffic smoke and/or other pollutants (Tan at al, 2007). A high-rise building can be advantageous or also disadvantageous on the pedestrian level, depending on the shape, obstacles, orientation, altitude, obstacles and so on. That's why CFD simulation helps architects and urban planners to fully assess the effects of their planning choices. They can run their tests in planning phases; thus, avoiding negative effects.

$$p = qGC$$

$$q = 0.00256K_zK_{zt}V^2I$$

p = design pressure
q = velocity pressure
0.00256 = constnt for mass density of air
Kz = velocity preassure coefficient
Kz = topographic factor
V = 3-second peak gust wind speed
I = gust effect factor
C = mean pressure coefficent

Figure 1. The formula containd in (ASCE7-95) Minimum Design Loads for Buildings and Other Structures.

Figure 2: The formula contained in (ASCE7-95) Minimum Design Load for Buildings and other Structures.

Method

Many wind comfort criteria exist, as well as a wind comfort standard, but case studies are lacking (Janssen et. al., 2012). We have decided to implement the case of Toyohashi city in Japan, The local meteorological data for Toyohashi was taken using the windfinder.com (Fig. 1, 2). It was suggested that the wind direction will be from the Southeast at an average wind velocity of 10 m/s.

The chosen site was near Toyohashi along the main street

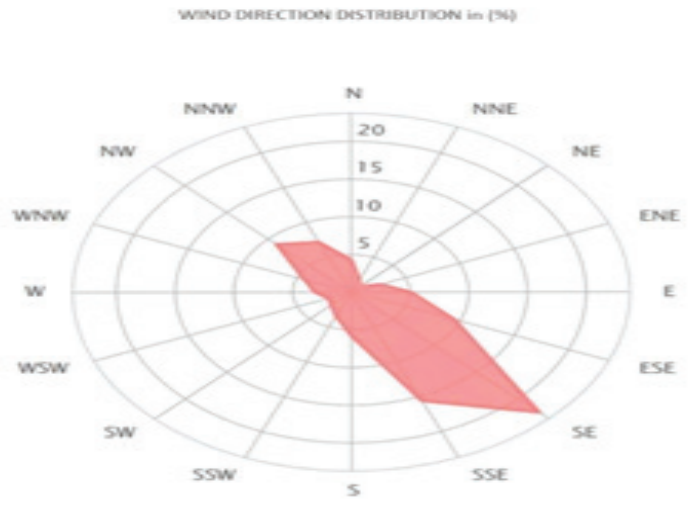

Figure 3: Annual wind rose for Toyohashi City.

of the city so called Ekimaeodori Boulevard (EODB). This site matched our criteria to assess the wind flow through different scenarios. My study tends to create favorable conditions in outdoor spaces of (EODB), providing pedestrian's comfort. After field investigation and maps analysis we were able to build a 3D model including not only the site mentioned above but also its surroundings. The aim was to shape in real scale all the buildings that hindrance mostly with the land-sea breeze prevailing from the Southeast orientation (Fig. 3).

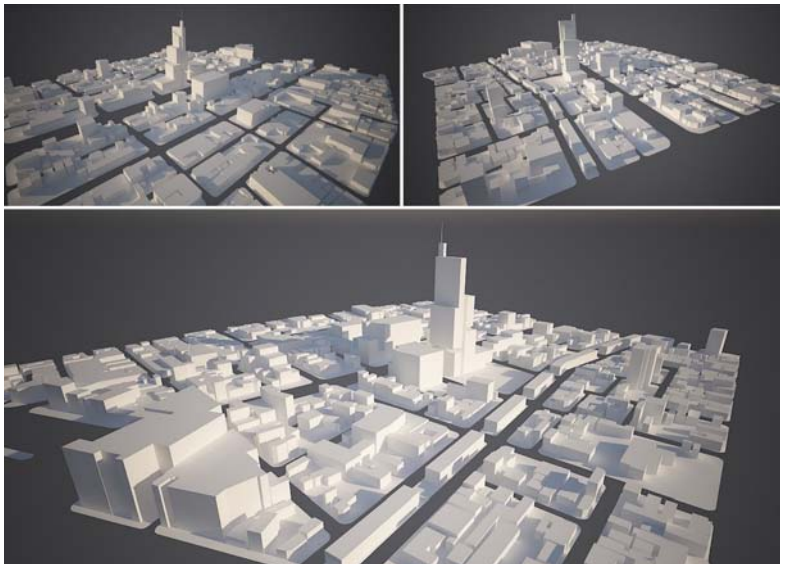

Figure 4: The computational model for Toyohashi City

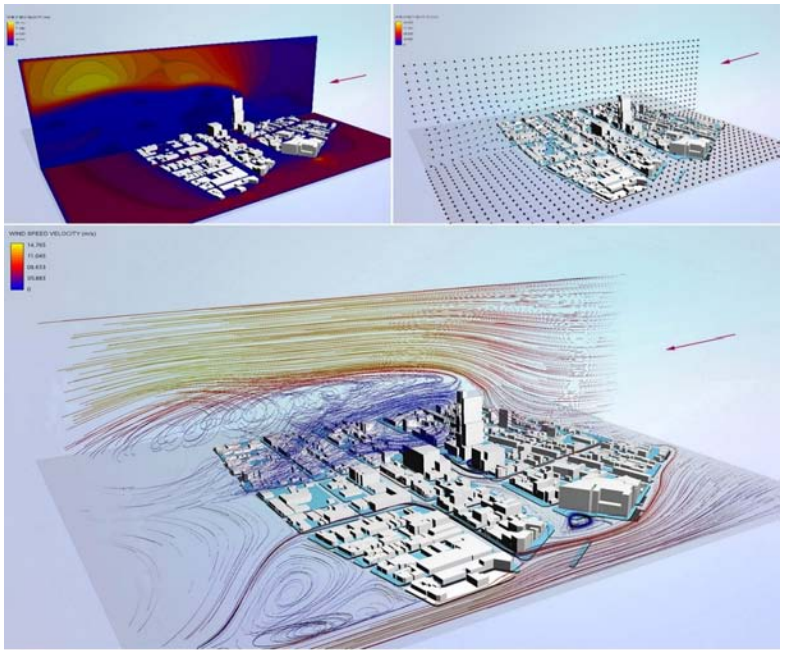

Figure 5: Wind speed blowing from South East Vortex formed besides the High-rise building.

This 3D model was used to perform simulation analysis to evaluate wind effects around the simulation domain. For this simulation was used a (CFD) software which was compatible with the 3D model built in CAD. For the CFD simulation, all the shaped on white color are treated as walls where the fluid cannot penetrate (Fig. 4).
The simulations were done based on a proposal for the construction of a mixed-use tower of 90m tall. Our goal was to assess the comfort condition around the high-rise building in the pedestrian level. We test the wind mostly coming from the S-E side, with an average speed of 10m/s. We have also controlled three other scenarios with the wind flowing from North, East and West but with a lower wind speed of 5m/s.
By doing this we would become aware of most critical gaps where the wind could gain speed (based on Bernoulli's principle), causing discomfort to pedestrians. As it is known the wind measured at 10m above the ground is a usual report for weather report. So, some horizontal planes are placed at this high. With the help of these simulations we were able to understand the principal effects of the wind movement influenced from high-rise buildings in urban environment.

Results

- In all the tests done it is clearly visible the wind was guided from the urban patterns. The ventilation is affected mostly from the high-rise buildings (Hala, 2017) which were able to catch the wind at a far higher speed. At 100m above ground the flow is much more uniform (Fig. 5c), but it is strongly influenced from the High – rise building. The vertical plane shows how much strong the wind higher up is.

- Right after the High-rise building it is form a vortex which is responsible for turbulence in the front neighbor. This turbulent is far bigger that the one formed in South which was formed from the downdraught effect of the wind impacting the high-rise building facades. This happens due to the absence of any other building at the same high in its surroundings (Fig. 6a, 6b, 6c). In these figures is clearly visible that vortex caused from wind's downdraught effect, expand in open terrains.

- The colors of the stream lines indicate the wind speed. Most of the lines in these paths are in blue with a speed of 4-5 m/s (Fig.6a, 6b, 6c).

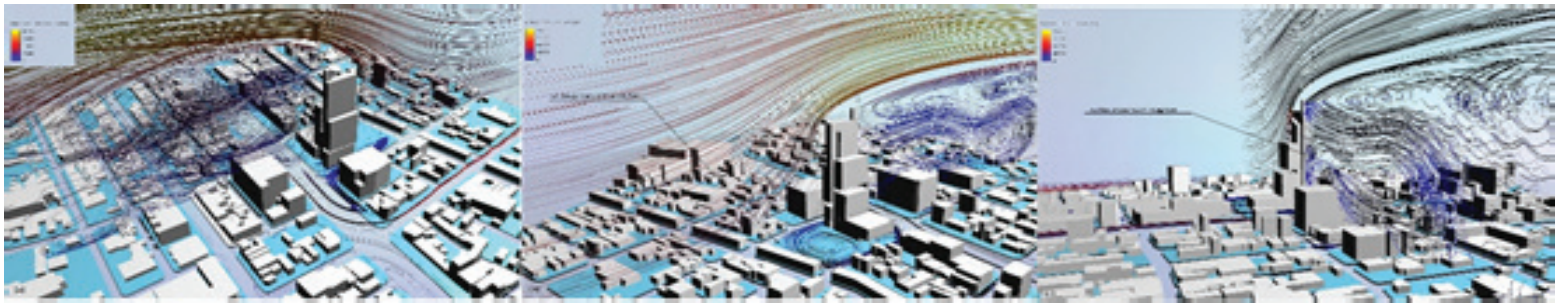

Figure 6: Vortex and turbulence showed around the high-rise building.

- The simulation shows the area where the pedestrians can feel uncomfortable due to the excessive wind speed. The wind speed is increased in part from the Bernoulli' principle and in part from the downdraught effect of the wind hitting the high-rise building facades. These parts are showed in purple and red lines (Fig. 7b, 7c).
- Figure 7a, 7b tells shows that pedestrian's comfort is also influenced from the gaps opened in streets and buildings (Hala, 2017).
- In Figure 7a, 7b, 7c is shown the wind effect on high-rise building blowing from East, North and West. Also, in these figures the vortex shown from the spiral blue and violet lines can be used to predict the turbulent area generated by the high-rise building. After measurements this vortex expand in a maximum of 400m from the high-rise building. These areas will suffer from poor ventilation.
- Figure 7a shows a far larger and much dense vortex in comparison with 7b, 7c which was formed besides the high-rise building.
- Figure 7c shows the wind's stream lines blowing from the East. It is the only view where downdraught wind is diminishing a lot in comparison of 3 other orientation. The wind's stream lines in this orientation are to a greater speed.

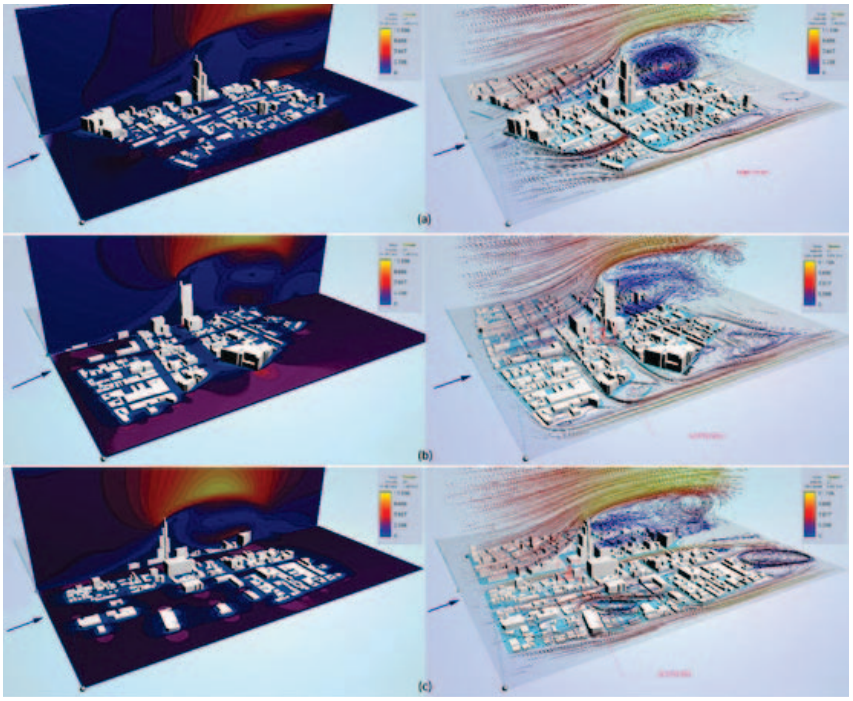

Figure 7: a) Wind blowing from West; b)Wind blowing from North;c)Wind blowing from East.

Conclusion

This paper presents and describes detailed CFD simulations used as a powerful tool for architects assessing and optimizing the effect of wind in their planning choices. From the preceding discussions, the following conclusions can be made:
- CFD can quantify wind discomfort especially in the pedestrian level and hence asses the comfort condition on their circulation.
- High-rise buildings are strongly influencing the wind flow in the urban morphology. With increasing high air moves much

faster than at ground level (Emil & Robert, 1996). When a high-rise building is constructed it must be analyzed for wind flow deformation around it.

- As building has been shaped it will be expensive to proceed with a change on the design. The prediction of the wind effects should be managed during the design phases where changes are frequent.
- The wind 4-5 m/s obtained in diagrams indicates some sensitive areas referring to the criterion by Melbourne, which indicate this wind speed is Generally acceptable for stationary, long-exposure activities (outdoor restaurants, theaters) (Melbourne, 1978). While NEN 8100 indicates; Quality Class A: "good climate for sitting long (parks)". Note: the Dutch Standard does not focus on cafe or restaurant terraces (NEN 206).
- In the diagrams few lines in the pedestrian's level marked in purple or red which indicates a higher wind speed above 7.6 m/s (Fig. 7b, 7c, square 1 and 2). According Melbourne these areas are "tolerable climate for strolling, skating (parks, entrances, skating rings) (Melbourne WH, 1978). Also, NEN 8100 indicates; Quality class D: "moderate climate for strolling (NEN 206).
- The turbulence is generated in open gaps and a great generator of turbulence remains the downdraught wind effect. Also, the turbulence can be diminished if is implemented an escalated facade (Fig. 7a) facing the wind coming from East side.

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8 "CIRCULAR ECONOMY" AS AN IMPERATIVE INDICATOR OF A SUSTAINABLE URBAN DEVELOPMENT DERIVED BY CONSTRUCTION INDUSTRY – CASE STUDY PRISTINE

Binak Beqaj, Blerta Vula Rizvanolli

Abstract

Construction and real estate industries with their rapid development pace, are an important influencer for improving Country's urban development and its GDP level. The intention of the system promoted by the European Union as "Circular Economy" is to keep the added value of the products for as long as possible and virtually eliminate waste from urban spaces as a fundamental guide of urban sustainability. The process of turning waste into a resource of new modes seems to reshape the development of construction industry, especially now when the need for building materials is increasingly focused on the rapid growth of urban areas. The overall objective is to minimize the critical impact that the industry has in the urban environment such as Waste Generating, Greenhouse, Gas Emission, Noise, and Dust Generating. The six actions that rule the "Circular Economy" profoundly improve environmental benefits for the urban area are:

- Regenerate;
- Share;
- Optimize;
- Loop;
- Virtualize;
- Exchange.

The fundamental needs of Kosovo capital city, Pristine (using qualitative and comparative methodology) to catch up with the actual European trends of sustainable economic and urban development, trigger the question raised by this research to analyze the construction industry development vs. rapid urban growth in Pristine and give recommendations on feasible actions to comply with international standards of "Circular Economy".

Keywords: circular, economy, construction, industry, waste, environment, sustainability, urban, area

Introduction

The actual urban development in Pristine and its rapid growth during the last 20 years indicates the fast enlargement of construction and real estate industry. The city population is expanded concentrating in the urban area along with the residential sector, which actually constitutes in the largest division of newly constructed buildings.

The aim of this research is to analyze the challenges that pursue the construction and real estate industry, as two of the major contributors to the country's GDP. Their implementation faces with the constant demand for raw materials which encounter for 25-40% of global carbon emissions. Only 20-30% of these materials are reused or recycled while 70-80% of them are discarded mainly consisting of bricks and concrete (80-83%). In Kosovo, the amount of waste generated from these sectors is 73 kg/inhabitant on annual bases with the potential threat of increasing during the upcoming years while the recycling sector still remains very deficient.
The latest global answer to these challenges is proven to be the "Circular Economy" which looks forward to a more restorative and regenerative approach as an opportunity of establishing a system which aims to keep products, components, and materials in the construction loop for a longer time by turning the ones that are at the end of their service life into resources for new materials. This viewpoint would lead to more Energy Efficient cities and would impressively decrease carbon emission while boosting the global economy. From the urban development perspective, this approach would result as a tool for policymakers as well as it would trigger businesses toward a Recycling and Re-usage of Building Materials.

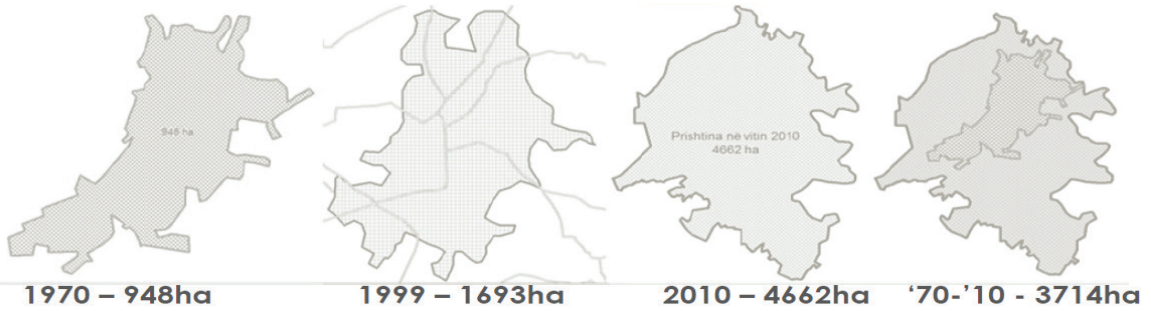

Figure 1: Expansion of Pristina Urban Area 1970-2010.

The case study is based on the analysis of Waste Management in Kosovo on one side, indicating the level of construction and demolition waste materials, and the level of residential uninhabited buildings stock which is continuously increasing on daily basis reaching the level of 2.9 million m^2 in 2016, only in the urban area of Pristina. In reference to the literature review and the data gathered through a qualitative approach, this paper triggers practical recommendations which encourage further examination of their useful implementation.

Literature review

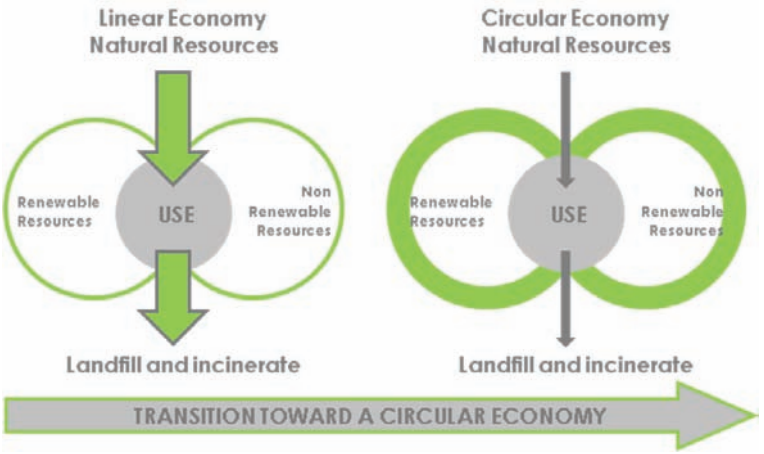

Figure 2: From Linear to a Circular Economy.

Circular Economy has been lately added in the professional vocabulary as an opportunity for future development in different industries even though it was initially initiated by European Commission 40 years ago as an attempt to substitute manpower with energy. As emphasized by Ellen McArthur (2017), the time for "Take, Make and Dispose" is now over and the world is looking forward to a more restorative and regenerative approach offered by Circular Economy as an opportunity of building an economic, natural and social capital which aims to keep products, components, and materials at their highest utility and value at all times. A 'circular economy' would turn goods that are at the end of their service life into resources for others, closing loops in industrial ecosystems and minimizing waste. It replaces production with sufficiency: reuse what you can, recycle what cannot be reused, repair what is broken, re-manufacture what cannot be repaired (Stahel, 2016).

In our current, linear economy, approximately 80% of what we use is directly discarded after usage (Sempels and Hoffmann, 2013), even more over 99% of the total material flow generated in order to produce different products ends up in waste disposal within 6 months (Hawken et al., 2013).

A recent study undertaken by Club of Rome in five European nations found out that a shift toward a Circular Economy by 2030, would ensure economies of these countries to be 25% more Energy Efficient, would led to 50% reduction in carbon emission by using renewable sources in energy mix, and would extend to minimum 25% of material efficiency in manufacturing organizations (Wijkman and Skanberg, 2015). On the other hand, World Economic Forum, the Ellen MacArthur Foundation, and McKinsey & Company indicated that the transition to a circular economy would create an opportunity in excess of 1 trillion US dollar for the global economy (E. M. Foundation, 2014).

The transition to a circular economy is not an easy process and it requires changing of consumer habits and routines. Research and innovation are needed at all levels — social, technological and commercial. Economists and environmental

along with material's scientists need to assess the ecological impacts and costs and benefits of products. An extensive effort is needed to convince businesses and governments that a circular economy is feasible. This transition entails four fundamental building blocks: Materials and Product Design; New Business Models; Global Reverse Networks; Enabling Conditions (Planning, 2015).
MacArthur (2013) identified a set of six actions that businesses and governments can take in order to ensure a smooth transition to a circular economy: Regenerate, Share, Optimize, Loop, Virtualize, and Exchange.

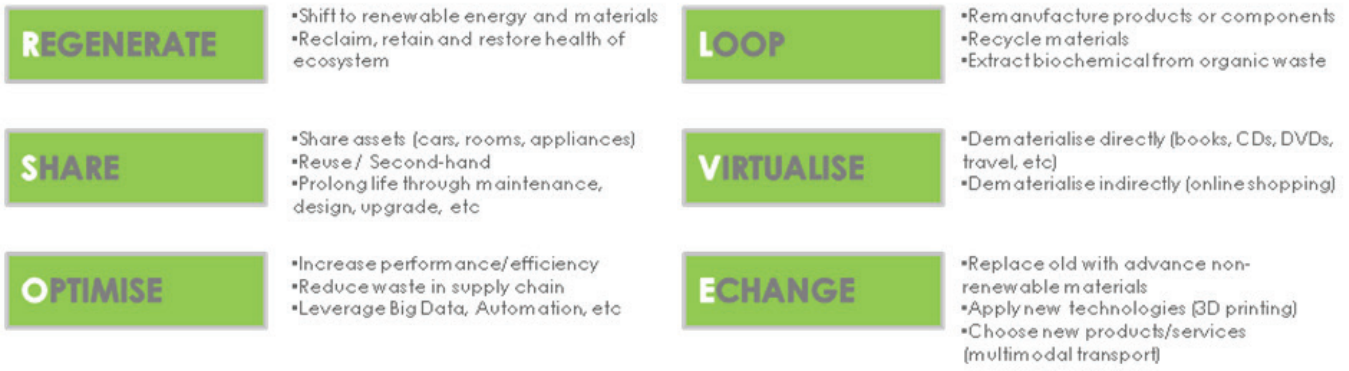

Figure 3: McArthur's six actions toward a circular economy (Source: MacArthur, 2013).

Circular economy business models derived in two main groups: those that encourage reuse and repair, re-manufacture, upgrades and retrofits as a prerequisite to extending service life; and those that turn old goods into as-new resources by recycling the materials (Stahel, 2016).

Circular economy in construction industry

On the other hand, the construction industry's appetite for raw materials is vast; it is the world's largest consumer of them and accounts for 25-40% of global carbon emissions.
In the last two decades, an increasing research effort has been devoted to the evaluation of the sustainability of the construction and demolition sector in urban systems, due to its huge environmental impact and generation of a large number of waste materials (Bowea and Powell, 2016). The circular economy framework and its basic principles "Reduce, Reuse and Recycle" have been proposed for evaluating and addressing more effectively the construction and demolition waste materials (Esa et al., 2017) as well as suggesting appropriate policies, in so making Circular Economy a current political goal in many countries worldwide (Ghisellini et al., 2016).
Based on the actual customer's mindset, it takes more labor and fewer resources to refurbish buildings than to erect new ones. The principle is true for any stock or capital, from mobile phones to arable land and cultural heritage. Having said that, as an innovative economic and production model Circular Economy primarily implies a mindset change that considers waste as potentially useful resources and not as a problem to manage and dispose of in landfills, as in the past linear economy.
In the construction industry, waste is well managed by many companies in Europe and worldwide, but yet, a huge amount of recyclable/ reusable materials are disposed of. According to MacArthur (2013), only 20-30% of the materials used in the construction industry are reused or recycled while 70-80% are discarded. This waste consist of different types of materials in variable amounts, depending on several factors such as their sources (residential, commercial, industrial buildings, roads, bridges), size (low-rise, high-rise), the type and method of activity that is carried out (e.g. construction, renovation, repair, demolition/deconstruction) and the location of the development (Diyamandoglu and Fortuna, 2015).
In European countries, Construction and Demolition waste mainly consist of bricks and concrete (80-83%), the rest (17-20%) are packaging and structure support materials (such as plastics, wood, metal, paper, and cardboard) as well as

overburden, namely material coming from excavation sites (clay and rocks, asphalt) (La Marca 2010).
Obviously, demolition projects generate a larger amount of waste that could be more than 10 times higher than construction projects (Duan et al., 2014).
Applying this principle to the construction industry could bring extremely cost-effective benefits. The World Economic Forum's report points out that by harnessing the capacity of the building sector, many countries could cut emission rates cost-effectively and achieve energy savings of more than 30%, according to the United Nations Environment Programme.
From the urban development perspective, the Danish case study encourages delivering of the circular economy as "A toolkit for policymakers" (Egerton-Read, 2015). This study considers the policy and business opportunities in creating a construction that utilizes industrialized production. Their proposal for government is Re-Destination of Already Constructed Buildings Capacities where the sharing and multi-purposing of buildings are increased, while for businesses they promote Recycling and Re-usage of Building Materials.

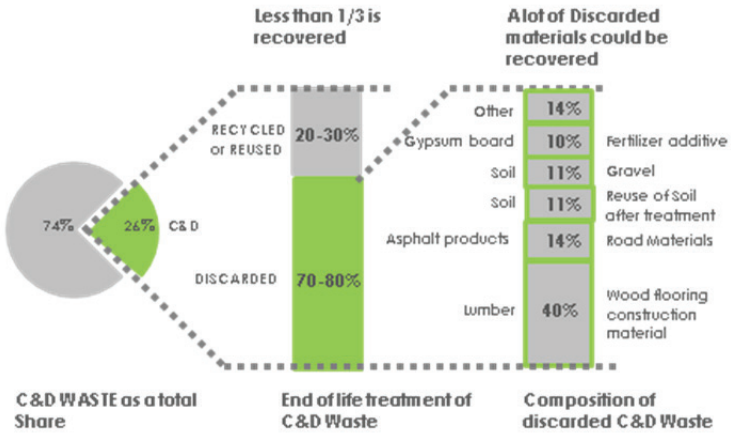

Figure 4: Waste materials in construction and demolition.

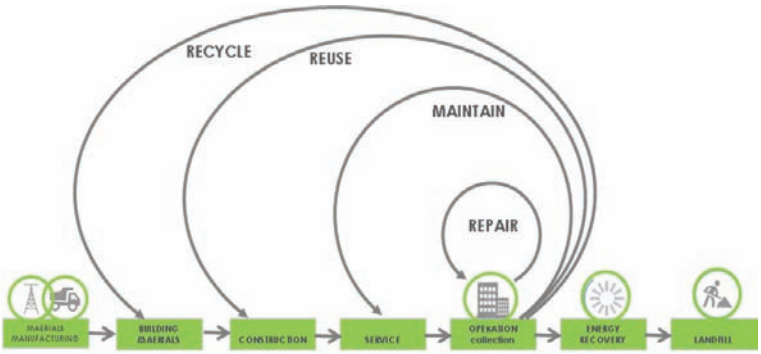

Figure 5: Circular economy in construction value chain.

Construction industry and urban development in Kosovo

The meaning of urban area is structured by the functionality of buildings and sites "Buildings are constructed and sites are developed in ways that are sensitive to both: historical and contemporary context." (LaGro Jr, 2013).
The general analyses of this research are based on systemic literature review related to people, buildings and public spaces, study cases and researches of public opinion related to the construction industry and urban development in Pristine. The city is considered to be a rational modeling, plan, and design which is used by citizens while it depends mostly from the quality of public policy defined as "Institutional, groups and networks, rational actors, ideas (John, 2013) which relies on the quality indicators such as:

- Number of the constructed buildings in relation to community needs, considering how many of them are not in use;
- The trend of building permits issued and illegal constructions trends considering how many of them can be repurposed;
- Investments trends.

Taking into consideration the rapid urban development of Kosovo capital City, Pristine, especially during the last two decades, positive and negative aspects may be highlighted. In concentration of business and their potential unstructured investment capacities, the major consequences noticed indicate: increased number of inhabitants, mass new constructions, mass demolishing of existing stock, transformation from individual to collective housing, low quality of constructions, disproportion between demand and supply curve related to the buildings, disproportion between needs and buying capacities, disproportion between use and not use of constructed buildings, etc.
In this regard, the importance of "Circular economy" in a sustainable urban development of the country's economy is unavoidable knowing that poor economy along with unplanned development concepts is characteristics of underdevelopment countries. In addition, study the case of Pristine shows that there is a huge stock of unused newly constructed buildings, a massive destruction of existing buildings, lack of buildings and spatial multi-functionality usage,

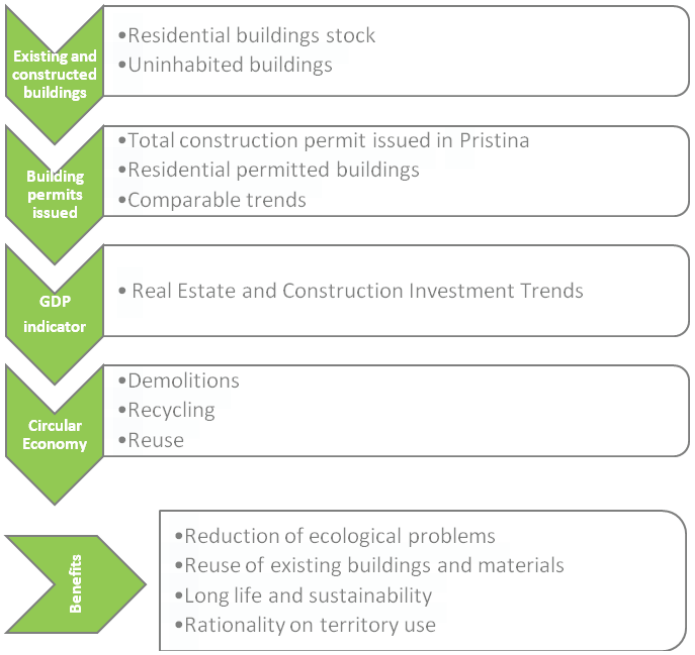

Figure 6: "Circular Economy" and possible urban develompent benefit(source: research work;August 2017).

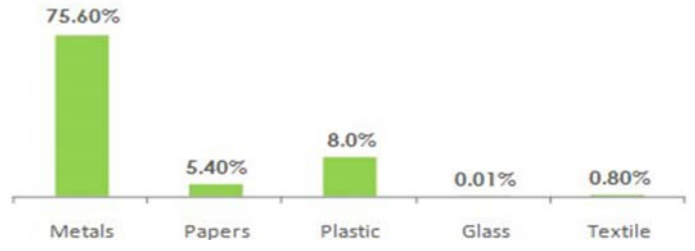

Figure 7: Waste recycling capacity in Kosovo.

huge stock of construction and demolition garbage and environmental problems related to that.

Based on the data gathered from the Kosovo Agency of Statistics (KAS, 2017). Construction Industry, together with the Food Industry and Minerals, is one of the sectors that produce the most dangerous waste. Besides, within its territory, Kosovo is able to recycle only Metals (75.6%), Paper (5.4%), Plastics (8.0%), Glass (0.01%) and Textiles (0.8%).

On the other hand, according to the Waste Management Strategy of Republic of Kosovo, developed in 2013 by the Ministry of Environment and Spatial Planning, on annual bases, Kosovo produces 167,900-ton waste from Buildings Construction and Demolition or 73 kg/inhabitant. This amount is expected to be increased dramatically when demolition of Buildings of "Kosova A" power plant starts by 2018. Even though, based on this strategy, it is foreseen that 80% of Construction and Demolition Waste shall be reused by 2022.

Moreover, in reference to the data published by Kosovo Agency of Statistics (2013), 24,1% of the buildings in the Urban Area of Kosovo are Uninhabited. While, only in the urban area of the capital city of Pristine, the uninhabited area reach the level of 2.4 million m^2.

Besides, the updated data published by the Municipality of Pristine (2017) indicate that more than 80% of the total construction permits issued by this municipality during the years 2012-2016 relate to residential buildings.

The total residential permitted areas in Pristine reached the highest level of 787.000 m^2 in 2013 and dropped to 432.000m^2 in 2016.

On the other hand, the investment trends show that Construction and Real Estate Industry remain among the most important sectors that in 2016 contributed with 8.3% and 10.2% in the country's GDP respectively.

From the above-presented data, it may be presumed that the Total Residential Area in Pristine up to 2011 was – 9.8 million m^2 and this amount is added by 2.135 million m^2 for the years 2012-2016. If the previous trends of having 24.1% of uninhabited residential areas have continued, it means that by the end of 2016 there are 2.9 million m^2 uninhabited residential areas in Pristine.

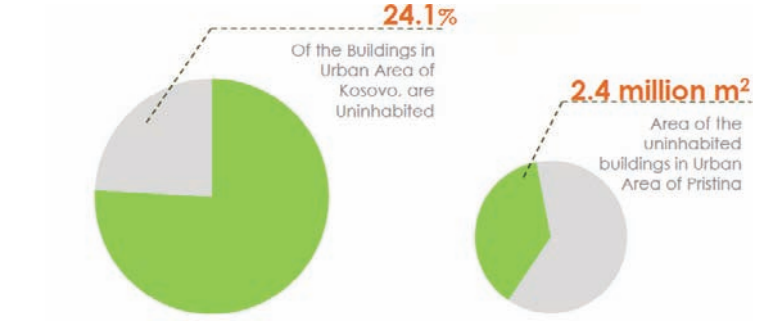

Figure 8: Uninhabited buildings in Kosovo and Pristina.

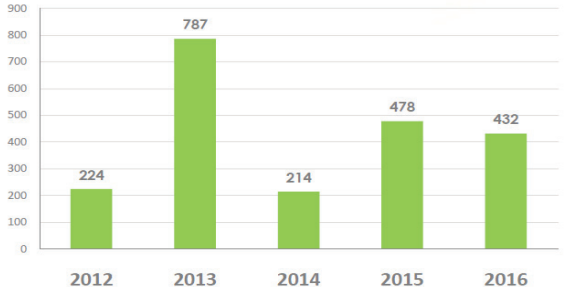

Figure 9: Number of construction permits issued by Pristine Municipality 2012-2016.

Conclusions

The complex, dynamic, forever-changing construction industry has its own challenges that among others, relies on a massive amount of discarded raw materials which encounter a huge environmental impact. The latest global reaction to this issue is the so-called "Circular Economy" which anticipates to a more sustainable approach as an opportunity of establishing a system which aims to keep products, components, and materials in the construction loop for a longer time by turning the ones that are at the end of their service life into resources for new materials.

This paper aims to analyze the construction industry in Kosovo, and the implication of a Circular Economy approach to the future urban development of Pristine city. The utilization of the up-to-date literature along with data gathered for the particular case study, encourage boosting of Circular Economy approach in Construction Industry and as a result, facilitating Urban Development of Pristine, by promoting the following steps in both, business perspective and as a policy-making tool:

- Expand the range of recycling and reusing of construction and demolition waste, including also: Concrete / Rock / Brick Waste - as a gravel and erosion control material; Gypsum Board - as a fertilizer additive; Asphalt Products - as road built.
- Re

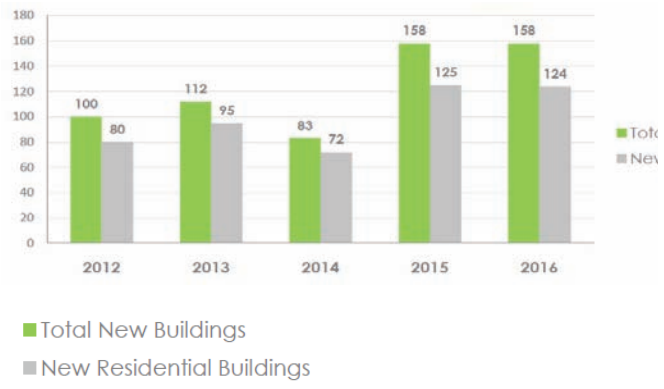

Figure 10: Total residential area permitted by Pristine Municipality 2012-2016.

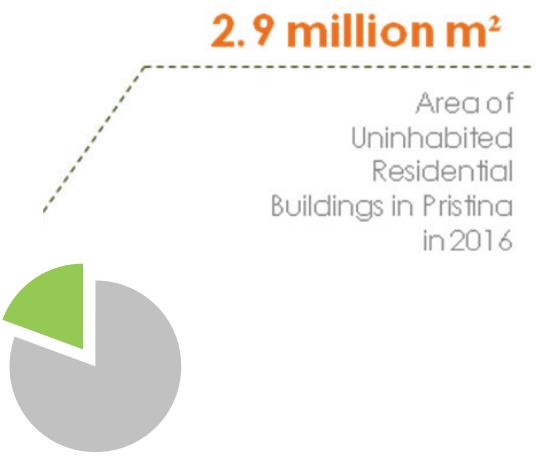

Figure 12: Uninhabited residential area in Pristine in 2016.

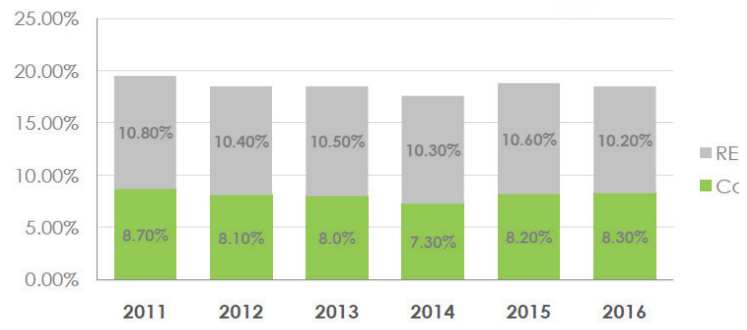

Figure 11: The contribution of construction and real estate sectors in Kosovo GDP 2011-2016.

Destination of constructed residential spare capacities by embracing the six actions approach Regenerate, Share, Optimize, Loop, Virtualize, and Exchange.

Considering the 2.9 million m² of uninhabited residential building in Pristine, the local government shall re-consider the regulations of issuing further permits, and aim to increase share and multi-purposing of space as a solution for slower urban area development, which will increase the capacities of the investment in actual infrastructure by reducing the need for building a new one.

From the undertaken research it may be derived that certain institutional and business term innovative modifications are required in Kosovo construction industry in order to enhance the adoption of global trends of Circular Economy. This broad area of investigation shall continuously motivate future researches who aim for sustainable restorative and regenerative solutions.

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9 EDUCATIONAL APPROACH TO IMPLEMENTING SUSTAINABILITY IN ARCHITECTURAL DESIGN

Gregor Čok

Abstract

Residential building design in the context of contemporary residential culture and pertinent sustainable construction guidelines has been a fundamental professional challenge. Within the various approaches and practices, the Guideline for Sustainable Building (after the German Leitfaden Nachhaltiges Bauen, 2011) has been gradually introduced in Slovenia, analytically defining environmental, economic, and cultural sustainability qualities of buildings. Among these qualities, architects particularly focus on architectural design parameters that are difficult to quantify, unlike environmental and economic parameters. In the educational process at the Faculty of Architecture in Ljubljana, significant attention has been devoted to the interpretation of cultural sustainability qualities, which capture the parameters of functional building design, visual design, living environment perception, and the spatial context. This paper presents a methodological approach that has been systematically developed by educators over the last six years, with a view of interpreting sustainability. The working method was developed under study projects in the Design Studio 2 course entitled The House in Context. These projects involve the design of small-scale architectural developments with residential content, located in existing morphological structures, i.e. villages of Slovenian Istria. The traditional context presents a residential alternative to the urban space and an additional challenge to learn the basic steps of conceptualizing buildings. This method is divided into three steps: (a) interpretation of sustainable design principles and the contemporary residential culture, (b) spatial context valorization, and (c) project solution design. In the sustainability interpretation segment, this method includes interdisciplinary discussions between students and experts in energy engineering, statics, and economy, while in the creative building design process it includes the use of three tools at the same time: sketches, models, and renderings. Based on the results and promotion of preliminary design projects to the general public, we find that in implementing sustainability in a wider sense, it will be necessary, along with educating architects, to further the promotion of contemporary architecture (educating users) and administrative procedures concerning the preparation of implementing spatial planning documents (educating public administration officials), which, in fact, allow for implementation of projects.

Keywords: architectural design, sustainability, implementation, education, interpretation

Introduction

Implementation of sustainable planning principles in the context of national legislation, profession, and education is a complex and long-term process. This involves the development of risk-based approaches, models, and professional practices used by individual countries to facilitate, as effectively as possible, the implementation of basic sustainable goals, both globally and locally (Wiek et al., 2011). In chronological sense the discussion on sustainability in planning and design started in the late 1980s (Brundtland Commission report, 1987). With the ever-increasing promotion of the new doctrine, the general environmental awareness gradually increased as well, while individual sustainable principles materialised in sophisticated technological and, as a consequence, urban design solutions (Frey, 1999) and architectural solutions.

The architectural profession reacted in very different ways to technological and conceptual innovations (Čok, 2014). In the discussion on conventions and innovations, the individual actors underlined the fact that some sustainability principles can be interpreted as known facts in the context of common sense: "Past experiences show that no great revolutions in the appearance of architecture are likely to occur. There will only be new interpretations of the already known. Despite the many "inventions" that we lived through in the past decades, it still stands that the space of a "house" is built and

delineated by walls (Gabrijelčič, 2016)." Nevertheless, new technological solutions for achieving improved energy performance have significantly affected the conventional diction of architectural design. Architects reacted to the new demands by individual approaches. One of the comparative analyses of completed residential buildings confirmed the versatility of the design approach: "New energy technologies are either seamlessly integrated into existing building types, they can be added to the buildings as a new design addition or provide a welcome starting point for designing completely new building types (Gabrijelčič, 2016)." Here authors focus differently on creating quality buildings that affect people's welfare, health, and productivity. Despite the various national actions to implement sustainability comprehensively, we find that legislation still largely favours the environmental aspect. In educational process, the implementation started, in principle, in the form of study guidelines (Smernice vzgoje in izobraževanja [Education Guidelines], 2007), which follow various international documents (e.g. UNECE Strategy for Education for Sustainable Development, Resolution 57/254 on the United Nations Decade of Education for Sustainable Development (2005—2014), 2002, etc.). Their respective implementation was left to individual educational institutions. The Faculty of Architecture of University of Ljubljana, as many others (Porras Álvarez et al., 2016; Hassanpour et al., 2017), approached this implementation by introducing an appropriate set of theoretical and practical courses. Importantly, rather than being related merely to energy balance, recyclability, and similar parameters, sustainability also consists of a culturology component, i.e. a contemporary residential culture aspect. In UL FA's study programme, Design Studio, as the central course of architectural design, represents a comparable education level to other higher-education establishments in EU member states (Fikfak, 2013). In fact, this course provides the most opportunities to implement sustainable guidelines, as it covers all structural steps, from grasping the starting points to production of a project. Despite the fact that UL FA is in line with international accreditations in terms of introducing theoretical and practical knowledge, we see that for an efficient implementation of sustainability in the study process it is first necessary to implement sustainability into the practice of educators. Only through one's own experience with design can one grasp the necessary skills that are in the educational process shaped into a theoretical and practical synthesis. Here, formal, study, and design guidelines mostly provide the structural framework of the creative process. In the wider social sense, architects with their interdisciplinary dimension of work can be important actors in the general implementation of sustainability (Haines, 2010).

Problem

So far, the implementation of sustainable design principles concerning buildings in Slovenian theory and practice has been directed towards the segment of energy and economic performance. The third pillar, i.e. the sociocultural aspect, which comprises also architectural and urban design, comfort, stimulation, and other user qualities, is in various formal documents (guidelines) rather loosely defined. In this sense, design parameters are left to the discretion of a subjective approach of individual architects and/or their clients. Many implemented solutions testify to this fact, as they give priority to technology (for achieving energy performance) over the principle of quality architectural design. At the Faculty of Architecture (UL FA) we are trying to comprehensively present sustainable design principles, where we pay specific attention to functional and design parameters in drawing up urban design and architectural projects. Despite the existing, formally defined university guidelines for teaching sustainability, presently educators approach this subject matter highly individually. In this field, the rules of the game in the education process are still forming.

Materials and methods

Upon completion of their studies, in practice architects are exposed to highly technological and investment views on the term of sustainable architecture. In this sense, educators use various approaches to provide a comprehensive explanation of the sustainability doctrine to their students (see section 3.1). Below (see section 3.2) the working method used in Design Studio 2 is presented, which is run over two semesters, under supervision of a mentor and an assistant. In educational sense, this method involves the production of study projects (simulation of preparing an architectural project at the conceptual design level), based on a wide spectrum of starting points. The work is underway in two stages. The first phase is informative, where the students become familiar with the main notions of sustainable planning. The focus is on three segments: I. Understanding the principles of the contemporary society (residential culture, needs, contemporary norms,

etc.); II: Understanding the effects of state-of-the-art technologies (possibilities, restrictions, efficiency, and effectiveness); III: Interpretation of general principles and concrete guidelines of sustainable design (comprehensive treatment). The second stage covers project work. Through individual work and based on many consultations with the educator and external experts, the students develop the project solution (from the concept to the design, various tools, understanding the architectural detail). The working method is amended yearly based on the results, experience, and participants' comments.

Results

Implementation of sustainable design principles

In the discussion on sustainable design principles and guidelines it is necessary to distinguish between implementation and interpretation. The latter is particularly important from the education point of view, as particularly in architectural and urban design this raises concerns about creativity, approaches, and using the various parameters of sustainability in producing spatial solutions. In our education process, implementation and interpretation take place in parallel. In line with university guidelines, UL FA's education policy leaves sustainable education at the discretion of individual lecturers. In 2016, UL FA, as part of the TEMPUS programme, conducted a survey among educators about their approach to teaching sustainable design, used to outline the existing situation (Tables 1–3). It was established that, in principle, this concerns three sources of providing information, where in the first source the general sustainability principles are presented (implemented), the second source is targeted lectures, while in the third source the individual guidelines are interpreted:

- The first source are lectures in individual courses, where students learn about the partial parameters of sustainable design; this process practically covers the entire UL FA's syllabus. Educators provide information at their own discretion, purpose, and scheme.
- The second source is specific courses where sustainable design guidelines (hereinafter: SD guidelines) are taught systematically, in line with the subject matter of the course (e.g. Construction Technology and Materials, Ecological Construction Principles, Environmental Aspects of Sustainable Development) In these courses the environmental aspect is generally the most exposed.
- The third source is Design Studio as the central course run in each year, which teaches architectural and urban design. With most mentors, Design Studio is directed into interpreting cultural qualities, including design, health, wellbeing, etc. The manner, intensity, and analysis of teaching SD guidelines are approached differently by each mentor. The survey results reveal that educators deliver SD guidelines mostly as their own interpretation and experience, and through examples of good practice of architectural projects, and, to a lesser degree, as formal, numerically quantified parameters (Table 1).

Table 1: Results of the survey: manner of teaching SD guidelines.

As a teacher, how do you approach the teaching of SD policies?	1 = not at all, 5 = extremely well % = number of responses				
	1	2	3	4	5
As your own interpretation of "sustainability" and/or as your own experience	0%	6.6%	13.4%	40%	40%
As widely recognized principles for designing user- and environment-friendly buildings	0%	0%	13.4%	46.6%	40%
As formal and quantifiable values (RES parameters, CO2, etc.)	40%	40%	20%	0%	0%
By providing examples of good practice	0%	0%	13.4%	20%	66.6%

The survey also confirms that the Design Studio course is mostly focused on socio-cultural goals (Table 2). In the set of sustainable design goals, educators most often address socio-cultural goals, while less attention is given to economic goals (Table 2).

Table 2: Survey results: representation of individual goals of sustainable design in lectures given by UL FA educators.

In your lectures, what aspect of SD is represented the most/the least?	1 = not at all, 5 = extremely well % = number of responses				
	1	2	3	4	5
A A - Environmental (energy performance, recyclability, etc.)					
Low emissions throughout the life cycle of a building	20%	20%	13.4%	33.2%	13.4%
Low energy use throughout the life cycle of a building	0%	13.4%	20%	33.3%	33.3%
Using environmentally-friendly materials	0%	0%	6.7%	33.3%	60%
B - Economic (costs, economic viability, etc.)					
Price of project/building	13.4%	13.4%	33.2%	33.3%	6.7%
Low maintenance costs	0%	6.8%	26.6%	40%	26.6%
Low operation costs	0%	20%	20%	26.7%	33.3%
C - Sociocultural/user goals					
Security, health, comfort (natural lighting, ventilation, temperature, etc.	0%	0%	0%	20%	80%
Functionality	0%	0%	6.7%	40%	53.3%
Design and urban design qualities	0%	0%	15.3%	15.3%	73.4%

The survey also revealed that interdisciplinary discussion plays a key role. Educators invite guest experts to deliver lectures on specific topics. Most educators also believe that nowadays students consider SD guidelines as already established, widely recognized contemporary design principles (Table 3).

Table 3: Survey results: educators' opinion on how students perceive SD guidelines.

How do your students understand SD guidelines?	No. of responses
As established, widely recognised contemporary design principles	46.7%
As recommendations and/or objectives introduced to them for the first time in individual courses	26.6%
As mandatory norms (e.g. for promoting the energy performance of buildings)	26.6%

Below, we present the working method which includes analytical steps in the creative process of building conceptualisation, from understanding the needs of the modern user, learning about the spatial context, to integrating sustainable qualities into project solutions.

Understanding "sustainability" in the planning process in design studio 2 course

In the building design process, the very understanding of individual sustainable elements is of key importance. This paper presents a methodological approach that has been systematically developed by educators over the last six years, with a view of interpreting sustainability. The presented working method was developed under study projects in the Design Studio 2 course (mentor prof. mag. Peter Gabrijelčič, assistant doc. dr. Gregor Čok) entitled The House in Context. These projects consist of designing minor architectural developments with residential content, in locations of existing morphological structures, i.e. in villages of Slovenian Istria. Through the educational process we simulate project preparation at the conceptual design level (formally preliminary concept design – IDZ). The working method focuses on interpreting the third pillar of sustainability, i.e. the sociocultural qualities that are difficult to quantify, making their interpretation highly subjective.

The study assignment is based on two assumptions: I. Programme: a house for a modern user who works from home, as an extension or a superstructure of an existing building selected; II: Location: it is located in s small rural settlement with prevailing recognizable historical morphological structure (small villages and hamlets in Slovenian Istria and the Alps). The work process is underway in two stages. The first phase is intended for definition of project starting points: interpretation of sustainability, understanding the needs of a modern user and the spatial context (Table 4).

Table 4: Definition of starting point-range and scope of individual steps in the education process.

Methodological step	Content and working methods
1. Interpretation of sustainable design guidelines (The following guideline is used: *Leitfaden Nachhaltiges Bauen, 2011)*	**Content:** definition of basic notions of SD with an emphasis on sociocultural qualities in building design: - functionality, safety, health, comfort (natural lighting, temperature), design and urban design qualities, integration of qualities of existing spatial and social contexts, etc. **Working method:** lectures: demonstration and explanation of formal documents, which address sustainable building qualities, review of reference examples of good practices, invited lectures by experts. The discussion goes beyond the implementation of sustainability; it is intended to present the cases of interpreting the individual parameters in the design process.
2. Understanding contemporary residential culture	**Content:** definition and understanding of characteristic needs of individual family members, visitors, and business partners: - Justifying the needs in the framework of contemporary typological and structural elements, which will be included into the spatial solution (modern open layouts, connection of the exterior and the interior, elements of natural lighting, allowing for physical and perception interaction between family members, etc.). **Working method:** thematic lectures (guest lecturers) and individual work: analysis of (students') own daily cycles (study, work, sleep, activities, etc.), analysis of peers, relatives, acquaintances, definition of key characteristics (practicals). The students present their conclusions in front of the work group; examples of good practices, discussions with educators.
3. Site analysis and context identification a: Valorisation of existing situation b: Definition of potentially sustainable qualities	**Content:** definition of key characteristics of the spatial context. **Working method:** individual investigation: as part of field work, in the first step students select a specific building and analyse its morphological and typological characteristics and the wider impact context. In the second step the elements are underlined, which are considered to represent specific sustainable qualities in their existing form: - Structural: qualities of regional (e.g. Mediterranean – location-specific), morphological, and typological design, e.g. solar radiation/shading/orientation of buildings, settlement level: network of public spaces, courtyards, piazzettas, etc. - Material: renewable resources/traditional natural materials; stone, wood, etc. - Visual: attractive architectural setting, views of the landscape, vegetation, etc. As a result of this work, the students summarise the set of elements, which will be used in their project design, identifying sustainable qualities in a discussion with the educator.
4. Synthesis	**Content:** the student summarises the findings and defines the way to consider the individual elements in the project design. **Working method:** individual approach, discussions, and corrections with educators.

We found that using this sequence, the students gradually become familiar with architectural design as a complex creative process. For an architectural work to be efficient, it is necessary to be familiar with a wide range of starting points (user needs, existing potential, site boundary conditions, formal administrative starting-points, etc.), where sustainability presents the central doctrine, within which this process takes place. Using the method of individual exploration, the students learn about the current problems and expectations of the present-day population. In this step they define the living characteristics of individuals and, as a result, the appropriate size of exteriors and interiors, their functionality, equipment, and modern ergonomic and design guidelines. Through site analysis, they identify the basic elements in space and their potential functional, design, and social qualities (spatial possibilities of land plots, architectural qualities of the historical tissue, views, connections with the natural environment, town social networks, etc.). A discussion with the educator follows in the final step, along with identification of sustainable qualities of the existing situation. In the second phase spatial solutions are produced based on the assumptions and starting points. This process consists of the following steps (Table 5).

Table 5: Process and elements of the spatial solution.

Methodological step and sustainable goals	Content
1. Definition of the architectural concept **Goals:** rationality and efficiency (architectural and urban design quality)	- review of potentials of a selected land plot or building, definition of variant ideas, - key elements: composition of volumes, orientation, internal organisation, old–new relationship. This concept is based on an overall understanding of starting points and introduces a specific functional, structural, and design idea.
2. Integration of qualities of the existing situation **Goals:** partial qualities	- definition of those elements that will make up the new building and experiential composition (existing built structure, external elements, orientation of views, etc.).
3. Programmatic composition **Goals:** rationality and efficiency	- Allocation of content into individual building segments. In principle, this relates to organisation of new layout solutions in the existing historical building, by adding a modern extension (as a small architectural intervention).
4. Layout design **Goals:** functionality, health, comfort, stimulation, productivity	- drawing of functional layout by considering ambience and perception qualities of architectural space: attractive views, efficient internal connections and social interactions, connections between the exterior and the interior, provision of individuality, lack of feeling constrained, etc.
5. Design of the building volume **Goals:** design sustainable qualities	- shape of building mass and façade envelope design (composition, materials, colours, textures), where the old–new relationship presents a special creative challenge. Interpretation of individual elements in a given spatial context is expressed in the composition (e.g. how to use traditional materials in modern façades or how to create contextual structured patterns using contemporary technology of stone, wood processing, etc.).
6. Design of the architectural detail or materialisation of architectural artistic expression **Goals:** design and technological sustainable qualities	- Two or three reference details are selected and treated, the feasibility of technological solutions and artistic expression of the individual elements are tested in scales 1:1 or 1:2. We found that this step is essential for students to understand the architectural detail. The testing on a physical model helps the students get a clear idea about its actual, final appearance. The model represents a material and tangible object and as such expresses all its true characteristics.

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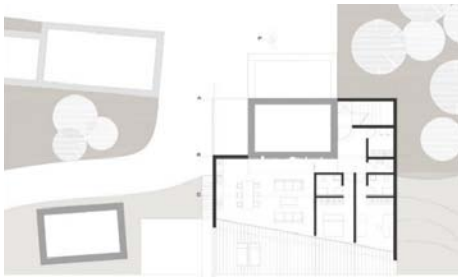
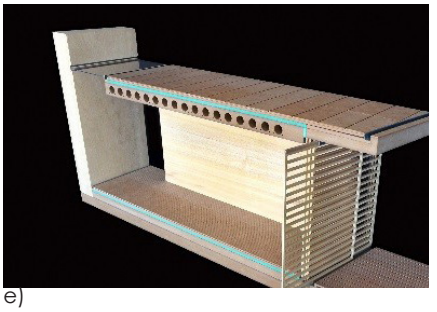
All steps are taken as individual consultations with the educator. Each time, the sustainable aspect of individual elements is (selectively) defined, both at the concept and detailed project levels. Invited lectures of experts in statics and technology are organized, to whom students present their conceptual design solutions and then, through discussion, obtain their feedback. In principle, the assignment does not go into details regarding energy performance and economic feasibility, but rather it focuses on socio-cultural parameters of sustainability. In the project sense, it is also relatively simple, as it is primarily intended for understanding the work process and sustainability in all its complexity. The working method comprises various scales and parallel use of line drawings and models. With a line drawing (manually or ACAD) the building volume outlines and layout solutions are conceptualized. Models help to check three-dimensional composition relationships and the technological feasibility of details. We found that the measure of parallel work on drawings and models is highly efficient for the representation and understanding of a building's functions and the actual implementation of the architectural detail (Fig. 1).


a)


b)

c)


d)


e)

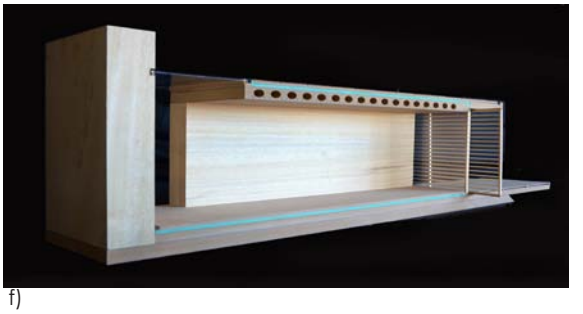

f)

Figure 1 a),b), c), d), e), f): Study project The House in a Context; a minor architectural intervention in the existing morphological context, design of housing conditions for a modern user (façade, layout, cross-section, model of an architectural detail), Design Studio 2, 2012, Student: Matic Banko.

Presentation and promotion

Presentations of study work (projects') results take place at a joint UL FA exhibition at the end of each school year. Individual presentations are organized to both professional and lay community. It was established that the response to the results by the experts in public administration was different than the one in practice. Public administration, in fact, favors innovative solutions but draws attention to the problems related to outdated spatial documents, which, to a great degree, still lay down construction using conventional principles. This set of provisions includes, e.g., restrictions regarding building volumes (in the most part of Slovenia, only conventional pitched roofs are allowed and the orthogonal building outline as well as orientation are prescribed), and the facade envelope (in many cases preventing the design of large panoramic surfaces, etc.), etc. This points to the fact that in practice we still have a long way to go to achieve full implementation of sustainable design principles.

Conclusions

In the implementation of SD guidelines there are various approaches used in theory and practice. Evidently, the construction industry has effectively assumed the principles of rational and environmentally acceptable operation. In EU member states (and beyond) many standards have long been established, which direct the production of building materials, products, as well as architectural concepts towards environmentally- and user-friendly solutions. This a very positive; nevertheless, sustainability as a doctrine should be understood comprehensively. In the desire to meet the norms set we must not forget spatial users, as the basic objective to be addressed in the design process.
In Slovenia, quantifiable provisions regarding energy performance have found their way in relevant statutory instruments. The guidelines, or at least a productive understanding of the design principles of modern layouts and modern sustainable design, have unfortunately not been implemented enough neither in theory, legislation, nor practice. We believe that appropriate education of staff and, of course, of future architects, will significantly contribute to this. An interdisciplinary

discussion plays in key role in this step. In the work process we found that discussion, as a soft method of learning about various aspects of a certain problem, introduces the required intellectual depth to understand partial sustainable qualities in building design. A targeted education of potential users of these buildings will also be necessary, particularly toward their understanding of the fact that a house is, in fact, a response to present-day needs and expectations.

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10 A MULTIFUNCTIONAL SUSTAINABLE APPROACH IN AGRICULTURAL POLICIES FOR THE ENHANCEMENT OF THE PERIURBAN FABRICS

Nicola Martinell, Vito D'Onghia, Giovanna Mangialardi

Abstract

The integration of agricultural areas in urban patterns represents a current matter of great concern. Marginality, fragility and fragmentation of spaces are essential elements for the connection between government policies and land management, aimed at the cultural heritage enhancement, with the support of sustainable multifunctional agriculture practices and awareness-raising initiatives on issues relating to food security, food safety, and territorial governance and to the improving of autogenously resources tied to food policy, rural space and landscape.
The contribution purpose is to analyse possible strategies for the valorisation of subsidiarity and of the cooperation relationship between the different players involved in the territory, then to analyze the use of intrinsic resources and the development of partnerships between stakeholders such as: local and non-local companies, research centers and universities, and territorial representations with a view to describing innovative strategies useful for the promotion of a sustainable economic growth in the Apulia Region, by encouraging projects aimed at innovation and enhancement of landscape, cities and territory.

Keywords: periurban farming, agro-biodiversity, food policy, multifunctional agricultural parks, productive urban landscape

Introduction

Modern urban planning policies focusing on sustainable issues like the reduction of soil consumption and the proposal of an alternative model for the cities development are turning to a new approach to periurban agricultural territory and its management.
The urban-centric vision of the city appears to be resized by the approaches to territorial planning since it is defined by periurban margins and by proximity agriculture, the right space to implement policies of economic and social development and well-defined government territorial plans of the latest generation.
The link between agriculture, innovation, and urban expansion is consolidating over time, in step with the strengthening of the agricultural fabric's role being a guardian of the rural landscape.(Mininni MV, 2005).
The need to develop new programming tools on the territory comes from the identification of new models of territorial cooperation among institutions supported by urban regeneration policies, and the will to approach the rural area, its specific territorial features, and values by recognizing a greater attention to food culture than before.
The study of this scientific contribution presents a vision of the initiatives taken in this direction and analyzes, through an urban research between indefinite spaces and innovative agricultural models: the role of the territorial cooperation choices for the involvement of local entities in the territorial enhancement and growth, the use of intrinsic resources and the development of partnership forms between key stakeholders (local and non-local enterprises, research centers, universities and territorial representations). Starting from an analysis of plans and models in place, the aim is to describe potential innovative strategies useful to promote the sustainable economic growth of the Apulia region, encouraging projects aimed at the innovation and the enhancement of landscape, city, and territory.
More specifically, the contribution is divided into 5 sections, including this introduction. The second paragraph sets out the policies undertaken at national and regional level concerning a multifunctional sustainable approach in the agricultural policies on the periurban fabrics valorization; the third paragraph focuses on the strategies, plans, and models for social and territorial cooperation introduced by the metropolitan city of Bari; the fourth section presents possible research proposals launched according to a multi-level and multi-participants approach and the last fifth paragraph closes the contribution.

Policies started at a national and regional level on multifunctional approaches in agricultural policies of periurban fabrics valorization

There are many policies started at a national and regional level on the issue concerning the multifunctional approach in agricultural policies and in recovery strategies, as well as the valorization of periurban fabrics. Those policies respond to a paradigm shift at European level that draws again the attention on territorial, social and environmental sustainability, on food quality and on the integration of strategies to achieve a common goal that meets the need of the circular economy and climate change.
The main trends at the European level, for instance, are the restoration of productive agriculture, related to nutrition and food culture, to food security and food safety. It is addressed towards Community policies focusing on the production of products identified with quality brands, highly integrated to the belonging lands and on organic farming-oriented productions.
Moreover, the recovery of traditional cultivation techniques and the production of organic products, having a clear and defined traceability, are gaining more ground in the nets of the large-scale distribution, and in the relationship with productive spaces placed in close proximity to the urban boundaries, by allowing a consumption of agricultural products destined to local consumers, reassuring them on the origin of their foodstuffs, in addition to the implementation of a territorial marketing action based on the components of the agro-food industry.
The agro-food policies and the involvement of new forms of youth entrepreneurship by creating innovative skills in the field of periurban agriculture and small and medium-sized enterprises in the agro-food sector, lead on one side to a networks view between territories, carried out through competitiveness, technological innovation and the development of a sustainable tourism oriented towards the local products quality enhancement; on the other side, outline strategic functions in a sustainable way for the cities.
As an example, we recall the Milan Urban Food Policy Pact, officially launched on the EXPO 2015, which involved 117 European cities, identifying the future of those participating cities in the agri-environmental asset. After signing up the Pact, each city, undertook to draw up its own Plan at local scale (Urban Food Policy) aimed at enhancing the periurban agriculture, promoting good nutritional lifestyles, reducing food waste, activating start-up in the agro-food sector, promoting local food at canteens and distribution, realizing active inclusion policies through food and nutrition.
In Apulia, within the new Regional Landscape and Territorial Plan among the 5 strategic scenarios on which its proactive part is based, the City- Countryside Pact represents a good practice at the regional level. The City-Campaign Pact's scenario provides, in fact, the Multifunctional Agricultural Parks of Valorization and Requalification as basic means to plan integrated agriculture models able to increase the well-being levels of the local communities, to affect the communities lifestyles, to stimulate the creation of the spaces in service to the city, keeping quality agricultural productions with loisir and commercial forms at zero km.

Strategies, plans, and models of social and territorial cooperation for economic and sustainable growth in the metropolitan city of Bari

The metropolitan city of Bari intends to pursue a coordinated strategy with all the participants involved in the territory and an integrated strategy with the urban food policy at the international level for the implementation of actions against food poverty, and the promotion of sustainable food diets and logistic systems with low environmental impact, through actions of restoration, reuse and support to a diversified food economy. Within the metropolitan territory of Bari, the municipality of Bari as early as 2015 was getting ready to draw up its local strategy of Urban Food started from Milan with the help of research operators and of associations engaged in the food chain in order to oppose food waste, by capitalizing some good practices already underway (like school canteens at zero kilometer, school and urban gardens, shared gardens, and projects on nutrition, etc.).
The idea of implementing the Urban Food Policy on the regional capital of Apulia and of extending the signing of the Pact on other interested cities is born from the Metropolitan City of Bari, that with the realization of incubators and business accelerators wants to activate advanced and efficient competences in the agro-food field, favoring the creation of agro-tech start-up and the creation of appropriate training spaces in collaboration with the Universities been involved and the Research Centers.
In addition, territorial planning policies find in the construction of a framework of knowledge of the "Metropolitan Strategic Plan", the possibility of identifying a shared and representative path of the development dimensions and of all needs of local authorities, being part of the metropolitan territory of Bari.
The guidelines approved by the signing of the metropolitan Memorandum of Understanding specifies agri-environmental

thematic fields in the following aspects referring to:

- Social innovation in rural areas, enhancement of public assets and lands and those confiscated for agro-food purposes, activation of new business models for sustainable agriculture, strengthening the link between rural and urban areas with particular attention to the periurban areas;
- Urban food strategy: processing of local action plans related to agro-food development, production and distribution of short supply chain aimed at involving intentional communities on the twin issues of nutrition and food waste;
- Protection and enhancement of biodiversity in rural, marine and coastal ecosystems;
- Research and experimentation in agriculture and production area and innovation support in the agro-food and agro-industrial sectors;
- Circular economy and promotion of regenerative productive systems.

The social innovation in rural areas presumes an urban development process in the metropolitan city of Bari's rural areas, by introducing new ideas and activities that respond to social needs expressed by local communities, and by creating spatial relationships and new forms of youth entrepreneurship in rural and periurban areas (as specified in the Decree of Law no. 91 of 20 June 2017). The development of innovative services based on the valorization of local biodiversity and traditional products, and the social integration of the weakest sections of the population, through the promotion of an inter-cultural dialogue in the agricultural field, identify a strengthening of the relationship of the local communities with the processes of the common good valorization (Metropolitan City of Bari, 2017).
The protection and enhancement of the rural and coastal ecosystem of the metropolitan area of Bari is essential in the implementation of the Memorandum of Understanding which finds, in the Metropolitan Parks (like Alta Murgia National Park, Lama Balice Regional Park, Lama San Giorgio-Giotta Regional Park), areas to be preserved in order to increase rural and coastal biodiversity (Metropolitan City of Bari, 2017).
The metropolitan waterfront, besides guarding the identity elements for the socio-economic growth and for the natural heritage development, expresses a strategic action of promotion of the lama (erosive cracks), the parks and the protected areas, the landscape environmental evidences and the entire natural ecosystem that needs to be developed through forms of environmental education, sustainable development and green economy.
The governance model thus adopted in the metropolitan policies of the "Area Vasta of Bari" aims at institutional and social cooperation , coastal and rural landscape development with the reinforcement of the metropolitan rank through institutional centrality, at the same time raising the values of the historical tradition, the preservation of natural spaces and the quality of life of local communities.
The subsidiarity enhancement and the cooperative relationship between the different participants involved on the Apulia region territory, the correct use of the intrinsic resources, the development of partnerships between enterprises, research centers, territorial representations and stakeholders, represent social and territorial cooperation models for the promotion of a sustainable economic growth, based on innovation, on the valorization of landscape, cities and territory.
The elaboration of technical-scientific guidelines on the agro-environmental development of the entire territorial system, as part of the strategic planning process of the Metropolitan City of Bari, witnessed the signing of a Memorandum of Understanding between Territorial Authorities (Metropolitan City of Bari, University of Bari "A. Moro", Polytechnic of Bari, National Council of Research, CIHEAM Bari) having as its object the intent to realize, through an innovative and participated approach, a program of measures that involve all the system participants, from the consumer to the producer, from the urban environment to the periurban and rural one, able to identify concrete actions of development between the administrative realities of the metropolitan area.

A proposal for urban research between indefinite spaces and innovative agricultural models

Research and innovation in the agricultural sector represent a new methodology capable of replacing the sector-based approach with a quality systemic approach that can combine the needs of the territory, its inhabitants and their ideas in a single domain of development.
The innovative models of precision agriculture (agriculture management strategy that optimizes production yields and cuts down the environmental impact), and the circular economy themes, constitute a new approach based on the collaboration between public administrations, citizens, institution, technical-scientific research, and enterprises.
In this research direction, many programs have been started by the participants involved, in collaboration with other key stakeholders on the territory, including third-mission activities or the development of regional research projects (line 16.1 of the PSR, Programma di Sviluppo Rurale-Rural Development Program) and European ones (Life) on the multifunctional agriculture issue as a strategy to recover the biodiversity of fragmented territories.
In further detail, we want to pay particular attention to the research proposed at the Dicar Department of the Polytechnic

of Bari, focused on the relationship between contemporary cities and the periurban countryside that consists of urban fringes of consolidated cities models, and therefore of spaces, places and border areas between the agricultural system and the urban space.
The objectives of this research project focused on the promotion of periurban agriculture and food production forms in the light of the impact that the Climate Changes are having globally and locally, and with particular attention to the phenomenon of soil consumption, which occurs with increasingly alarming figures on national territory.
Biodiversity and agro-biodiversity safeguard of the natural ecosystems, the interpretation of territory government integrated policies about the future of agricultural landscapes and the correlation between quality agricultural production world and rural areas planning are elements to be considered for the implementation of innovative projects to be promoted for the restoration of marginal and periurban areas (Pandey, 2007).
A piece of research of this type must be based on a three-step organized methodology that identifies with:

1) the construction of a framework of knowledge of the case-study territory,
2) the formulation of planning lines on the relationship between city and landscape,
3) the proposition of urban policies that we can validate on a number of sample areas.

A careful process of knowledge focused on a review of assumptions, suggests a reading of the selected territory and cities, through the identification of the problems concerning the settlement dispersion, the urbanizations fragmentation and the analysis of the urban sprawl considering the impacts of these phenomena on the agricultural areas and on a balanced relationship of the periurban landscape with the countryside, that plays a role in a multifunctional way. (Magnaghi & Fanfani, 2010)
The multifunctional vision of the countryside highlights the value and the complexity of the relations that contribute to structuring the agro-landscapes quality, these no more conceived with the single purpose of cultivation and production, but now seen as sceneries intended to be widely used and intended to offer a perceptive vision of the rural space and also production of public assets.
The periurban agricultural areas of the contemporary cities can, therefore, become laboratories for the development of an agriculture able to generate a territorial added value, by mobilizing the share capital and reconnecting territorial forms and identities, and foodstuffs quality.
The reconstruction of a self-sustainable settlement form for a new project of city and landscape, focuses the research activity on the study of the transformation processes of urban dynamics, and of the spatial connections, by considering the ecology in terms of ecosystem-based services, where the organic farming practices are essential components for the planning and conversion of the periurban agricultural space and for the enhancement of the landscape beauty.
A further objective of this work is to investigate the methods for the valorization of the urban agricultural areas in close proximity to the urban center that can be a starting point to introduce processes of local development and of tourism promotion according to an environmentally sustainable perspective.
The last step of the research concerns the application of the work methodology described above to a case-study. For example, we could suppose the realization of an integrated hub of excellence in the metropolitan context of Bari, by creating vineyards-gardens, vertical orchards, vegetable gardens, Garden Fab, combined with Technological Cluster of enterprises, research centers and stakeholders, by restoring at the same time degraded or no more productive soils, through urban regeneration policies with due regard to environmental identity within promotion programs of the food quality culture.
A significant territorial sample, where you can validate the research methodology here set forth, is undoubtedly the Metropolitan City of Bari ; with its product excellence and top-quality agricultural products, the city represents an area where you can enhance territorial equipment by reinforcing the identities sense of belonging in the individual contexts.
The visions of the Metropolitan Strategic Plan of Bari give us the opportunity to implement the strategies of the research project, through the outlined five main areas concerning the promotion of human and social capital, the enhancing of territorial equipment, services and network infrastructures for smart cities, the infrastructures for the development of logistic and productive areas and the enhancement of mobility in the metropolitan system.

Conclusions

The important role carried out by agriculture in the urban policies leads to the consideration of the strategic importance of plans involving the social agricultural that, beyond enhancing the agricultural products of excellence, they support the growth of well-being conditions of the citizens, by increasing the equipment of urban standards and by redefining the urban fringes and the collective spaces. (Mininni & Migliaccio, 2002).
Over time and during the cyclic implementation of urban programs, however, it hasn't been given the fair value to the

territory and its resources, mainly favoring aspects based on wealth, land income and property speculation. Today, the progress direction has significantly changed on the side of urban choices focusing on the reuse, on the circular economy, the production and the consumption of top-quality biological products, on a careful lifestyle based on a good diet and on an idea of city that is more and more people-oriented (Pratissoli, et al., 2017).
Management, conservation and sustainable use of natural resources are among the main objectives of sustainable development focusing on the environmental protection, which is a fundamental basis for the affirmation of topics concerning the renewal and regeneration of periurban and proximity spaces. The environmental policy must be integrated into a strategy for the development of services able to support a smart, sustainable and inclusive growth.
The strategic vision adopted in the metropolitan context of Bari shows how a pilot project's vision can renew competitiveness and transform at the same time the processes of sustainability, social innovation, and urban development.

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Notes:

[1]The Territorial Landscape Plan of the Apulia region (Piano Paesaggistico Territoriale Regionale, PPTR) has been drawn up pursuant to Legislative Decree No. 42/2004 "Codice dei beni culturali e del paesaggio" and was approved by the Decision of the Regional Council (DGR) No. 176 of 16/02/2017
[2]The institutional and social cooperation adopted by the Metropolitan City of Bari for the enhancement of its territorial equipment saw the signing of a Memorandum of Understanding between the Metropolitan City of Bari, the University of Bari, the Polytechnic of Bari, the National Council for Research and Mediterranean Agronomic Institute CIHEAM of Bari with the purpose of testing a growth model for the cities and the territory.
[3] The research has been proposed for the admission to the XXXIII cycle of the PhD Program in "Knowledge and Innovation in the Project for Heritage" at the Polytechnic of Bari
[4] The Metropolitan City of Bari was established following the Del Rio Law of 07/04/2014, which provided for "Provisions on metropolitan cities, provinces, and on municipalities union and merger." It includes 41 municipalities, some of which open onto the Adriatic Sea, and other are in the Murgia outback.

11 CHARACTERISTICS OF THE EXISTING BUILDINGS' STOCK IN KOSOVO AND THE POTENTIAL FOR ENERGY SAVINGS

Violeta Nushi, Xhelal Llonçari, Rozafa Basha, Naser Kabashi, Egzon Bajraktari

Abstract

Buildings are responsible for large portion of the global energy consumption. In Kosovo the household sector consumed about 38% of the total energy consumption in recent years (MZhE, 2013) and this mostly for their heating purposes (UNDP 2007). Public awareness for savings in energy is rather low and the government has to invest more in supporting and encouraging energy efficiency in the building sector. Faculty of Civil Engineering and Architecture at the University of Prishtina "Hasan Prishtina" with the project LEMENS looks at the issue of energy efficiency renovation of existing buildings. Toward this end, we have examined the characteristics of the existing buildings' stock in Kosovo and its potential for energy savings. This paper reports with the corresponding statistical data and initial estimations of energy savings both in terms of the individual households as well as on the national level.

Keywords: Energy efficiency, energy savings, existing buildings stock, Kosovo

Introduction

Energy use in the building sector is a worldwide problem. In Kosovo, only the household sector consumed about 38% of the overall energy consumption in recent years (MZhE, 2013). Most of this energy consumption in the household sector is dedicated to the needs for heating in housing spaces (UNDP, 2007). First projects applying energy efficiency measures in new and existing buildings have begun countrywide. Still, the public awareness for savings in energy is also rather low and the government has to invest more in supporting and encouraging energy efficiency in the building sector.
On the other hand, the government is working toward completing the legislative framework which supports and encourages energy efficiency in the building sector. Both the works in practice and the drafting of the legislation are based on the foreign examples. Especially, there is not enough local data to be used for the establishment of the national standards and legislation. The aim of this paper is to establish an overview of the potential of energy savings with regard to the existing building stock using relevant statistical data and estimations of energy savings via simple energy retrofit scenarios.

Approach

In order to have a rough estimation of the energy savings potential in case of energy retrofit of the existing building stock, our study proceeds as follows. We have examined the characteristics of the existing buildings' stock in Kosovo using general statistical data. ASK (2013) published general statistical data regarding existing housing building typologies and the building stock. It also describes the general characteristics of the building envelope of the existing buildings.
Knowing the properties of such constructions we can estimate the energy needs of a generic building. For simple calculation, we concentrate on the individual (detached) houses. The generic building is thought to be a single-family house, size 100 m^2, one-floor building.
Due to data constraints, we have focused our assessment of the buildings energy performance to the calculation of the annual energy needs for space heating only due to transmission losses. Annual energy needs for space heating only due to transmission losses are calculated according to the well-known equation:

$$Q_{t,a} = \sum (U_i \cdot A_i) \cdot 24 \cdot HDD$$

Where:
Qt, a is the total annual heating needs due to transmission losses;
Ui is the thermal transmittance value [Wm-2K-1];
Ai is the envelope component with an area [m^2];
HDD is the Heating Degree Days value.

Using the derived energy needs for the generic house we can estimate energy savings upon application of certain energy efficiency measures upon the specific buildings, as well as in large scale considering the overall number of such houses in the building stock.

Results

According to statistical data (ASK 2013) the existing building stock in Kosovo, comprises of the following building typologies, as shown in Table 1:

Table 1: Existing housing building stock in Kosovo(according to ASK)

Building typology	Number of existing units
Single (detached) family house	230303
Double (semi-detached) family house	11717
Row houses	2851
Multi-apartment housing buildings	2520

About 86% of these buildings are reported to be enveloped with low-thermal resistance walls, made of concrete or clay blocks or bricks (ASK 2013). This is a typical basic construction, quite often representing the rough building masonry exposed without any thermal insulation layer applied. Table 2 shows the thermal transmittance of such constructions.

Table 2: Estimated U value of typical outer wall construction in existing building stock

Wall construction (from inner layer to outer layer)	*U [$Wm^{-2}K^{-1}$]*
Plaster t= 20 mm, λ = 0.87 W/mK Concrete block t = 240mm, λ = 0.79 W/mK	2.01
Plaster t= 20 mm, λ = 0.87 W/mK Brick t = 240mm, λ = 0.81 W/mK	2.04
Plaster t= 20 mm, λ = 0.87 W/mK Brick t = 240mm, λ = 0.81 W/mK Plaster t= 20 mm, λ = 0.87 W/mK	1.95
Plaster t= 20 mm, λ = 0.87 W/mK Clay hollow block t = 240mm, λ = 0.42 W/mK	1.31
Plaster t= 20 mm, λ = 0.87 W/mK Clay hollow block t = 240mm, λ = 0.42 W/mK Plaster t= 20 mm, λ = 0.87 W/mK	1.27

Roughly estimated annual heating expenses for the reference house of 100 m^2 based only on the annual energy needs for heating are shown in Table 3.
Table 3: Estimated heating expenses and annual heating energy consumption of a reference house of 100 m^2.
The cost of heating up the whole house (approximated in the table above) is for many families in the country unbearable. More than 70% of the households in Kosovo end up heating only one to two rooms in their building (Bowen et al., 2013).

Table 3: Estimated heating expenses and annual heating energy consumption of a reference houseof 100 m²

Reference house	Annual heating energy consumption [kWh/(m²a)]	Annual heating energy costs [€] (heating source: wood)
Existing situation (low thermal insulation walls)	250	720
Energy retrofit scenario 1 (Adding 10 cm conventional thermal insulation)	60	170
Energy retrofit scenario 2 (tab. 2) (Adding 20 cm conventional thermal insulation)	42	120

Discussion

Statistical data provided from the 2011 census do not fully represent the situation in the existing building stock, taking into consideration that now the number of houses and other buildings has increased.

Conclusion

There is a large number of houses with low thermal performance. Due to the economic situation of the households, thermal comfort is compromised by not heating the whole space in winter. Retrofitting this existing building stock would bring about large energy savings in the countrywide level, but it will also improve the thermal comfort situation of the households. Thus energy efficiency retrofit will be beneficial both for the house owners (economy, comfort) as well for the community and the state (environment, energy).

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12 PLANNING SUSTAINABLE URBAN DEVELOPMENT FOR THE FUTURE. IDEAL CITIES MODELS AND THEIR APPLICATION IN THE DEVELOPMENT OF DURANA CITY, THE CASE OF SHIJAK

Lisjan Tushaj, Juljan Veleshnja

Abstract

The sustainable urban development figure and focuses the research on the properties and attributes of urban planning infrastructure and land use components of urban spaces. The postulate: "Access is what cities are all about. Man invented cities as an economic and social tool to create easy accessibility through co-location" (Schaeffer and Sclar, 1975) is the motto for the future planning of the case study. During years the urban proximity between Durrës and Tirana is reducing; this makes all experts and urban planners concerned about what will be the proper urban joint between those two existing big cities. Durrës will be connected to Tirana through "the proper urban and landscape joint" giving birth to the Metropolitan city called Durana city. The urban strategies and the urban designer will deal with the relation between the physical form of the city and the social forces, which usually create it. The aims of this paper will highlight and show the concerns of the residents living in the core area of the new Durana City, with the focus of sustainable urban development. The goals will be based on understanding the ideal city models; understanding the indicators for Sustainable Urban Development; understanding how to apply the relevant ideal city models for sustainable urban development. The conclusion of this paper, based on an empirical method, will be the exposure of the guidelines into the sustainable urban development planning, applied to the chosen case study, demonstrating that this approach will not stress or decrease the city's fiscal, social, and environmental resources.

Keywords: sustainable urban development, ideal city models, urban planning, urban design

Introduction

The regions of Tirana and Durres are in a continuous and dynamic development. The overcrowding of large metropolitan centers has alarmed the inter-urban scholars. Such a concern has also focused on this paper. The need to deflect the major metropolises addresses the right to focus the attention on residential centers outside the metropolises. The situation and the impact being faced is not the one expected because it is noticed that beyond the great potential that these areas offer to carry within themselves a number of issues to be solved.

Urban development of the Metropolitan area in between Tirana and Durrës

The corridor of Tirana Durres spans the most important economic zone of Albania since the fall of communism in 1990. It took many years' to this area after the end of the dictatorship to receive the proper attention from governmental and non-governmental instances. The proximity to the two large metropolises Tirana and Durres have made internal and foreign inventors to appreciate this geographic aspect for sustainable business development. This major influx of post-communist and transitional investment has found a degraded urban area and has made efforts to cooperate with it. The only economic developers for a long period have been only private investors through large business firms, stimulating at least the Lekë emissions. From the in-depth urban political studies it was concluded that the system of functioning of municipalities did not represent the decentralization of a functional power but in essence functioned the organizational, economic and structural abandonment of the most vital aspects to be resolved to those of the national urban standard or European country for which our country aspires to integrate. In the case of Durana[1], the metropolis centers[2] are expressed in Figure 1. Metropolitan area being the economic, social and organizational center increasingly seek to perceive the attributes that the metropolises offer in themselves, this means that they are in a collaborative effort not only

with the metropolis but also with each other. The most prominent metropolis centers are the metropolis center of Shijak, Vorës, Kashar. North side of the regipolitan area has majorly developed into industrial economic clusters, meanwhile south side regiopolitan areas have major developed into agricultural economic clusters. One of the main urban problems in between of the two big cities of Albania, Tirana and Durrës, is that the areas do not have a proper urban/rural structure, in macro scale and in micro-scale. That main problem is expressed in three aspects:

a. Problems related to mobility - Mobility problems are many. The national road axis has an intensive usage. Rains cause flooded as a consequence of almost completely dysfunctional drainage channels for that period of massive rainfall. Another problem that is evidenced in the area is the fact that pop along the national road axis lacks the necessary number of road traffic bypasses. This also means the infrastructure connection of the northern metropolis centers with the national road axis is not efficient and not in ideal conditions for the circulation of vehicles.

b. Problems related to informal settlements sprawl - This problem is undermining the pressure of the population for housing and the lack of functioning of municipalities during the first 25 years of post-communist transition. The process of legalization of these abusive constructions has been historically skeptical because it is intended to set up very little protection criteria for the ecosystem in general and the cultural area heritage. Lack of planned public spaces - this shortage is a consequence of the wrong development that the area has suffered from the pressure of its inhabitants for housing and the small active role of municipalities. It is noticed in the lack of adequate infrastructure in the Metropolitan Centres, the road signal system, the lack of sidewalks, green spaces, squares for social-cultural activities, namely squares of secondary and primary schools, squares of squatting centers, lack of parks small at the level of the housing block, as well as public parking. Lack of planned green spaces - Lack of greenery at the residential block level has led to the collapse of quality and well-being of life to the inhabitants of the area.

c. Problems related to neglected natural assets - this problem appears at the top and bottom level. At the top-level, a number of problems are related to management issues of natural resource maintenance. Parks - parks need to be all together in an integrated functional protection system, touristic, landscaping, and artistic exploitation. Lakes and rivers - the aspects of protecting natural ecosystems are aspects that did not function properly. We have repeated cases where reservoirs and rivers of these areas are turned into garbage dumps. The tourist aspect is another aspect that should go with these natural resources. There are no protected trails for jogging and biking, and all of these water resources are not connected in a network that can be truly potentially attractive to social and physical activities. Natural and artificial landscape - the natural and artificial landscape as a whole is the product of all the aspects mentioned above. This integral visual perception carries negative assessments typically in the case of informal urban diffusion, forming a gangrene and urban chaos. It is worth mentioning that the silhouette, morphology, urban altimetry of the existing metropolis centers have not been part of the landscape surveys since the fall of communism. The urban chaos is prevailing the today's urban landscape in this region pressing the everyday people's lives.

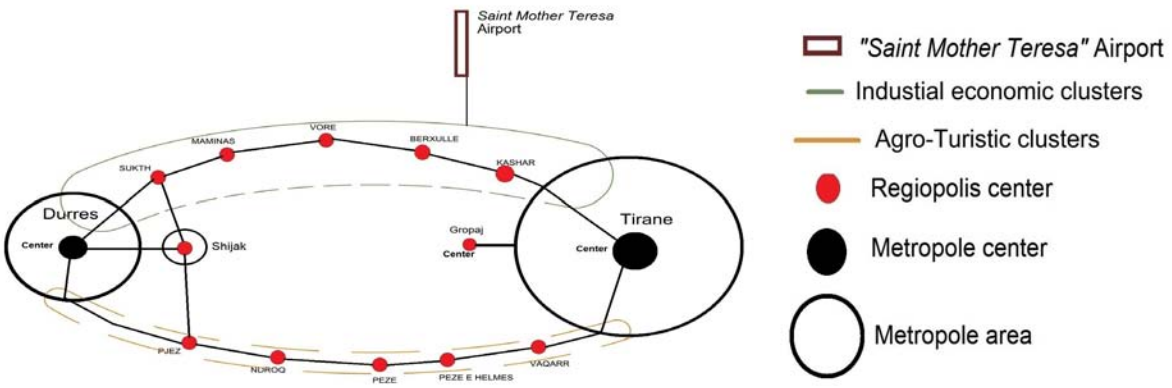


Figure 1: Schematic illustration of the urban development of the metropolitan area in between Tirana and Durres.

The aim of the research

The purpose of research is to emphasize the need to develop an effective research method in function of creating proper strategies for the Metropolitan area under study. The study approach to the metropolis centers is aimed at developing the ideal city models. In the main aim of the paper, research is expected to end into a theoretical and schematics diagram to express the sustainability of the urban development of the Metropolitan area. This process must scientifically show the relevant ideal city model able to be applied in every necessary metropolis centers.

Methodology

This paper will try to combine different research methodologies in order to achieve the goal proposed. The main research method is the qualitative one, which relies on descriptive narrative for data analyses, this due to the nature of this paper, related mostly on the interpretation of the theoretical part to the development strategies. The paper will use other methods too, such as desk research, gathering and analyzing information, already available in print or published online; field research, gathering and analyzing information on site; survey research in which subjects respond to a series of questions in a questionnaire. The conclusion of this paper will be identified using empirical evidence, gaining knowledge by means of direct and indirect observation. This empirical evidence will be analyzed qualitatively and try to give an answer to the question raised. In the end, a case study will be taken under exam as an empirical inquiry that investigates a contemporary phenomenon within its real-life context. The purpose of research is to emphasize the need to develop an effective research method in function of creating proper strategies for contextualization.

Macro-Level Strategy for integration of the Metropolitan Area of Durana

In urban planning, a key element is the aspect of urban integration. This element seeks to avoid the segregation and isolation of the existing metropolis centers by making them perform their potential for development better. For that scope, the macro level strategy is focused on three goals. The first goal has as a focus the potentiation of the existing urban and rural areas, the second focus on the protection of the natural resources and their assets, the last one has in focus the upgrade of existing mobility. Therefore Shijak is expressed as a very important metropolis for the area outside the metropolis of Durrës because it has in it is about the industrial area in the north, an agricultural area in the south and the protected natural parks in the east. Being almost equidistant with these four development site potentials Shijak will be always is benefiting in terms of the rapid connected, integrated, economical, touristic, development. Touristic development is conceptualized with the creation of a network mobility of the natural touristic zones, such as lakes and protected parks in the metropolitan area. This network mobility integration must be well managed and safe for the tourist. The necessary logistic for that development must be administrated by an elected joined council composed of metropolitan and metropolitan member experts and labors. The importance of the metropolitan area in the road to the potentiality and development of the agricultural, tourist of the Metropolitan area should be established a state governing body at the level of a new agency with clear tasks and functions. This decentralization notion of the metropolitan areas and metropolis centers was first expressed by Ebenezer Howard who in theory and schematically brought the concept of satellite areas placed in an integrated functional system, expressed in the so-called garden city. Without any official support, Sir Ebenezer sought a suitable place for a satellite outside London. (Howard, 1917) Geography was to become the servant of the new town and not its master. Here is the first condition for "Decentralization": seeking a suitable place for satellite towns.

Sustainable urban development

Dealing with urban planning means facing concepts like urban environment and planning. The challenges of climate change and environmental degradation underline the need for priorities in the holistic planning of urban development. The aim of sustainable urban development has emerged and produced numerous urban settlement theories, which come with different concerns in different areas. Sustainable urban development viewed from the environmental concerns means

developing a certain urban form that combines land development and nature preservation aiming the protection of the natural system. In summary, the principles to achieve sustainable urban development are based on environmental, economic, political, cultural and social considerations. Aiming the sustainable development of the urban settlements there can be underlined some criteria to achieve it, such as the urban identity, connections, and services, self-sustainability, natural environment preservation. Those criteria can help to make a quick evaluation of the different city models, in order to identify that one which offers the proper urban pattern for the best physical planning, which obviously has to be contextualized.

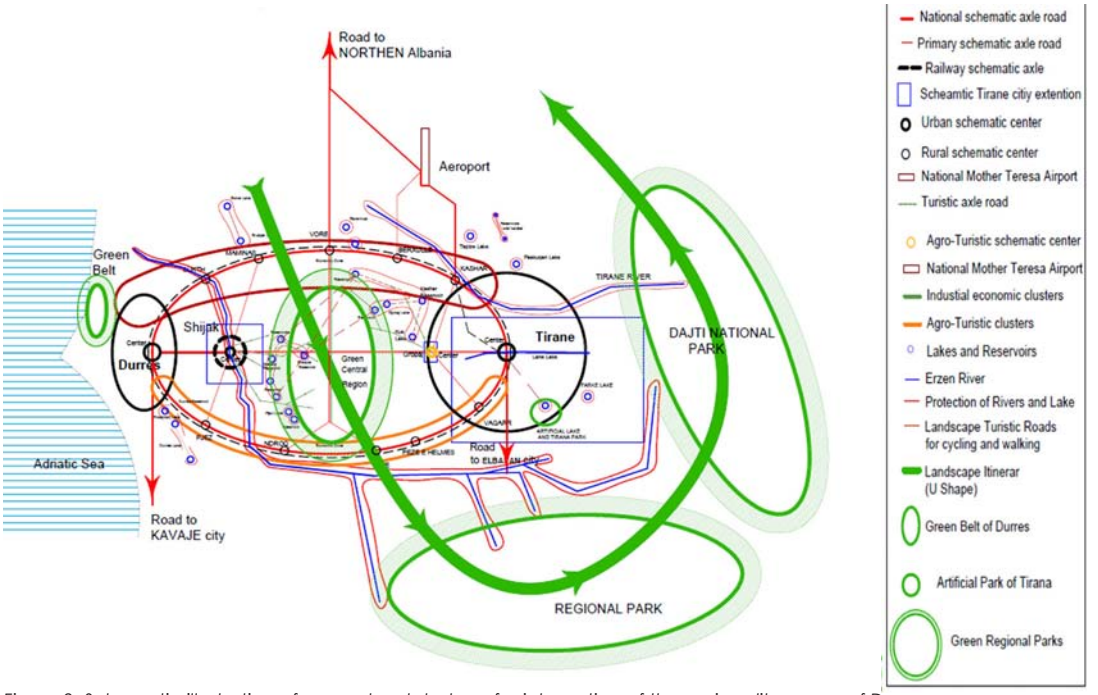
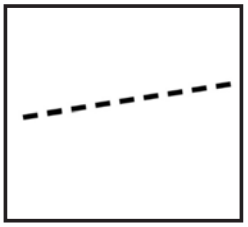


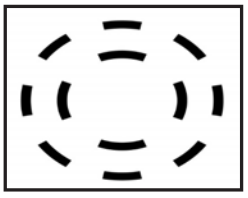
Figure 2: Schematic illustration of macro level strategy for integration of the regiopolitan area of Durana

Ideal city model

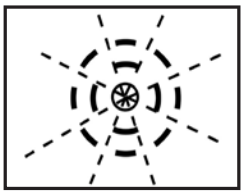
The each urbanized settlement is based on the urban activities of people, this means the need of physical places such as roads, parks, residential areas, urban centers and so on, where different varieties of activities are allowed or stimulated. In this frame, it is important to base the future urban planning on any city model because these models exercise a control over the urban form and its growth.



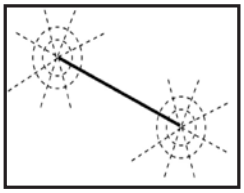
Linear city model - The main characteristic of the linear city models is its appearance as the linear corridor with repetitive functions along its shape, an elongated urban formation. This urban formation consists of simple urban facts such as no rapidity and efficient movement of people and goods. Linear settlement patterns (or/and corridors) are based on the infrastructure which can be the spinal transformation with transversal longevity urban formation – which can expand longer without growing any wider. Some criticisms of this model are the impaired accessibility to the central area; the separation of arterial and local traffic is difficult to be achieved; the settlement services usually are channels along the main street which means they are provided in a long distance. (Purdom, 1925)



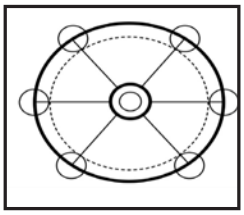
Concentric city model -The concentric city model represents urban land usage in concentric rings: the business district based in the core, and the city expanded in rings with different land uses. Theoretically, this city develops inside forests ring, making a defined dimension of it and always is is benefiting nature around. This model in terms of sustainable urban development seems to offer several life qualities. The city surrounded by natural green belts can give an emphasized environmental advantage to this model. Its limits are of course very identifiable; the concentric city cannot accommodate the large population within its perimeter without widening. (Purdom, 1925)



Radial city model - The radial city model, similar to the previous model, represents urban land usage in concentric rings, which can be connected through axes from the center to the periphery of the city. This upgraded type of city model connection creates the opportunities for a more developed urban mobility for the whole people and goods. The city center in this model becomes very important and leading part, the most identifying one for the whole residents living there by the fact that in the center are set the administrative buildings and important institutions. The Radial city has as its limitation the risk of expanding massively without offering anymore its primary urban conditions of the smaller one.



Satellite city model - The development of the metropolitan centers gave birth to the new independent centers, gravitating it. The new satellite centers, usually small or medium-sized cities, are situated near a large metropolis, predating the metropolitan suburban expansion. The satellite centers are physically separated from the metropolis usually by rural territory. Those centers, urbanized areas, are economically and socially, partially independent from the metropolis. The satellite centers have their inner-city neighborhoods and community.



Garden city model - This city model tries to be a response to the need for improvement in the quality of urban life, spoiled by overcrowding and congestion due to uncontrolled growth since the industrial revolution. The problem of rural depopulation and the continuous growth of the big cities brings attention to the creation of a series of small towns, combining urban life with nature and rural environment. The main feature of this model scheme is planning a small compact center bounded by a wide rural green belt. These centers enclose the accommodation of residents, industry, and agriculture within their urban structure (Charles Benjamin Purdom, 1925) City's garden has limited dimensions and built in the agricultural space, as a new alternative and opposition to big industrial cities. In economic terms, the city is supposed to be independent self-sufficient and lives with his income. The scheme of this city model is radial-ring or radio-centric.

Identification of the most sustainable ideal city model

The paper aims to identify one proper ideal city model for the future development of Shijak city; the criteria of this choice will be based on the achievement and predisposition of sustainable urban development. Aiming the sustainable development of the urban settlements there can be underlined some criteria to achieve it, such as the urban identity, connections, and services, self-sustainability, natural environment preservation. Identification of the ideal city models are:

- The Linear city model does not present an urban identity due to the absence of a Central Square; has low Urban Connectivity and difficulties in urban Services due to the repetitiveness in a Linear Sprawl of the Urban Structures. This city model is not self-sustainable due to the need of other urban areas complementary or at least repeats itself; has a low level of green areas due to the rigid scheme that the linear model presents (UN-HABITAT, 2013).
- The Concentric city model has an urban identity due to the presence of a central square; low connectivity and problems in urban services due to none linear subdivisions for access of the urban plots; low self-sustainability due to a deformed radial scheme; low level of green areas due to the lack of rules and proper urbanization.
- The Radial city model has a defined identity due to the presence of the central square; has good urban connectivity and good urban services due to linear subdivisions for access of the urban plots; good self-sustainability due to the proper urban zoning inside the radial scheme; medium-low level of green areas due to the "rule" of the rigid scheme.
- The Satellite city model has several urban identities due to the presence of several central squares; easy urban connectivity and good urban services, due to the small area and the studied subdivision of the urban plots; medium-low self-sustainability due to its small sprawl and level of zoning that is variable; high level of green areas due to the proximities with natural landscapes.
- The Garden city model has several urban identities due to the presence of several thematic central squares; fast urban connectivity and high urban services due to the small area and the studied subdivision of the urban plots; medium-low self-sustainability due to the small urban sprawl and the level of zoning variable; high level of green

areas due to the proximities with natural landscape (MacFadyen, 1933). After the examination of the different criteria of the sustainability and the city, models come out that Garden city model presents the more appropriate model to be used for the future implementation for the future development of the city.

Strategies for sustainable urban/rural development of Shijak Metropolis

To achieve its sustainable urban development Shijak metropolis needs a matrix that describes both urban development and resources of agricultural, tourism, hydrological, landscape, mobility aspects and decentralization concepts. Decentralization should be seen as an opportunity during an elaboration process, necessary to select the most efficient areas that could serve as prevalent centers from other areas of the settlements textures of the metropolis. The selection on the basis of the existing model scheme of the mobility network, the density of the construction, the affinity with the agricultural areas is a theoretical and empirical selection in order to simplify this process claiming that it is a functional development that should suit the city schemes rather than the opposite. This elaboration system should serve the need to stem the informal sprawl construction.
The proposed diagram presents 8 new centers that could serve as urban catalysts in the integrated urban new urban network. This integrated network is proposed at the level of two rings, a large ring and small ring. The urban catalysts are selected with the function to assimilate the asbestos of the urban standard so that in the future they can serve as the foundations of the 8 Shijak metropolis. The micro-level strategy affects aspects of natural resource protection, such as rivers, and natural parks, and it also adds the focus to the growth of forest surfaces between these urban catalysts. The latter aims to create a micro-climate, improve the protection system from dense rainfall, create good conditions for thermal and acoustic insulation, and also strengthen eco-tourist character through landscapes with natural elements such as massive forests and quail.

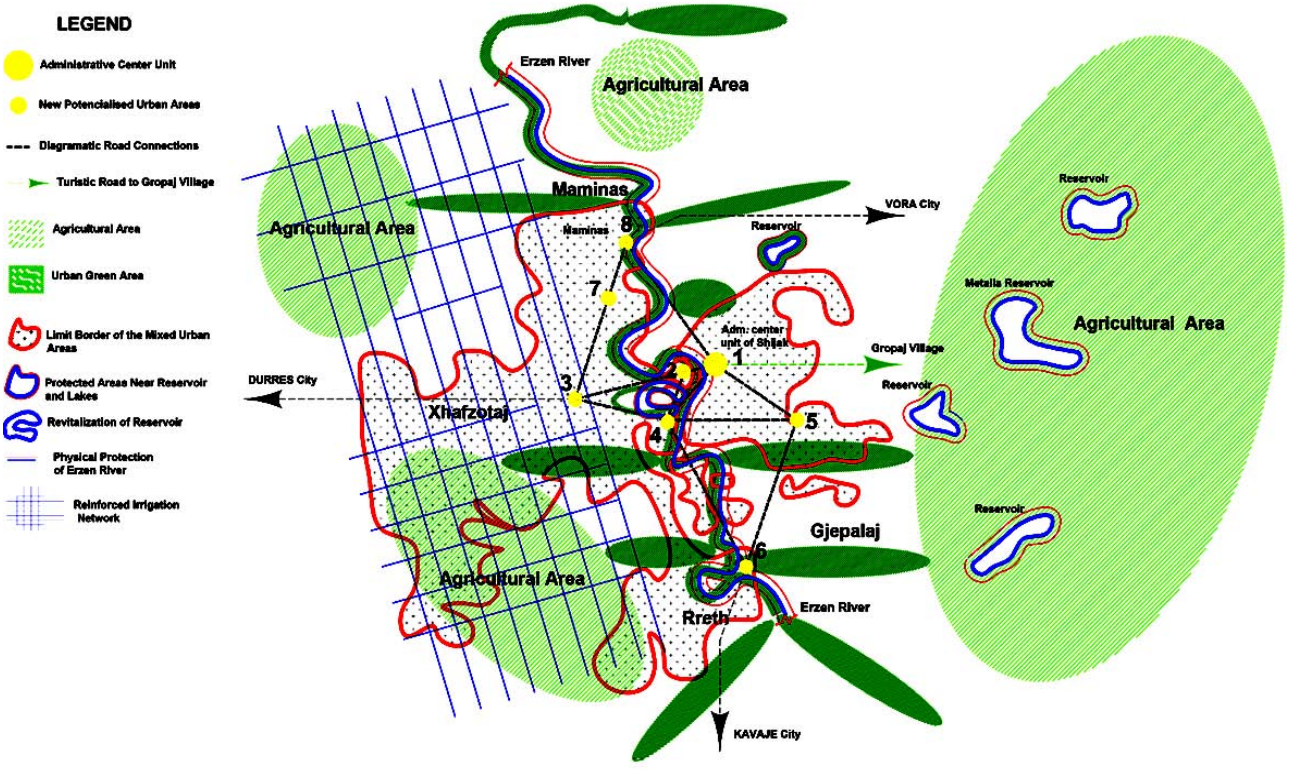


Figure 3: Schematic illustration of strategies for sustainable urban/rural development of Shijak metropolis

Conclusions

The existing 25 years of urban, informality in the Shijak municipality and above it should be used to define the limits borders for the urban redevelopment through a sustainable urban environment. Garden cities have limited conceptual dimension and are built in the agriculture spaces as new alternative and opposition to large industrial cities, which Howard considered them respectively the cure/medicine and the illness. Garden city is supposed to have comfortable and quite residences without noises. It is built on honor of nature and surrounded by greenery; its urban size is to make sure to all residents an attractive social life, lively and exciting full of opportunities. In economic terms, the city is supposed to be an independent and auto-sufficient that can develop in terms of its incomes. Planning with Ideal Cities Models for connected and decentralized urban areas, combined with significant investments toward green parks around them can lead scientifically toward the concept of the "Garden city model" of Howard and the sustainable urban development.

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Notes

[1] Durana is joint name of Durres and Tirana which basically predicts their urban-rural fusion.
[2] In 2006 to the worldwide urban terminology is added the term of regiopolis and regiopolitan areas by professors Iris Reuther and Jürgen Aring from Germany. The regiopolitan area is a region composed with several regiopolis centres, regio' for regional and polis' for small towns and cities. Each regiopolis centre tends to develop independently outside the core of big metropolitan areas

13

SURFACE TEMPERATURE OF URBAN TEXTURE IN CENTRAL SQUARES

Ani Tola(Panariti), Parashqevi Tashi, Paul Louis Meunier, Elton Hala

Abstract

Recently in Albania, public squares are redesigned and have changed their morphology. This article discusses the surface temperature of urban texture in two central squares in Albania. Hence, "Skënderbej" Square in Tirana and "Liria" Square in Durrës are taken as a case study. At the beginning of this research, is provided an assessment of the existing urban texture. Then, weather data such as air temperature, relative air humidity, wind speed, dew point and field measurements with the thermal camera are obtained for both squares with different urban texture. After that, the findings are evaluated in terms of urban thermal comfort.
As a field in August 2017 campaign, the measurements indicated that thermal radiation of surface material is highly present in the afternoon in both squares. The well-studied use of different pavement materials, green areas, and water reduce the thermal radiation in public squares. In terms of urban thermal comfort, the results have shown that the arbitrary use of urban texture influences the outdoor thermal comfort, consequently the use of public squares.

Keywords: urban texture, thermal radiation, surface temperature, heat emission, urban heat islands

Introduction

Thermal Comfort is defined as the "condition of mind that expresses satisfaction with the thermal environment" (ASHRAE, 1997). The variables influencing thermal comfort are (Johansson, 2006): Urban Texture (surface materials, green areas, vegetation, water and shadings), Urban Morphology (ratio between the height of building facade and the width of the street), Climate Conditions (air temperature, air humidity, wind speed and sea breeze, solar radiation, rainfall and vapor pressure), Pedestrian Movements (spatial movements), Urban Heat Islands, (temperature differences of urban environments and the surrounding rural areas, which is primarily a nocturnal phenomenon). Why matters Surface Temperature of Urban Texture? Because of influences directly the actors that use urban spaces, the human being.

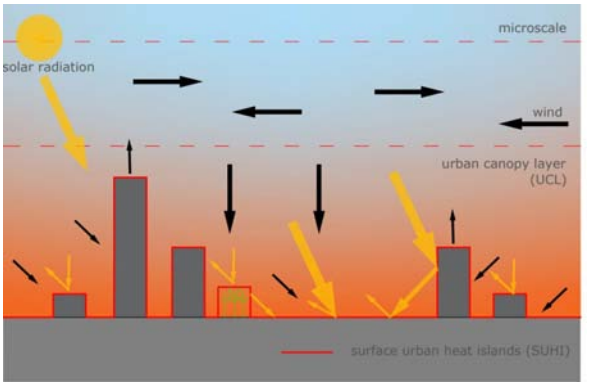


Figure 1: Schematic depiction of surface heat islands.

This article discusses the surface temperature of urban texture in two central squares in Albania. Hence, "Liria" Square in Durrës and "Skënderbej" Square in Tirana are taken as a case study. Due to their geographic position, both squares are all day long completely exposed to solar radiation. The central squares are used by pedestrians and cyclists in different weather conditions during the year. During the summer in the afternoon, pedestrians use the squares mainly after 7:30 pm, and they feel hot. In spring and autumn, people feel neither too cold nor too hot, because of its air temperature. During winter the pedestrians feel cold when it is cloudy and windy and not too cold when it is sunny. The situation during the day is different, as both squares are used just as a passageway, rarely people are staying there, this depends on weekdays and weekends, also is mainly based on weather conditions.
The research is mainly focused on analyzing the surface temperature measured from the infrared energy which is emitted by urban texture, during a hot day in summer. The objective of this research is to show how much influence has the use of urban texture in outdoor thermal comfort. In Figure 1 is shown the schematic depiction of surface heat island.

Methodology

This research is experimental and analytic. At the beginning of this research, is provided an assessment of the existing urban texture. Then, weather data are obtained in both squares such as air temperature, relative air humidity, wind speed, wind direction, dew point, visibility, cloud cover and wet bulb which are taken by the local station. After that is measured by thermometer Temperature in the site (ground and human level) and humidity, in 4 locations. Furthermore using images taken by the thermal camera, of each material, is measured the emitted temperature in the surface of the material. After that, findings are evaluated in terms of urban thermal comfort. In Figure 2 are shown the photos of instruments used for measurements in site, thermometer and FLIR Therma CAM B360.

Figure 2: Instruments used for a measure in site.

Case Study 1 - Liria Square in Durrës

Liria Square is located in the city center of the city of Durrës. Recently the square is redesigned in 2009 from studio Michele Crò Architetto. The first phase of the project is implemented in addition to vegetation, which is not realized as it was designed. In this case, the research is focused on only on analyzing the realized project. The square is used by pedestrians and cyclists, mainly in summer or in warmer days of the year.

Data analysis and results

In the beginning, in Figure 3 are shown urban texture mapping and measurements of 4 locations. After that, the data were taken by measurements of climate conditions in site with a thermometer, on 26-27 August 2017, at 08:00, 12:00, 16:00 and 20:00, and the average measurements of climate conditions taken by the local station at the same time are interpreted in graphs. In Figure 4 is shown a comparison of temperature and humidity between measurements in site and a local station.

Figure 3: "LIRIA" Square.

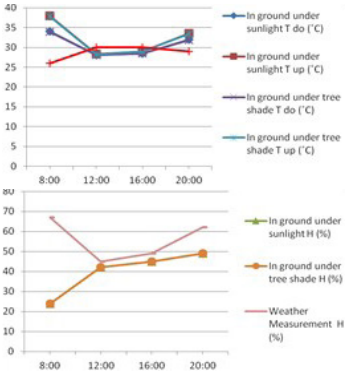


Figure 4: Temperature and Humidity comparison graphs.

The temperature measured by a thermometer in the site (ground and pedestrian level) is: in morning (8:00) 8-12˚C more; noon and afternoon (12:00-16:00) 1-2˚C less; in the evening (20:00) 3-5˚C more; than the Air Temperature measured by local station (red line). Humidity level measured by a thermometer in the site (ground and pedestrian level) is: in the morning (8:00) 43% less; noon and afternoon (12:00-16:00) 12% less; in the evening (20:00) 7% less; than Humidity measured by the local station. In Figure 5 are shown thermal images with FLIR Therma CAM B360. The light red color shows the hottest spots and the dark blue shows the coldest spots on the square. The black lines and spots on thermal images show the measurements carried on. Also is shown an example of how is measured the surface temp in thermal images, then thermal graphs are elaborated with FLIR TOOLS– software. In Figure 6 is shown a comparison of an emitted temperature measured in the site of each material.

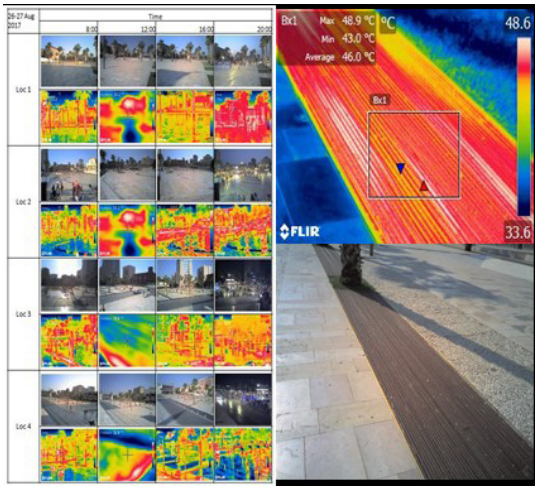
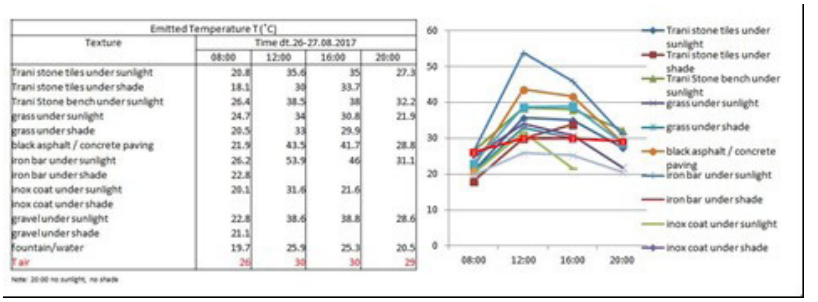


Figure 6: Emitted Temperature comparison.



Emitted Temperature T (˚C)				
Texture	Time dt.26-27.08.2017			
	08:00	12:00	16:00	20:00
Trani stone tiles under sunlight	20.8	35.6	35	27.3
Trani stone tiles under shade	18.1	30	33.7	
Trani Stone bench under sunlight	26.4	38.5	38	32.2
grass under sunlight	24.7	34	30.8	21.9
grass under shade	20.5	33	29.9	
black asphalt / concrete paving	21.9	43.5	41.7	28.8
iron bar under sunlight	26.2	53.9	46	31.1
iron bar under shade	22.8			
inox coat under sunlight	20.1	31.6	21.6	
inox coat under shade				
gravel under sunlight	22.8	38.6	38.8	28.6
gravel under shade	21.1			
fountain/water	19.7	25.9	25.3	20.5
T air	26	30	30	29

Figure 5: Thermal Images with FLIR, 26-27 Aug 2017.

The field measurements in the site have shown that: In the morning (08:00), the surface temperature of each material is 4-8˚C less than air temperature; besides of Iron bars, grass and Trani stone benches under sunlight that have the same values. In noon and afternoon (12:00, 16:00), the surface temperature of each material is 3-19˚C more than the air temperature; besides of fountain which is 5˚C less. In the evening (20:00), (no sunlight) surface temperature of materials is 2-3˚C more than air temperature; besides of fountain (9˚C less), grass (7.1˚C less), gravel (0.4˚C less). Surface temperatures of Trani stone tiles, Trani stone benches, black asphalt, iron bars, are critically influencing the thermal comfort in "Liria" square. During summer, surfaces' materials emit solar temperature which is absorbed during the day.

Case Study 2 - Skënderbej Square in Tirana

Skënderbej Square is located in the city center of the capital city of Tirana. Recently the square is redesigned in 2016 from studio 51N4E, where the first phase of the project is implemented. In this case, the research is focused on only on analyzing the part which is realized. The square is used by pedestrians and cyclists, mainly in summer or in warmer days of the year. During the year, due to its position, the square is used as a passageway, where pedestrians and cyclist are passing through.

Data analysis and results

In the beginning, in Figure 7, are shown urban texture mapping and measurements of 4 locations. After that, the data were taken by measurements of climate conditions in site with a thermometer, 28 August 2017, at 08:00, 12:00, 16:00 and 20:00, and the average measurements of climate conditions taken by the local station at the same time are interpreted in graphs. In Figure 8 is shown a comparison of temperature and humidity between measurements in site and a local station.

The temperature measured by a thermometer in the site (ground and pedestrian level) is: in the morning (8:00) 10-14˚C more; noon and afternoon (12:00-16:00) 1-2˚C less; in the evening (20:00) 5-8˚C more; than the Air Temperature measured by local station (red line). Humidity level measured by a thermometer in the site (ground and pedestrian level) is: in the morning (8:00) 63% less; noon and afternoon (12:00-16:00) 12% less; in evening (20:00) 24% less; than Humidity measured

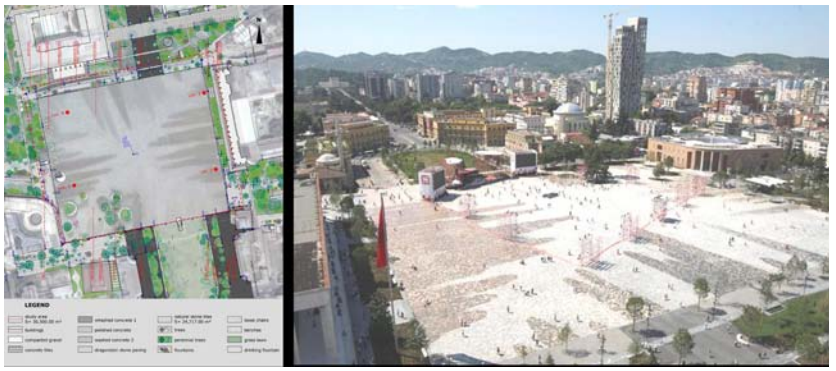


Figure 7: "Skënderbej" Square.

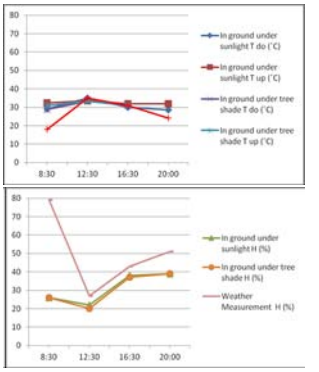


Figure 8: Temperature and Humidity comparison graphs.

by the local station. In Figure 9 are shown thermal images with FLIR Therma CAM B360. The light red color shows the hottest spots and the dark blue shows the coldest spots on the square. The black lines and spots on thermal images show the measurements carried on. Also is shown an example of how is measured the surface temp in thermal images, then thermal graphs are elaborated with FLIR TOOLS– software. Figure 10 is shown a comparison of an emitted temperature measured in the site of each material.

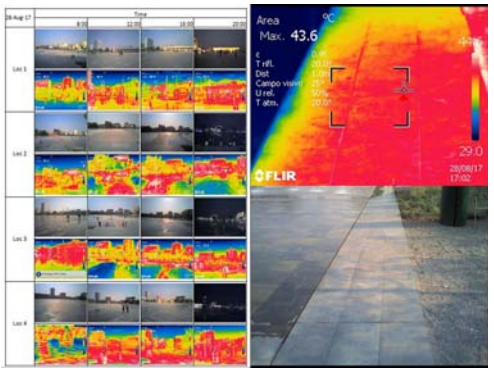


Figure 9: Thermal Images with FLIR, 28 August 2017.

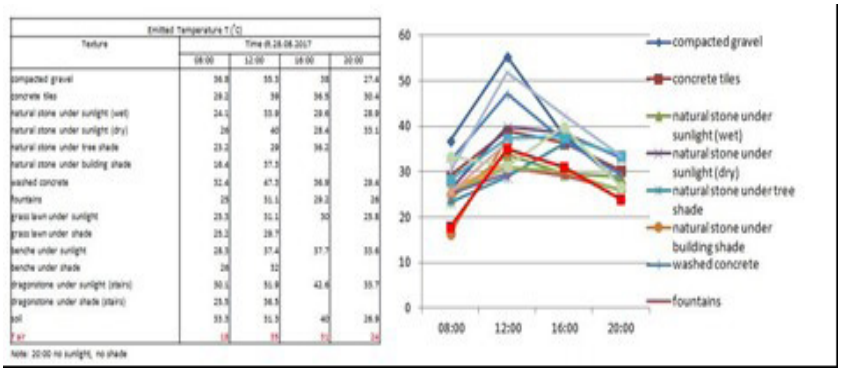


Figure 10: Emitted Temperature comparison.

The field measurement in the site has shown that: In the morning (08:00), the surface temperature is 5-19˚C more than T air (respectively natural stone under tree shade and compacted gravel); besides of natural stone under building shade, which is 2˚C less than T air. In noon (12:00) surface temperature is 2-19˚C more than T air (respectively dragon-stone under shade and compacted gravel); besides of natural stone under sunlight but wet and natural stone under tree shade which is respectively 3-6˚C less than T air. In the afternoon (16:00) surface temperature is 5-13˚C more than T air (respectively natural stone under tree shade and dragon-stone under sunlight); besides of natural stone under sunlight but wet and fountains which are respectively 1-2˚C less than T air. In the evening (20:00), (no sunlight) surface temperature is 2-10˚C more than T air (respectively grass lawn and dragon-stone). The surface temperature of compacted gravel, dragon-stone, natural stone, washed concrete, soil and benches under sunlight are critically influencing the thermal comfort in "Skënderbej" Square.

Conclusions

In afternoon and evening during a summer day for both squares are highlighted: Temperature measured in site is higher than T air measured by local station mainly (46% and 10); Humidity in site is lower than humidity measured by local station (7%-63%); Radiation of surface material is highly present; No shadings in the square; Surface Urban Heat Island (SUHI) is critically presented in morning and evening. In conclusion, the appropriate urban textures can mitigate surface urban heat islands around 40% and can make livable public squares at any time. As a field in August 2017 campaign, the measurements indicated that thermal radiation of surface material is highly present in morning and evening in both squares. The well-studied use of different pavement materials, green areas, and water reduce the thermal radiation in public squares. In terms of urban thermal comfort, the results have shown that the arbitrary use of urban texture influences the outdoor thermal comfort, consequently the use of public squares.
It is recommended:
Increasing green areas around 40% and maintaining them (mainly for "Liria" Square)
Watering the pavements and green areas with recycling water mainly in the afternoon, so the temperature will be lower than their surroundings, even during noon time (mainly for "Liria" Square).
The thermal properties of surface materials also greatly influence the urban micro-climate (neither too dark nor too light).
Using permeable or porous paving, as allows water to filter into the ground, keeping the pavement cool at night (applicable for both squares).
Shading the area with artificial and natural shading, at least 50% (for both squares), will reduce surface urban heat islands around 30%.

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14

TOWARD DETERMINATION OF COST-EFFICIENCY IN THE RENOVATION OF EXISTING BUILDINGS FOR ENERGY EFFICIENCY IN KOSOVO

Egzon Bajraktari, Violeta Nushi, Meral Hallaqi, Taulant Kelmendi

Abstract

Energy use in the building sector is a worldwide problem. In Kosovo too, only the household sector consumed about 38% of the overall energy consumption in recent years (MZhE, 2013). Most of this energy consumption in the household sector is dedicated to the needs for heating in housing spaces (UNDP, 2007). In Kosovo first projects for the application of energy efficiency measures in new and existing buildings have begun. The government too has started completing the legislative framework which supports and encourages energy efficiency in the building sector. Faculty of Civil Engineering and Architecture at the University of Pristine "Hasan Prishtina" with the project LEMENS aims to address the issue of determination of the cost-efficiency of the measures for energy efficiency renovation of existing buildings. Toward this end we have monitored the implementation of the measures for energy efficiency in a number of existing buildings. This paper reports for the initial results of the study and the challenges in this process.

Keywords: energy efficiency, cost-efficiency, renovation of existing buildings, Kosovo

Introduction

Energy use in the building sector is a worldwide problem. In Kosovo only the household sector consumed about 38% of the overall energy consumption in recent years (MZhE, 2013). Most of this energy consumption in the household sector is dedicated to the needs for heating in housing spaces (UNDP, 2007). First projects applying energy efficiency measures in new and existing buildings have begun countrywide.

On the other hand, the government is working toward completing the legislative framework which supports and encourages energy efficiency in the building sector. Both the works in practice and the drafting of the legislation are based on the foreign examples. Especially, there is not enough local data to be used for the establishment of the national standards and legislation.

There is need for local standards and benchmarks to be established in the field of energy efficiency and related retrofit measures. Specifically there is need for the definition of the thresholds in energy performance of the new and existing buildings and establishment of the energy efficiency class rating. Of course this should be based on the relevant international standards and guiding documents such as: the Energy Efficiency Directive 2012/27/EU "EED" (EC, 2012); the Energy Performance of Buildings Directive 2010/31/EU "EPBD recast" (EC 2010); ISO 52016-1. Energy performance of buildings -- Energy needs for heating and cooling, internal temperatures and sensible and latent heat loads -- Part 1: Calculation procedures (ISO, 2017).

Faculty of Civil Engineering and Architecture at the University of Prishtina "Hasan Prishtina" with the project LEMENS (original full title "Leverdia ekonomike e masave për efiçiencë energjetike në sanimin e ndërtesave ekzistuese",(Cost efficiency of the measures for energy efficiency in the renovation of existing buildings) aims to address the issue of determination of the cost-efficiency of the measures for energy efficiency renovation of existing buildings. Toward this end we have monitored the implementation of the measures for energy efficiency in a number of existing buildings. This paper reports for the initial results of the study and on the challenges encountered in this initial stage of the project.

Approach

For a number of existing buildings we have measured and evaluated the building energy performance. We have

monitored the implementation of the measures for energy efficiency in a number of buildings as described in Table 1. These case study buildings have been monitored before and after the application of energy retrofit measures. Specific parameters have been measured on site regarding building's envelope thermal performance, as well as regarding buildings' thermal comfort. Measured parameters are specified in Table 2.

Table 1. Building data

Nr	Building	Built on year	Net floor area [m^2]	Occupants
1	Medical Institutes building	1978	3390	200
2	Asylum for elderly people building	1960	770	50
3	Music department	1958	2886	400
4	Technical faculty building	1982	13260	5250

Table 1: Building data.

Table 2. Measured parameters

Nr	Parameter	Unit
1	U-value	$Wm^{-2}K^{-1}$
2	Ambient CO2 concentration	Ppm
3	Indoor relative humidity	% RH
4	Indoor room temperature	°C
5	Illuminance	lx

Table 2: Measured parameters.

Measured data as well as other information regarding the geometry and characteristics of the case study buildings will be used in the following procedure:

- Calculation of the building energy needs for heating and cooling;
- Calculation of primary energy use and the carbon emissions;
- Calculation of global costs (summing investment costs and operational costs over the buildings' life cycle).

All the calculations will follow the methodology suggested by the Annex 56 study. The calculations will be based on the following tools INSPIRE (Energie Schweiz, 2018) and Cost_Optimal_Tool (IEA, 2017). INSPIRE is intended for calculating buildings' energy needs, whereas Cost_Optimal_Tool is intended for calculating global costs over the life cycle (IEA, 2017).

Results

The buildings considered in the case study are characterized with very high thermal transmittance on their building envelope and correspondingly very poor thermal building performance. Estimated values regarding U value of the building envelope components and the general energy needs according to the initial energy audit are presented on Table 3.

Table 4 shows the comparison of the estimated and measured U-value of the outer walls both before and after the application of energy retrofit measures for two of the buildings under consideration.

The project has yet to analyses the rest of the data regarding thermal comfort of the buildings and the cost-efficiency of the applied energy retrofit measures.

Parameter		Medical Institutes Building	Asylum for elderly people	Music Department	Technical Faculty
U value [$Wm^{-2}K^{-1}$]	Outer walls	1.37	1.63	1.29	3.63
	Windows	4.00	1.80	2.80	4.50
	Roof	3.31	3.60	2.56	2.96
Energy consumption [$kWhm^{-2}a^{-1}$]		583	178	263	229

Table 3: Estimated U-value and the energy consumption of the buildings before energy retrofit.

	U [$Wm^{-2}K^{-1}$] before energy retrofit		U [$Wm^{-2}K^{-1}$] after energy retrofit	
	Estimated	Measured	Estimated	Measured
Technical faculty	3.63	3.30	0.36	0.29
Music department	1.29	1.01	0.33	0.38

Table 4: Comparison of the U-value of the outer walls before and after the energy retrofit measures.

Discussion

Initial results show that the building performance of the buildings under consideration after the application of energy efficiency retrofit measures has been considerably improved. Intended thermal insulation has closely reached the projected values according to the initial energy audit. However the measurements show that this is not the case e.g. in the wall areas near windows. There the U value measured is far from the projected values. This requires the evaluation of thermal bridges and questions whether this has been addressed appropriately in the initial energy audit.
On the other hand energy efficiency measures proposed are in the process of implementation and have not been fully applied in all the buildings. This limits our data derivation of full comparisons.
Nevertheless our project will continue to examine the data obtained in order to evaluate the energy performance of the case study buildings. Re-evaluation of the existing building's energy performance after the application of energy efficiency measures will provide us more information for the definition of cost-efficiency level according to Annex 56 methodology (IEA, 2017).

Conclusion

Faculty of Civil Engineering and Architecture at the University of Pristine "Hasan Prishtina" with the project LEMENS has monitored the implementation of the measures for energy efficiency in a number of case study buildings.
The buildings monitored represent typical constructions originating from second part of the 20th century in Kosovo. More than 37% of the existing building stock in Kosovo is built in this period (ASK, 2013). As shown in the evaluation of our case study buildings before the application of energy efficiency retrofit measures, these buildings have very poor energy performance. It is important to improve thermal performance of such buildings.
The establishment of appropriate national benchmarks and standards for the application of energy efficiency measures for renovation of existing buildings would be useful to guide such process. Our project LEMENS represents a contribution toward this end.

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NEIGHBOURHOOD DESIGN AND COMMUNITY BUILDING

Fatlinda Struga, Jyrgen Struga

Abstract

The aim of the article is to assess the influence that neighborhood design has on the community buildings and strengthening. Each residential unit has two spaces: the private space inside the apartment and the public one, shared out of the apartment. The second plays an important role in connecting people between them and hence in creating and strengthening the community feelings. To assess the level of the influence of neighborhood design and urban planning features in the creation and strengthening of the community's perception we have referred to the function of common spaces provided in the urban design case studies and their respective size, expressed in m^2/inhabitant or m^2/construction surface. Case studies are three neighborhood in the Tirana city with different characteristics in terms of construction period, the typology of buildings and the position in the city area. From the study is found that the common spaces have tended to be reduced in terms of surface and function, from time to time. This study brings to the attention of urban designers and urban planners the fact that in addition to the technical elements in the design of urban projects also is necessary to be considered the social factors that usually remain hidden behind the technical ones. In this way, the planners can formulate clearer objectives for neighborhood design and community and strengthening.

Keywords: neighborhood design, community strengthening, social interaction

Introduction

After the 90s period, was characterized by free and no organized movement of population. Tirana, as the capital of Albania, experienced the largest chaotic urban development compared to other cities of the country. This development occurred in sprawled and congestion of the city. In both cases these phenomena lead to discouragement of social interaction as lack of open public spaces.
Neighborhoods are the source of dynamic growth of cities. People tend to structure their neighborhoods according to their cultural and social needs (Eissa, et. al., 2015) In the City of Tirana there are some types of neighborhoods; the oldest ones that we calls "mëhalla" build before 1945, tradition ones that we calls "Bllok", "Kompleks", "Lagje" build in 1945-1990 and irregular, informal residential zones build after 1990.
As urban environments, cities nowadays are typically characterized by urban sprawl in which open public spaces (1) are neglected and (2) social interactions are discouraged (Eissa, et. al., 2015). The neglected and occupy of public open spaces and discourages of social interacted is evident in the residential zones, build in Tirana city in the period from 1945 till now.
Nowadays is a need in the capital to understand how neighborhoods can be designed with the aim to increase social interactions. In this way we can influence to strengthen community through urban and architectural design.

The aim and objectives of te research

Aim of the research is to assess the influence of neighborhood design elements, especially public open spaces to the social interaction and community building (social interaction) at neighborhood level in Tirana city.
Objectives of the research study are to:

- Identify the urban and architectural design elements at neighborhood level in Tirana city;
- Analyze the influence of neighborhood design elements to social interaction;

- Propose how the spatial form and urban design elements of public spaces can be implemented in order to enhance social interactions.

Literature review

Public spaces allow people to meet on ostensibly neutral ground in planned and unplanned ways, to interact with others within the context of the whole community (Holland et. al., 2007). Socially inclusive public spaces enable people of all ages to access essential services and facilities without physical barriers, safety concerns or transport difficulties in reaching them (Holland, et. al., 2007).
The objective of a neighborhood unit is to enable the combination of family units (if desired) into a community that has definite social interaction in a recognizable physical units (Sendich, 2015).
Elements of the neighborhood unit:

- Dwellings: refer to houses of all kinds and sizes;
- Public Spaces: for air circulation, for light and recreation activities;
- Social Services (amenities): shopping center, school, kindergarden, etc.(Sendich, 2015).

Social interaction and public space

The neighborhood community as the main elements in the urban spaces plays an important role in social life of the cities. There are some elements that links the people who live in a neighborhood with its territorial and spatial elements. Some of these spatial elements are spaces which the residents share with each other. They meet the other residents and interact with them in those spaces. This interaction helps them to striate and strength to community feelings.
Public space is 'our open-air living room, our outdoor leisure center' important to the health and well-being of residents of all ages. The higher the space the higher will be the social interaction among inhabitants. (Lipton, 2002, Foreword) Claiming social space and being seen in public becomes a way for social groups to legitimate their right to belong in society. (Mitchell, 1995, 2003).
Studies suggest that outdoor spaces can enhance social interaction. People go to outdoor spaces because of their need for social interaction (Marcus and Francis, 1998). Outdoor spaces are places for chance encounters and potential interactions with other people (Drucker and Gumpert, 1998). These spaces provide opportunities for individuals to engage in high-level social interaction. The number of the inhabitants in a neighborhood unit is an indicator that determine the interaction among them. In large apartment buildings, individuals socialize in common outdoor spaces to increase recreation opportunities outside the home (Glaeser and Sacerdote, 2000).

Figure 1: Tirana aerial photo. The position of "8 Marsi", "1 Maji" and "50 Vjetori" neighborhood and the City Center.

Introduction to the case study

City of Tirana, after 1990 experienced rapid rate of urbanization. One of the effect of population growing was construction of a lot of new buildings. These new buildings were especially residential buildings and situated in the agricultural land in the edges of the city or in the open spaces in the existing residential neighborhood. The second case is the object of this study.
For this study were selected three neighborhood in Tirana; "8 Marsi" neighborhood, "1 Maji" neighborhood and "50 vjetori" neighborhood. Urban design plans were prepared from National Planning Institute for these neighborhoods in the period 1970-1980. These were buildings according to their plans. These were situated in the different zones of the existing city but show the similar problems. After analyze the urban and social elements of these three cases, the study focuses on the "50 vjetori"

neighborhood.
The "50 vjetori" neighborhood is situated near the center of Tirana city. It has a large surface (24 ha), has had a lot of public spaces and public buildings (school, kindergarten, daily nurse) and has change a lot from the building time till now.

Research method

As a conclusion from the literature review, social interactions depends on neighborhood design of common elements, specifically public spaces;
The study aims to examine the relationship between the public open spaces and residents social interaction. The research is based on e mixed-method: quantitative and qualitative;
Neighborhood development is tested and measured based on content analyses, comparing graphic design of these neighborhood in 1980 and 2015 using AutoCAD (map) measurement;
Social interaction is measured through being together and interaction between residents, collected through walking tour assessments and the results of questionnaires (100 questionnaires are fulfill from the students of Urban planing Branch in the Faculty of Architecture and Urban Planing in Tirana).
Questionnaires and Walking tour assessment:

- Functionality (Witnessing how the surrounding environment enables people to inter-act);
- Safety: Noticing if the study area is safe for the users who are using it and to the users who are visiting it.
- Size: Surface of the public space and number of users for unit of surface.
- Inhabitants opinions; which are the urban design elements that can help them to communicate and interact more with each other

VARIABLE	INDICATOR	DATA COLLECTION METHOD	DATA TYPE	DATA SOURCE
Neighborhood Design Elements	m2	Content Analysis Desk Research Map measurement	Quantity Data	**Urban regulation NPA Tirana Municipality**
Neighborhood Population (inhabitants)	Number of inhabitants	Calculation based on the surface of the dwelling	Quantity Data	**NPA Tirana Municipality**
Communicate and Social Interaction	Quantity and quality of public space (%)	questionaries resident opinions	Quality/Quanti ty Data	**Residents**
Social Interaction	Presence of main facilities m2/inhabitant s	On-site analysis Walking assessment tour/Mapping	Quality/Quanti ty Data	**Residents**

Table 1: Indicators for quantitative and qualitative assessment.

Conceptual Framework

Data analyses
"50 Vjetori" neighborhood is built in 1980 according to an approved plan. Its surface is 24 hectare. The population in 1980 was 8135 inhabitants. There were planed and build; dwelling, amenities, recreation and playgrounds, sport grounds, roads and squares in that neighborhood. The design of urban plan was done according the standards of the "Urban Regulation", a national sub legal document.
Referred to the urban design plan, the elements of the neighborhood area are; residential buildings (red); public buildings, school, kindergarten, daily nurse (yellow); city road (brown); neighborhood paths and public parcels (white); open spaces (ocher); parks (green); water surface (blue). In the table below there are the urban indicators for population and design elements.

Figure 2: Conceptual framework.

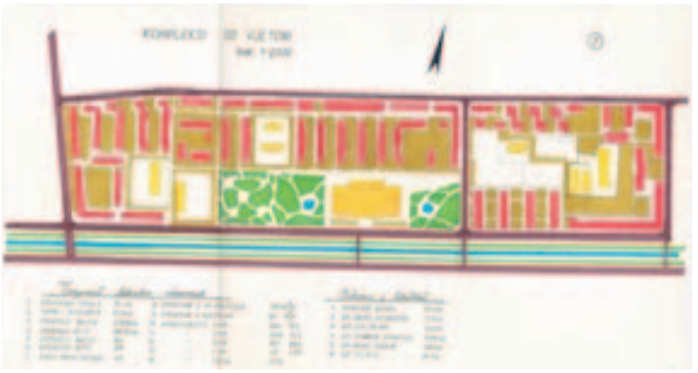

Figure 3: "50 Vjetori"Neighborhood Plan(Prepared byNational Planning Institute).

Table 2: Urban Planning and design parameters.

LAND USE	"50 VJETORI" NEIGHBOURHOOD 1980		"KOMPLEKS" NATIONAL STANDATDS
	Ha	%	%
Dwelling	13.4	53.6	60.3
Amenities	2.7	10.8	8.3
Recreation and playgrounds	3.4	14.2	12.6
Sports grounds	0.58	2.3	6.3
Roads and squares	4.9	19.1	12.5
Total	24.98	100	100

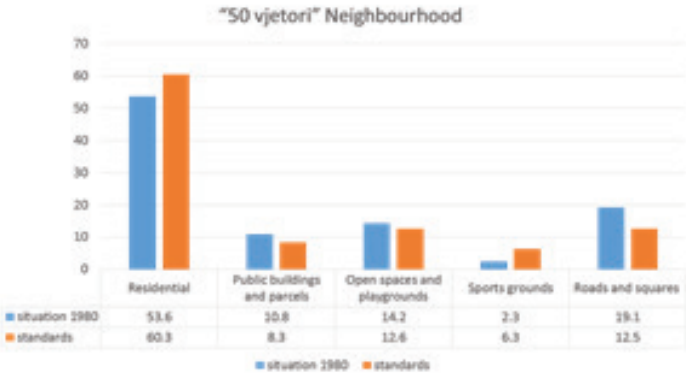

Figure 4:Urban parameters; situation 1980 and design standards.

Indicators	Value
Population	8135 inhabitants
Common space	14.2 m2/inhabitant
Individual space	16.5 m2/ inhabitant

Figure Table 3: The value of indicators of the population, common and individual spaces in the plan(1980).

In the table and graphic below are represented the surface (in Ha and %) for each design elements of the neighborhood. The value expressed in % is compared with the national standards (Urban Regulation).

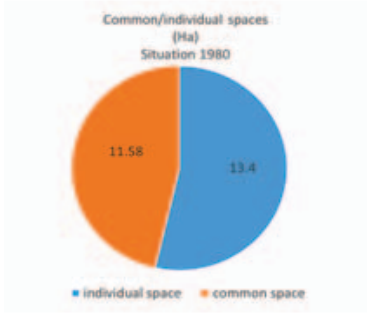

Figure 5: The ratio between the common and individual spaces in the neighborhood (1980).

Figure 6: "50 Vjetori" neighbourhood situation 2015-Map source: Municipality of Tirana.

Table 4: The value of indicators of the population, common and individual spaces(situation 2015)

Indicators	Value
Population	14000 inh
Common space	5.2 m2/inhabitant
Individual space	12.5 m2/inhabitant

Figure 7: The ratio between the common and individual spaces in the neighborhood (situation 2015)

As we can see from the table and the graphic above the values of indicators of the study are almost the same with the indicators of the "Urban Regulation". The surfaces of roads, amenities and recreation and playgrounds are higher than standards. The reason is that this zone is near the city center and roads are the main road of the city, park is use by both the neighborhood and city residents.

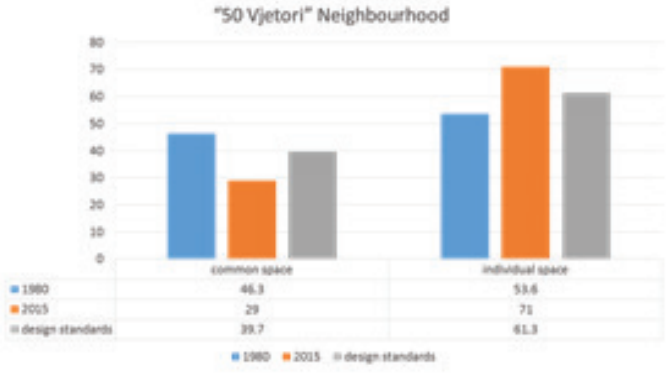

Figure 8" Urban parameters, situation in 1980, situation in 2015 and design standads.

Figure 9: Recreate spaces now used as parking for residents.

As we can see from the table and graphic above the difference the common and individual spaces, expressed in hectare and in m^2/inhabitant is a small one.
By comparing the map of 1980 with the map of 2015 we can see a lot of new buildings. This new buildings are especially dwelling. This new dwellings are construct in the open spaces, recreation and sport spaces, public buildings parcels, etc.
Because of these constructions the difference the common and individual spaces, expressed in hectare and in m^2/ inhabitant has grown.
The table and graphics above show the difference between the common and individual spaces, expressed in hectare and in m^2/inhabitant and in %. This difference is growth from 1980 to 2015. The individual space is increase and common space is decrease. This difference is 10.1 ha. The reduced common space is especially recreate and sport spaces. The area that is not occupied by the new buildings constructed in the period 1980 – 2015, now is used for; parking, bar or restaurant service, individual garden, etc. From the photos below we can see that transformation of common space.

Walking Tour

Based on the walking tour around the neighborhood, conclude that:
- There are a few people in the open spaces;
- The area does not provide enough diverse activities such as laying, relaxing, sitting, biking and interacting with other people;

a)   b)

Figure 10 a), b): Recreate spaces now used as from the bars or restaurants.

- There is no enough benches or other elements that enable people to relax and interact;
- There are many cars parking along the streets;
- There are many cars moving around and through the neighborhood that may risk the life of the inhabitants;
- There are a lot of spaces occupied by the inhabitants or users of the first floor apartments.


a)


b)

Figure 11: a),b): Recreate spaces now used by the residents of the first floors of buildings near them or as bar and restaurants


a)


b)

Figure 12:a).b): Benches are in the narrow sidewalk, near the parking line.

Figure 13: The lack of benches and other functional elements of recreational spaces.

Questionnaires and walking tour assessment

The urban planning students of Faculty of Architecture and Urbanism, UPT have tested the opinion of the neighborhood community based on the questionnaires.
The feeling of the residents for the communications between them:

- 66% of residents know the neighbors of their condominium;
- 40 % of residents know the neighbors of their neighborhood;
- 46 % of residents communicate to solve common problems.

The opinion of the residents for role of the common spaces in the communication between them:

- 80 % of the residents think that open spaces affect the growth of communication between them;
- 82 % of residents think that the best communication strengthens the co-operation between them to solve common problems;
- 92% of residents think that common space affects the strengthening of communication.

The proposals of the residents to improve the situation of common spaces in their neighborhood:

- 84 % to increase the surface of common spaces;
- 90 % to be equipped with functional elements (benches, playgrounds, etc.;
- 98 % to increase security.

a) b) c) d)

Figure 14: a),b),c),d): The opinion of residents collected.

Results

Based on the analyzes of changes in the build and open spaces of "50 Vjetori" neighborhood, walking tour through the zone and results of questionnaires assessment we can conclude:
- Occupy of open spaces (green territories) from residential buildings or parking squares - has reduced their size.
- The number of residents, mostly children and elderly people who use these spaces, as a consequence the communication between children, parents and grandparents is reduced.
- The size of these open spaces is quite small compared with the population of thr neighborhood.
- Open spaces are not equipped with urban furniture elements and for that reason they almost usable by the resident.
- Open spaces are unsafe because of their positioning near the roads and car movement around them.
- The number of residents using these spaces is small compared with the neighborhood residents.
- The communication between the residents is small compared to what they want to have.

Conclusion

In conclusion, there is a growing tendency to reduce common spaces that has influenced the possible reduction of social interaction among the communities as an important element in the community building and strengthening.

Recommendations

Based on this study, in order to strength the community feeling between the residents of the neighborhood recommend as below:

- Government Planning Authorities;
- To evaluate the public spaces as elements that influence the creation and strengthening of community feeling in setting of norms and standards
- To set a minimum size of recreational space obligatory to allow the construction of a new residential building in a parcel.

Local Planning authorities;

- In designing of the detailed local plans to conceive the common space as an element that contributes to interaction and strengthening of the community.
- This space should meet the standards and requirements of the inhabitants in terms of size, security, functional elements and architectural design.
- Don't allow the occupying of the existing open spaces from residents or commercial activities.

Residents:

- To maintain the open spaces in their neighborhoods
- Don't occupy the open spaces near their apartments or commercial activities
- In collaboration with the municipality to improve the situation in the existing open spaces
- To use all the open spaces for the community activities.

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16

ENERGY EFFICIENT HOUSING IN ALBANIAN CLIMATIC ZONES: AN ASSESSMENT OF THE DESIGN PRINCIPLES

Inesa Gishto, Gjergj Islami

Abstract

Designing housing that are economically, environmentally and socially sustainable has become one of the major challenges in the urban development process in Albania. As a signatory member of the Energy Community Treaty, Albania is obliged to implement The Energy Performance of Building Directive (Directive 2010/31/EU). On the other hand, buildings that apply energy efficiency standards have relatively high market value to be afforded by families with low income budget. Therefore, the challenge is to provide new and creative approaches that help to reduce the energy and construction costs throughout the entire dwelling operation cycle, while maintaining thermal comfort.
The experimental research focuses on the analysis, verification and proposals for the dwellings design features necessary to achieve minimum energy consumption and thermal comfort conditions for all three types of climates in Albania. The experiment is conducted through the thermodynamic simulation engine "Energy plus 4.0", integrated in the Design Builder interface with meteorological data obtained from Meteonorm V7.1.8. For this experiment are selected three cities, one for each climatic zone in Albania.
The experimental research results highlight effective solutions for the geometry of the residential unit, the optimal orientation of the living and sleeping areas, the position of the openings, the thickness for thermal insulation layers. Recommendations are given by using as a comparative basis the total energy consumption per year per unit of surface.
Implementing energy efficiency design approaches in new buildings provides significant reduction in energy consumption, improves indoor conditions of thermal comfort as well as environmental impact.

Keywords: Energy efficiency, housing design, thermal comfort, climate, Albania

Introduction

Sustainable development requires the use of natural resources in such a way that future generations can meet their energy demand as we use today. A significant portion of natural resources is allocated to energy production. According to the 2013 Energy Consumption Index, the housing sector is the main consumer of electricity with 60% of the total electrical output.
Albania, as member of the European Energy Community, is required to approve the legislation mandated by the European Union on energy efficiency. Directive 2010/31/EU on the Energy Performance of Buildings and Directive 2012/27/EU were projected to be signed in 2016, and Albanian legislature will create internal laws according to the signed Directives. Directive 2010/31/EU mentions that current measures undertaken to improve energy conditions in housing must also take in consideration local climate conditions. According to Givoni (1969) the process of identifying, understanding, and controlling various climate influences on different sides of the building is perhaps the most critical phase in construction planning
Therefore, the challenge is to provide new and creative approaches that help to reduce the energy and construction costs throughout the entire dwelling operation cycle, while maintaining thermal comfort taking in consideration climatic conditions.

Simulation process

The experiment is conducted through the thermodynamic simulation engine "Energy Plus 4.0", integrated in the

Design Builder interface with meteorological data obtained from Meteonorm V7.1.8. For this experiment are obtained meteorological data of three cities: Vlora, Tirana and Korca, corresponding to each climatic zone in Albania. After obtaining the necessary data, the program calculates energy consumption per square meter in a year.
Three-dimensional model is associated with the selection of construction technology in the program's library. The set of elements like floor, walls, slabs, windows are selected in the program library. Windows with double glass and aluminum casings are chosen and shading is not considered. The same set is used for all experimental cases, changing only the thermal insulating package according to the climatic zone. The calculation of thermal insulation thickness is mentioned in following paragraph. After modeling, the selection of the heating, ventilation and cooling system (HVAC) is done. We choose electrical power supply as the energy supply for cooling and heating based on the purposes of the experiment and taking into account the general source of it. For the purposes of this study, thermal comfort is achieved in the temperature range of 19oC for the winter and 25oC for the summer. The system is activated when the outdoor air temperature is different from the optimal temperature of comfort. The program is organized in such a way that the consumption for each energy consumption sector remains a percentage ratio determined by the Energy Regulatory Entity. (Heating and Cooling 48%; Sanitary Hygienic Joints 20%, Lighting 9%, Other Equipment 23%).

Thermal insulation

Thermal insulation is determined by the difference of the external and internal temperature levels. Heating degree-days indicate the difference between warmer indoor temperatures and lower outdoor temperatures. Value 'U', the coefficient of heat transfer, is used to rate the thermo-insulation level of a constructive element. Heat transfer (W/m^2K) indicates the loss of thermal energy within 1 square meter (m^2) area for each Kelvin unit change between indoor and outdoor temperatures. (ECOFYS, 2005)
Albania does not yet have a calculation method for achieving energy efficiency in buildings. According to Last Law No. 8937 (2002), heat loss from external walls should be between 75 and 90 kWh / m^2. Referring to some cases applied in Europe, heat loss from external walls is reached = 35-50 kWh / m^2 per year (ECOFYS, 2005). Given that Albanian norms will tend to reach European ones, this study will aim to achieve the value q H = 50 kWh / m^2 per year. To reach this amount of heat loss from the external walls, we will calculate the required thermo insulation material thickness. For this experiment is chosen EPS with $\Lambda = 0.04$, because this one is the most used material in Albania and easily found in the market.
Albania is divided into three climatic zones, referring to the Grade Days system (Alushaj, 2012). Area A, where degree-days range from 900 to 1500; Zone B, where the degree-days range from 1500 to 2000; Zone C, where degree-days range from 2000 to 2500.
The calculation equation of heat loss is: $qH = HDH*U/\eta$ (1)
HDH= Heating degree hours (degree days*0.024), η is the efficiency of heating system (0.78)
In order to achieve q H = 50 kwh/m^2, for zone A, it is necessary to have a coefficient of heating transfer U=0.60 W/m^2 K. The same is conducted for zone B and C, where heating transfer coefficient is respectively U=0.42 W/m^2 K for zone B and U=0.30 W/m^2 K for zone C.
Thermal insulation thickness for external walls is given by the equation: $X = (1/U - R)\lambda$ (2)
U –proposed value; R- Thermal resistance; Λ- thermal conductivity of insulation material (0.04) (Energies, 2011).
As a result of calculations, the optimal thermal insulation thickness for building walls (EPS , Λ=0.04) is 6cm for zone A, in which is included the city of Vlora; 8 cm for zone B (Tirana) and 10 cm for zone C (Korça.) These values are added in the library of the simulation program.

Experiment 1

A typical floor plan with an area of 100 m^2, is chosen for the first experiment. This floor is placed between two adiabatic blocks. The volume has 8 windows in total, 2 for each side (total area of the windows is 19% of the floor area). There are used 4 activity zones: living room, bedroom, bathroom and kitchen, which are placed in the same location in the following experiments. External walls are insulated responding the requirements calculated above.
a. In the first case, the dimensions of the volume are 10mx10mx3m (Fig.1).

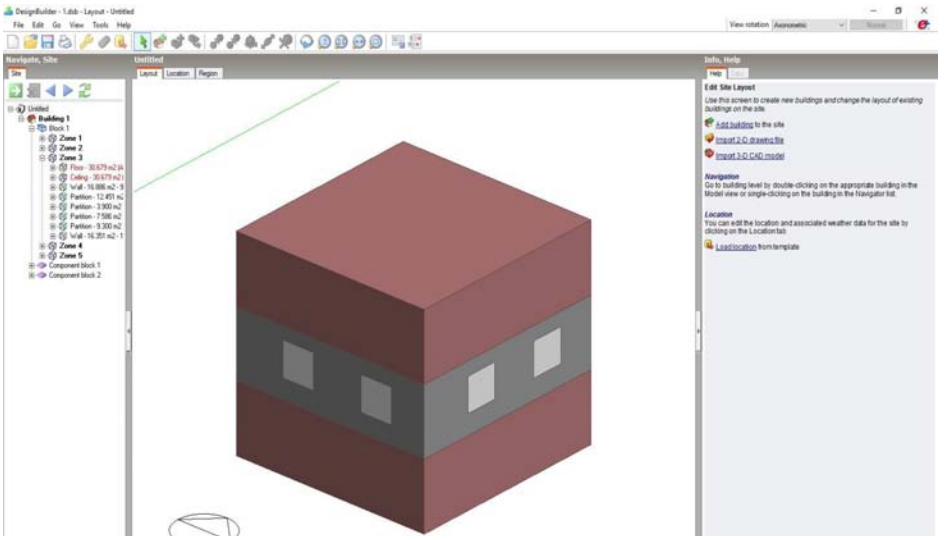


Figure 1: 3-Dimensional model

The results of energy consumption for three cities are listed in the Table 1:

Table 1: Conclusions of experiment 1.1.a

City	Vlora	Tirana	Korça
Consumption (kwh/m^2)	39.11	42.60	48.36

b. In the second case, dimensions of the volume are 15m x 6.6m x 3m.
For the first scenario the length of the longest side of the volume (15m) is oriented to the North and South. For the second scenario, the length of 15m is oriented to the East and West. The results of energy consumption for three cities are listed in the Table 2:

Table 2: Conclusions of experiment 1.1.b

City	Vlora		Tirana		Korça	
Orientation	N,S	E,W	N,S	E,W	N,S	E,W
Consumption (kwh/m^2)	40.64	42.94	45.36	48.5	52.37	56.23

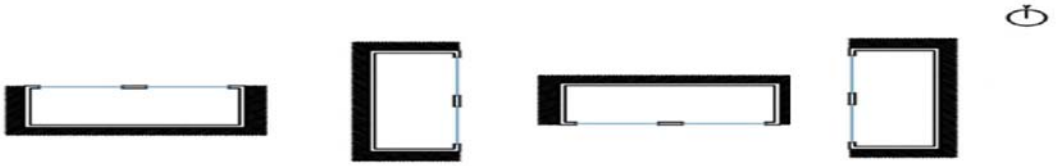
As a result, volume 10x10x3m performs better than volume 15x6.6x3m regarding the energy consumption. This difference is 3.7% in Vlora, 6% in Tirana and 7.6 % in Korça (in the second case the longest side of the volume is oriented to N and S). This difference is considerable for the city of Korça, so it is recommended that in the zone C, the shape should be more compact.

Experiment 2. Orientation of external sides in a unit and the activity zones

A unit, which is part of a floor plan, is chosen for the second experiment. The unit (12x6m) is positioned in a floor plan between two adiabatic blocks. Activity zones are: living room+ kitchen (30m^2), 2 bedrooms (15m^2 each one), bathroom (8m^2), circulation area (4 m^2).

Experiment 2.1

In this experiment, the unit (12mx6m) has one exterior side (the facade) and three other sides shared with other units. In case a, the unit has three shared sides and the exterior side oriented to North (Fig. 2). In case b, the exterior side is oriented to East (Fig. 2b); in case c the exterior side is oriented to South (Fig. 2c) and in case d the external side is oriented to West (Fig. 2d).



a) *b)* *c)* *d)*

Figure 2 :Configurations of the unit

The results of energy consumption (kwh/m^2 year) for each case are listed in the Table 3.

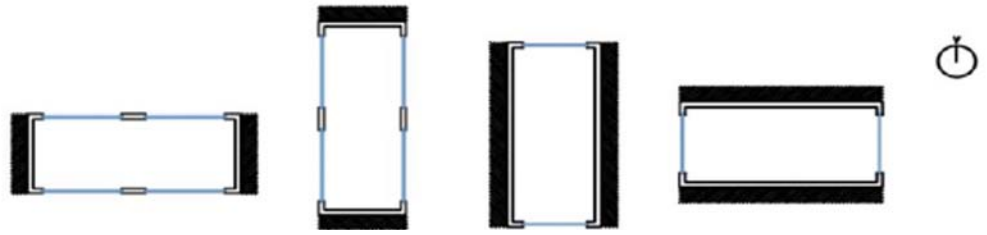
Table 3: Conclusions of experiment 2.1

Orientation	**North (case a)**	**East (case b)**	**South (case c)**	**West (case d)**
Consumption (kwh/m^2) in Vlora	**42.56**	48.62	42.88	48.87
Consumption (kwh/m^2) Tirana	46.76	51.94	**43.60**	48.87
Consumption (kwh/m^2) Korça	51.38	51.79	**38.75**	51.30

In Vlora (Zone A), energy consumption is lower in case a, where the external side (facade) is oriented to North. It is also considerable the orientation of the facade to south since the results are closer. In Tirana (Zone B) and in Korça (Zone C) best results are obtained where the facade is oriented to the South (Fig. 2.c). Tirana's results shows that the difference between the orientation in North and South is not higher that 6%, so the orientation of the facade in North will also bring good results in energy consumption.

Experiment 2.2

In this experiment the unit (12m x 6m) has two exterior sides and two other sides shared with other units. There are four scenarios for the orientation of the unit: Case a with the 12m side of the unit oriented to North and South (Fig. 3.a); Case b with the 12 m side of the unit oriented to East and West (Fig. 3.b); Case c with the 6m side of the unit oriented to North and South (Fig. 3.c);"Case D" with the 6 m side of the unit oriented to East and West (Fig. 3.d). The results of energy consumption (kWh /m^2 year) are listed in the Table 5.



a) *b)* *c)* *d)*

Figure 3: Configurations of the unit

Table 5: Conclusions of experiment 2.3

	1 (North)	2 (South)	3(East)	4 (West)
Consumption (kwh/m^2) in Vlora	**41.53**	**41.23**	48.28	48.20
Consumption (kwh/m^2) in Tirana	44.01	**43.65**	51.51	51.43
Consumption (kwh/m^2) in Korça	44.45	**43.62**	51.24	51.17

Comparing the last two experiments we can conclude that orientation of the shorter external side (6m) to North-South (Case c) leads to lower energy consumption in a year for the three cities.

Experiment 2.3 Orientation of living room

In case that the unit (12m x 6m) has the two longest sides (12m) shared with other units,(Fig .3.c, Fig.3.d) it is also important the location of activity zones. The location of the Living room + Kitchen (30m^2) is shown in four scenarios: (1) Configuration of the unit in Fig. 3.c, living room oriented to North. (2) Configuration in Fig. 3.c, living room oriented to South. (3) Configuration in Fig. 3.c, living room oriented to East. (4) Configuration in Fig. 3.c, living room oriented to West. The results are listed in the Table 6.

Table 6: Conclusions of experiment 2.6

	1 (North)	2 (South)	3(East)	4 (West)
Consumption (kwh/m^2) in Vlora	**41.53**	**41.23**	48.28	48.20
Consumption (kwh/m^2) in Tirana	44.01	**43.65**	51.51	51.43
Consumption (kwh/m^2) in Korça	44.45	**43.62**	51.24	51.17

In zone B and C, the optimal orientation of living room is in the South and in Zone A (Vlora) the results are quite similar for both orientations, in North and in South.

Implementation

The conclusions given from the experiments are implemented in two residential project proposals for two climate zones: Tirana (Fig. 4) and Korça (Fig. 5). Results from Vlora were similar to Tirana, so we use the same design proposal for both of them.

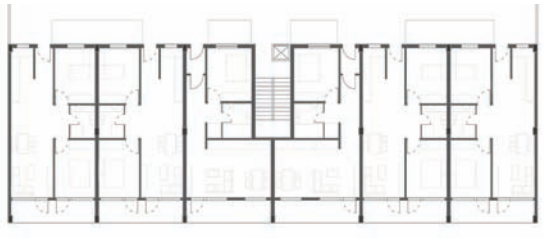


Figure 4: Proposed Floor plan - Tiranë

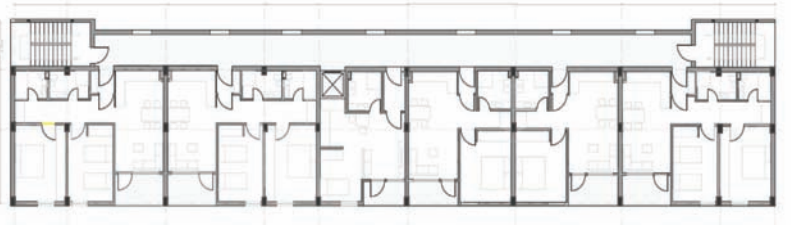


Figure 5: Proposed Floor plan - Korça

The proposed object is compared with a typical existing residential project in Albania (with the same distribution areas), which is constructed for all types of climate (Fig. 6). Keeping all the same inputs; such as activity, heating mode, climatic data etc, for both types of projects we compare the results produced by dynamic simulation. The comparative basis is the total energy consumption per year per unit of area (Tab. 7).

Figure 6: Floor plan(source:ekb.gov.al).

Table 6: Results of energy consumption for two projects.

	Vlorë	Tiranë	Korçë
Consumption of Existing Project (kwh/m²)	38.08	47.14	55.89
Consumption of proposed project(kwh/m²)	34.31	38.37	39.26
Reduction of energy consumption (%)	11	21	30

By comparing the two projects, the one of National Housing Authority and the other we have proposed as a test project, we noticed that the energy consumption of the tested project is 21% lower in Tirana, 30% lower in Korça and 11% lower in Vlora.

Results

For a unit which has one exterior side (the facade) and three sides shared with other units, the best orientation of the exterior side will be in the South for Tirana and Korça case, and in the North for Vlora case. For a unit, which has two exterior sides and two sides shared with other units, the best orientation for the exterior sides is in the North and the South. Regarding the volume of the building, it is important to create a compact shape, especially in Korça.
The optimal orientation of living room is in South for Tirana and Korça case. The North and The South are both optimal orientations of living room for Vlora case.

Conclusions

The results of the experiments demonstrate some recommendations regarding the orientation of the building and the location of activity zones, in order to provide significant reduction in energy consumption. The proposed projects in different climate zones in Albania are used as test project to demonstrate that using the recommendations given from the experiments we can achieve 11-30% energy savings, while keeping the same construction cost. The results highlight the role of the architect as an important factor in increasing the building energy performance through effective and sustainable design.

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PUBLIC SPACE-THE OWNERSHIP ISSUE REMOVING THE OWNERSHIP BARRIERS

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Abstract

In recent years, sensitivity to the treatment of public spaces has increased, as it plays an important role in the formation of cities. In Albania, due to the problems caused by the rapid and uncontrolled growth of cities, this issue has remained untreated and today we face the consequences. Only recently public space has become an element in urban design experiences and debate. As such, it is essential to provide a more open concept around public space.
One of the most important contemporary debates, 'Public space is declining or is just changing shape', addresses a very important question towards the concept of public space, especially to the ownership issue: Can a private space that generates public life be considered a public space?
This article intends to elaborate this concept based on public space primary function that is 'to generate public life'. Through an analytical review of literature and practice, it will argue that the concept of public space should be seen disengaged from the ownership element. Referring to the network of city spaces that generate public life today, in social and physical terms, it will explain that the main element defining a space as 'public' should be the accessibility. Furthermore, focusing in a case study in the old city center of Durrës, it will argue that removing boundaries, but not the ownership status, will increase the accessibility of spaces toward the public use. This methodology to create spaces with strong public features (public space) can be used as a management tool regarding urban regeneration process.

Keywords: public space, private space, public life, ownership, accessibility.

Introduction

Public space is central on sustainable urban development process and its effect on social life is widely accepted. As social life is changing, new forms of public spaces, instead of being concentrated on public ownership, are emphasizing the public use and the ability for creating public cohesion, regardless the ownership status.
This article contains a brief discussion on this topic, supporting the new forms of public spaces. Firstly it discusses the role of public spaces in the sustainable development process focusing on the contemporary debate on understanding public space. Later it focuses the ownership issue regarding its importance on spaces to be called public, arguing that function, use and especially accessibility are more important aspects to successful public spaces, regarding to social cohesion, introducing a theoretical approach on improving the accessibility, both physical and visual of public spaces.
At the end, a case study in the area of old city center of Durrës, in Albania, will argue, through an experimental project, that public and private spaces/places can have better cohesive and interacting relationship if their boundaries are changed or considered as borders and their walls as membranes, increasing thus their scale of accessibility. These spaces, if provided with public function and use, even without changing their ownership, serve and should be considered as public spaces.

Role of public space In sustainability

Public space is becoming crucial on the ongoing debates on sustainability of urban development and main topic for many disciplines regarding to this field. Because of their multiple functions and various roles they play, public spaces are widely accepted as important in building more social cohesiveness, environmentally friendly, and competitive cities.
There is a strong relationship/connection between the three directions of sustainability (economic, environmental and

social), but physically there is a feeling that quality of environmental and economic aspects are decisive in quality of social aspect, as they both are favoring and characterized by pedestrians, and their quality is important in bringing people in this places:

- Environmentally- public spaces promote walking, cycling and public transport as well as parks and greening of cities favoring public transport connections over car-based developments and, above all, the pedestrian routes.
- Economically-they support shops, bars, restaurants and different local businesses as they are characterized by a high pedestrian footfall. At the same time, they highly affect the city's image, contribute to attract investment to the area, support tourism and act as promoters for developing social capital.

Furthermore, regarding their social and physical aspect, related to urban morphology, public spaces serve as 'movement channels between the layouts of urban blocks' (Carmona et al. 2003; 63) and, 'connect the space of home and work/ study thus providing the setting and the opportunity for the enrichment of a social public life, as most of them are the stages where the city's public social life unfolds, where new social encounters happen and where people relax and enjoy themselves together' (Varna, 2011; 2)

At a larger city scale, they establish an urban area's public space network, (which) accommodates the overlapping realms of 'movement space' and 'social' space (Carmona et al. 2003, 63), enhancing thus the walkability, as well as affecting the environmental quality of the city promoting a variety of mix use buildings and spaces. These correspond to three main principles of the compact city, which is recommended by EU Commission as a basic model for sustainable urban design of the city.

Contemporary debate/understanding public space

Reflecting the importance in all three aspects of sustainability or compact city policy, public space is a subject of growing interest in literature and professional debates or discourses of different disciplines. As each of them sees public space from its particular interest and concern giving to it different but complementary definitions, referring to Varna (2011), public space should be considered as a multidisciplinary approach:

Economics-social capital/ Human geography-sense of place/ Planning-physical design/ Architecture-Public art/ History-evolution of public space/ Law-ownership and access/ Sociology-human interactions/ Psychology-perception of space/ Ecology-environmental sustainability/ Anthropology-historical value/ Politics-rights (Varna, 2011: 2).

This approach should be seen on the background of a larger political, economic and social structure, where a certain society, reflecting a common view, at a certain point in time, and in a certain socio-cultural setting, holds a common understanding of what makes a public space, public. (Varna, 2011; 7)

The use of the term 'public' regarding the social perception seems to be the core of the ongoing debates on public spaces. They are mainly concerned- firstly to the definition of public space and- secondly to the form of public space. The first one debates on the concept whether public space should have public function and public ownership, or whether it should provide free accessibility to all. The second one is concerned whether public space is declining, as some of it is going through the process of privatization, or it is just changing shape.

Both of them are very much ownership oriented, but those in favor of public ownership see public space in declining, whereas those in favor of social cohesion, see it as is changing shape. Referring to the latest, public space should have public function and public use, regardless the ownership, providing even restricted accessibility, with the unrestricted condition - the public spaces should promote social life and social cohesion.

The ownership issue of public space

Ownership refers to the legal status of a parcel of land, which ranges from absolute public ownership to absolute private ownership, going through variations of gray shades between these two extremes.

In this respect, Varna M. (2011; 56), refers to the American urban planner Peter Marcuse (2005; 778) who offers a scale of six levels of legal ownership on a spectrum that ranges from public to private ownership, and, for further differentiation, considers the function and the place's use:

- Public ownership/public function/public use (street, square);

- Public ownership/public function/administrative use;
- Public ownership/public function/private use (e.g. space leased to commercial establishments, café terrace);
- Private ownership/public function/public use (e.g. airports, bus stations);
- Private ownership/private function/public use (e.g. shops, cafe, bars, restaurants); - Private ownership/private use (e.g. home).

At this point it is clear that public space should be seen as an entity, where even the absolute ownership should be considered as a part of the use and function of it. If the use of a certain property (building/space) is public, restricted or not, it can be considered as public space, regardless the scale of publicness. On the other hand it's proven that even the absolute public spaces suffer regarding to the scales of democracy as they are facing many forms of restrictions affected by law or management measures. So, when, even public owned public spaces cannot be very public, the ownership issue should be seen more as a management tool and the public spaces should be referred more to those build and unbuilt urban environment that encourage or create social cohesion.

New forms of public spaces

As discussed above, the new forms of public space, favoring the idea that public space is changing form and shape through different processes – even privatization- should be seen as strong assets on public space fund of the city as long as they support and encourage widely social life and social cohesion.
Nowadays, thanks to technology or other forms of life and communications, some critics suggest that the decline of public realm is paralleled by a corresponding decline in public spirit (Banerjee, 2003; 12) and thus to the perception of the decline of public spaces. The root of the problem stands on the concept of the social life as it is declining or it is changing form in general, but not at the public space itself.
The form of public interaction has changed. Public is also seen more as consumers and this is one of the main reasons why open spaces serves so well as promoters for local scale business and on the other hand why places that have such kind of activities as shops, café, restaurants, etc., generate such public attraction and thus public life and cohesion. Furthermore these spaces are usually well designed and produce attractive environment for the neighborhood and the city, becoming symbols of the city, or referring to Lynch as point of references. Ray Oldenburg (reference) calls these places that are formed by the culture of consumption as third places (Tonnelat, 2010; 7).
Focusing more at the roots of the problem, at the concept of the public life, seen as an element of a much wider scheme, public space should be treated more as social concept than just simply physical as the social life is increasing in private spaces and in separated groups or in segregated areas. Thus public spaces are becoming even those privately owned spaces with restricted scale of accessibility, but with the ability of generating public life. As many public spaces are facing or going through the privatization process and their use for economic benefits, it's correct to accept the fact that public spaces is changing form, or extending their scope of use. At this extend, Tonnelat S. (2010; 5-8) suggests to planners and urban designer to consider as public space, even

- Commercial centers and shopping malls for the most part as they still represent some of the most accessible spaces for a wide variety of people. Despite control by private guards, access is usually granted to everybody, or
- Train stations, airports or even parking lots, as they foster … commercial use in their immediate vicinity and thus contribute to the emergence of streets…, or
- The café, as a place of encounter, conversation and debate, and the square as a place of political gatherings, rallies and demonstrations with the condition 'to bring together two main and necessary quality upon which all the rest depends: accessibility and communication. P 8 Somehow today, public space needs to be understood as different from the public domain of the state and its subdivisions, but rather as a space accessible to the public(Blackmar, 2006).

Accessibility issue

Accessibility is what guarantees the free circulation of persons and goods. It is also what allows the emergence of collective

representations where from images of the city are produced (Tonnelat, 2010; 2). Not all open spaces are open to public or public life, as they rely very much on the scale and form of accessibility.
This relationship is clear referring Carmona's (2008) definition on public space, as he relates public spaces 'to all those parts of (urban) the build and natural environment, public and private, internal and external where the public have free, although not unrestricted access' (Carmona et al, 2008; 4) and allows Lynch to raise a crucial question as: are all the open spaces physically and psychologically accessible (Banerjee, 2003;11).
At this extend, still, the accessibility is the core of the debate as 'public space is measured according to its accessibility, both physical and psychological (Joseph, 1998), enlarging thus, significantly, the scope of places considered public to any space accessible to individuals, where provided access is not based on some membership (Tonnelat,2010; 2) .
Defining physically a space, private or public, in terms of accessibility, according to Gould, there are two elements that make the difference: Boundaries and Borders. Adopted by Richard Sennet (2006: 8), this theory is based exactly on the issue of accessibility with its both types, physical and psychological, where boundary is an edge where everything is closed, whereas border is a line where different groups interact.
If we discuss this to the cell level Gould claims to have wall and membrane. Wall is absolute closure of a space, where outside this nothing can me be seen or touched, whereas membrane is a pliable sheet-like structure acting as a boundary, with planes that can be inaccessible, but open regarding to the visual aspect.
Regarding to property issue the city has been always driven toward wall/boundary approach, and such cities are characterized by high scale of segregation, functional isolation and restricted areas, and for this reason, by such a decline of public life and cohesion.
Public spaces cannot be seen as isolated places but as a public space network, where the most public spaces such as street and squares, provide access to other types of public spaces such parks, markets, shopping malls, cafés or even public buildings such libraries galleries, religious or administrative ones, and even to private spaces and are supplied with people from public spaces such stations, or private spaces such as houses, forming a circular interaction system responsible for the public life of the city and what is more important for social cohesiveness. For that our focus should be in less wall/boundaries approach and more membrane/borders one.

The case study

The area subject of the study is the old town center of Durres, known as one of oldest historical sites of the city as there are two elements dating from roman period. However the site is rebuilt having even today an urban structure dominated by ottoman elements, and reconstructed buildings till recently. Actually the area is placed under protection and no change of any type on structure conditions is allowed. Because of such restriction the entire area facing with physical decay of spaces and buildings, as some of them are abandoned.
Whole area is characterized by a majority of individual residential houses in private ownership/property, surrounded by walls (traditional characteristic) forming urban blocks with public space between them in form of movement channels. These streets or paths appear as the only public spaces in the area (Fig. 1).

Figure 1. Streets or paths and public spaces.

The analyses of the urban situation of the public space showed that most of them appeared as decayed public spaces regarded their qualities and perception mainly because of three main reasons:

- Space configuration- In terms of the degree to which the form and capacity of spaces matches the pattern of behaviors that people engage in or want to engage in.
- Closer/isolation of the objects from the street- Movement space will tend to be faced by socially passive fronts with few or no windows and little indication of human presence
- Bad maintained buildings defining open spaces- Having no uses and function, and very bad fining qualities, they create the image of left aside spaces and buildings, which, in return, eliminate the presence of public.

The aim

The aim of the case study is to see, even theoretically, how the map of public spaces will change if the membrane/ borders approach is used to replace as much as possible the existing wall/boundaries approach, without changing the ownership status of the properties.

Why this area

Regarding the urban background of the selected zone, it is clear that the area is of clear cadastral/street pattern (see Carmona et al, 2008; 63) regarding to the urban morphology The specific condition of the area don't allow the change of this pattern so the regime of the ownership, as stated above will remain unchanged. Still beside the strict restriction regarding to the buildings the protection status of the area allows changes on their use and function. At this extend the area offers very good conditions for applying this approach as it will change the degrees of accessibilities and functions and use of the space and buildings, which are allowed.

The methodology and outcomes

The methodology of the project uses the boundaries to borders approach for open/external spaces as they divide public form privet owned spaces and wall to membrane one for closed/internal space as they divide buildings form the outer/ open space, and is organized into two steps.
The first one concerns to changing surrounding of the properties applying the boundaries to borders approach. By opening boundaries visually or physically, turning them to borders, it is possible to increase the social interaction between spaces (Fig. 2; a,b,c).

a) *b)* *c)*

*Figure 2 a), b), c) I*nteraction between spaces.

The second one concerns to changing the function and use of these spaces/properties from private to public, by turning walls to membrane.
As the first step opens the possibility for public entrance, the second one opens the possibilities for public use, without changing the ownership, which referring to the definitions above, helps in turning them to public spaces. This approach stimulates interaction between different groups increasing thus the scale of publicness and physical or psychological accessibility of spaces. Although this leads to spaces more open to public, reducing the scale of privacy, the physical configuration of the property and its ownership remains unchanged (Fig. 3; a,b).

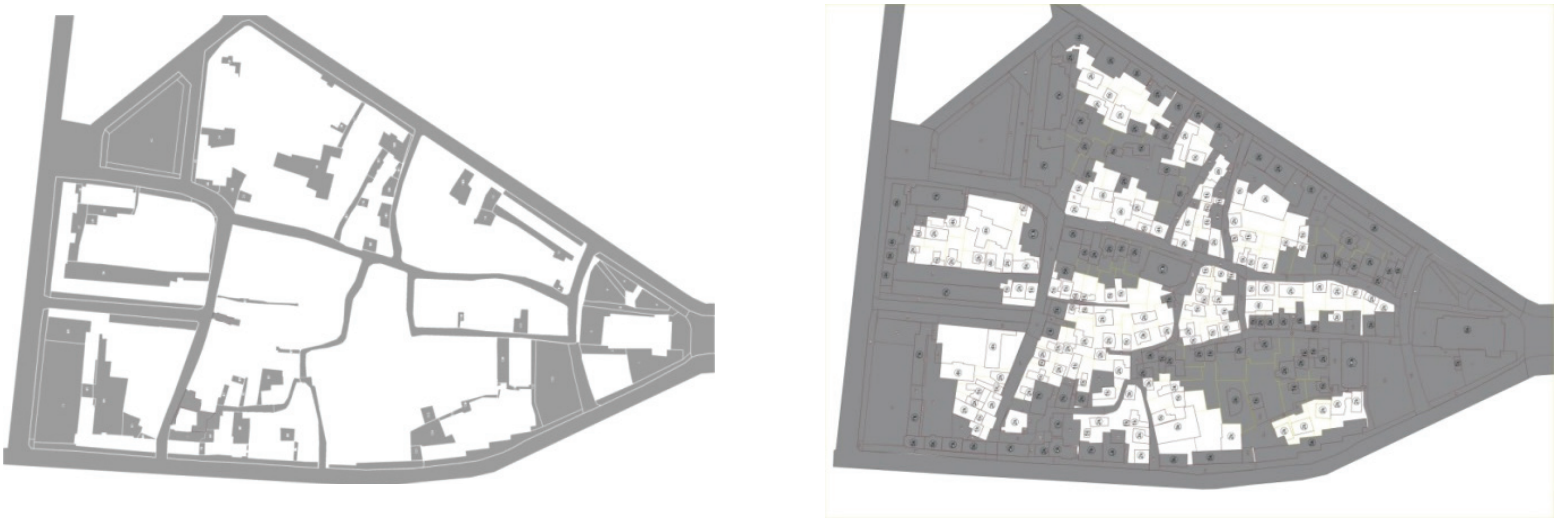

Figure 3 a),b) Boundary wall system: Private ownership; Private function; Private use.

So, it is clear that the change of function leads to public use of the property, but converting wall/boundaries to membrane/ borders doesn't influence the ownership or physical configuration of the property. It increases the scale of accessibility and communication, which creates a favorable background for changing the use of a property from private to public, but what it's most important, this approach, through elements of management and design, creates a strong basis for social cohesion.

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INDOOR POLLUTION

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Abstract

Living in a world where indoor pollution creates devastating issues becomes eventually a continuous challenge. The article's goal is to investigate the problems arising from indoor atmospheric pollution. This phenomenon is composed of enormous outdoor pollutants in combination with internal sources. The majority of potential contaminants sets out: passive tobacco smoke, nitrogen dioxide, asbestos fibers, carbon monoxide, formaldehyde, radon decay products together with allergens and microorganisms. This effects various health problems which relate to indoor air pollution and demands a complete strategy in order to control sources adulterates indoor contaminants and enforces distinct regulations.

Keywords: indoor atmospheric pollution, control sources, health problems

Introduction

In recent years, issues related to the air quality of limited nonindustrial areas are increased. It is not sufficient, in fact, the description of building regulations and hygiene for assuring the usage and livability (by taking in account the living needs) but this is implemented from new needs of ecological compatibility of space.
Indoor air quality issue is in the center of attention in the international level. Numerous research studies have identified the presence in a confined environment, including common life environments, of many pollution agents harmful for the health.
As the indoor air pollution is a recent issue, it's a short period of time that the research activity has produced significant results over the concentration of indoor pollutants, identification of the pollution sources, relative emission taxes and over the evaluation that this pollution have over the health of the inhabitants. These results allow in the same time outline strategy of the protection and control of the building spaces from the polluting actions.
The indoor pollution is defined correctly form Meloni and Grassi (1990) as "every alteration of the chemical-physical characteristics of air determined as the variation of concentration of normal constituents, and overall from the presence of extraneous substances from their normal composition, able to determine destruction effects to humans and other living organisms.
The building sickness syndrome was proposed by World Health Organization in 1983 for describing "simultaneously discomfort and maleness that have a nonspecific symptomatology that derive to the reduction of comfort and health state of inhabitants of a particular building or a part of it where the inhabitants complain about the air quality and manifest symptoms that they associate to its reduction" where causes are reversible from these factors:

- Inadequate ventilation;
- Pollutants emitted in the internal building space;
- Contaminants coming from external sources;
- Biological contamination.

The terms sick building syndrome (SBS), building-related illness (BRI) or building sickness are continuously reviewed and over-discussed. The big confusion that exists in the terminology and definitions depends on the fact that in the study of indoor air quality are involved experts and disciplinary fields very different from each other.
These arguments arose an increasing interest. In the actual state, we cannot say that the problem is resolved and neither the acquired knowledge is able to describe and manage all mechanisms through what the phenomenon is manifested. The normative require in the scope of this type of environment strict controlled only the ones with an industrial character

(which brings the so-called professional risks, which affect the well determined workers categories involved in particular activities) by leaving a small attention to the living and working spaces (which are determined as indoor) such as houses, schools, hospitals, offices, public areas, transport means etc.

Origins of the problem

For the lack of the adequate technical-scientific knowledge and for the lack of adequate normative, the use of the new construction materials and new technologies is revealed often as a potential pollution source inside buildings, offices and public bars.
A rapid examination of its origin must necessarily initiate form the petrol crisis in the years '70, as a continuation is adapted to the energy saving politics. The unexpected increase of the petrol prices, combined with fear the nonrenewable resources will be spent, inducted in that era all the industrial areas, strong consumers that change the norms for energetic consumption contain. First of all the consumption related to the building heatings: is known in fact that the majority of the energetic national consumption is presented from expenses for the acclimatization, and in particular in the proposed systems for this intention from the air treatment replacement which necessarily must be adapted to the hydrothermal conditions of the internal environment.
The approach strategies of the problem where than addressed towards two prevailing directions: the increment of the isolation of the external walls, of the roofs, windows and doors with the intention of the reduction of loosed for the conduction, and increment of airtightness of the windows and doors for the reduction of losses , convention and dispersion. In general, such an economic need, increased with the belief that the pollution sources are outdoors, have led the most part of interventions towards small spaces, as a result, the reduction of the air exchange taxes. The buildings are constructed every day more with air tightness, by reducing also the infiltration and as a consequence, the ventilation taxes are reduced.
The "closure" of buildings, but overall one of offices had immediate consequences: was verified a rapid increment of allergic and pulmonary sickness and the velocity of diffusion of infective sickness between users of the same building.
It was observed, among other things that the situation was worsened in the building that had air conditioning. The correlation of this facts with the "closure" of the buildings was immediate and the results reached as a continuation of the first researches of the internal air analysis, an in general of the internal environments, showed that air contains harmful substances in a larger and dangerous number as those present in the external air and it was confirmed that the existence of air conditioning implants often worsened the situation. It comes to light in this way a new problem very wide and articulated, of the widespread social decline and not with simple solutions.
In the summer of 1986,a study performed by Environmental Protection Agency revealed that in some situations the level of toxic substances was five times more internally than externally, by giving responsibility to paint, plastic, and construction materials, radon, tobacco smoke, asbestos, formaldehyde, flying organic substances, combustion residues, biological pollution substances.
Studies performed by developed industrial countries such as the US, have revealed that populates spend most of their time up to 90% [U.S.EPA, 1989] in internal environments such as houses, public and private buildings, and transportations means. This high percentage together with the evidence that in these countries the population has been living for a long time that in the vast majority of the time are with air-conditioned and then thermally isolated have led to advance studies, around 20 years over the indoor air pollution. Recent estimates of the World Health Organization have shown that 30% of the buildings in the industrial countries results affected form problems the cause disturbance and sickness of the inhabitants.
The evolution of the normative, in the international field, that is verified even though there have been limits of the epidemiological data, has determined an increase of interest of issues related to IAQ. On the basis of the epidemiological knowledge of different countries experiences international authority organisms with the World Health Organization and International Commission of the Radiological Protection among them have sent out a series of recommendations. European Union Commission has sent out directives and recommendations for the prevention of risks that arise from pollution agents present in the internal environment.
The impact of pollution sources determination is not constant but varies in function of temperature, humidity, age, and

environmental pollution level. A lot of pollutions sources emit hundreds or thousands of chemical products but generally in small quantity. But the problem is not only related to the product but with the design and construction global quality: product innovation has never been correlated to a discipline and professional technical scientific adaption of the architects and informative instruments. To prevent the pollution phenomenon of the internal environments means overall to re-adapt with constructive techniques and technological knowledge related to the correct use of construction materials that have been lost in a progressive way.
The control of air quality invests all aspects of building construction process:
Adaption of specific references to the normative: selection of construction materials, selection of more valuable implants, adaption of the control strategies and the management that assure the maintenance of the planned quality. A great responsibility for the quality of the internal air is attributed to the one that constructs, manages and maintains the building.
A correct diagnosis of different effects over the health and quality of the environment requires consideration over three different variables:

- Effects directly related to Environment (Pollution substances exposure);
- Effects indirectly related to Environment (satisfaction grade of the users from thermal conditions);
- Effects not related to Environment (stress and other psychosocial factors) that interact by aggravating the symptoms from Sick Building Syndrome.

Indoor air quality control

The problem of environmental quality of buildings is for many years in the center of attention of the operators being them with the institutional character also with entrepreneurial other than the research. The building system, along its life cycle assessments, has an impact characterized from a complex system Interrelated with the surrounding environment even though its primary function is to assure "comfort" and functional usability of different environments with hygiene assurance and healthiness for the inhabitants.
The European recommendations will bring in the construction sector important revisions over the designing and management criteria of the buildings. The competence of the available technological instruments allows confronting with the topic, very present in the international level, of the protection against exposure of the pollution agents present in the internal air. A particular attention must be directed to the design, correct building management, quality maintenance in time and the healthiness control.
The relative data of activity of the extraordinary maintenance, restoration, and reconstruction show that the recovery represents the first market of the construction sector. Such interventions must be the occasion for the re-qualification of their energetically and environmental profile by reducing in this way the consumption of the nonrenewable resources from one side, and the risks for the health of users from the other side.
In order to confront the problem is fundamental overall the globalism of the approach. A building is a system and as such must be studied and treated in its interactions totality: it must not be intervened in one of its parts without considering the consequences over the other parts and it must not intervene in air quality without considering implications to management – and energetically- of the building.
It is necessary to verify that problems cannot be resolved when they are caused from a substance or a pollution source by adapting techniques which may have negative consequences over the constructive elements of the buildings that from their side contaminate the air. With this goal, it is necessary that for every intervention the designer to manage all aspects of the problem and to be able to choose among possible techniques the one that adapts to the building/users system.
The vast majority of these techniques is used, in an experimental way, in the US, Canada, and in North Europe and tend to act directly over the pollution source or to treat the polluted air. It is evident how this is the preferred action direct to the source, by avoiding that the pollution substance to reach the air, but this is not always possible. The selection of more adapting techniques is conditioned from the technical-economical constraints or guided from the strategical considerations with a more general character and often the pollution source is not individualized, so in this case, we have the air treatment. According to the American agency EPA, actually exist three fundamental strategies for the quality control of the internal air:

- The first method, denominated Source Control is based on the reduction or elimination of the pollution sources of

the internal environment;
- The second, Ventilation, uses ventilation(natural or enforced) for reducing, diluting, the concentration of pollutants when there are present in the air;
- Finally the third, integrated with the other two, Air cleaning, uses special equipments for cleaning the air.

Source control

The more efficient strategies for the reduction of indoor air pollution is the one that eliminates the sources of the contamination and reduces the emission internally. Here they are:
- Removal with eventual substitution;
- Confinement;
- Encapsulation;
- Constructive modification;
- Modification of use;
- Adaptation of the appropriate techniques of maintenance.

Ventilation

Ventilation removes stagnant indoor air and reduces the concentration of pollutants. This allows among other things reduction the humidity taxes inside bars, consequently, the risk of mold formation. These are different techniques of the usage of methods and pollutants over they effect:
- Natural and Mechanical Ventilation: adapt the appropriate existing standards (for all pollutants);
- Local Ventilation (aspirators): used only in bathrooms and kitchens (contaminants from combustion processes, humidity, microorganisms); Ventilate spaces of communication (radon and its products of decay, VOCs); Ventilate areas where solvents are used and other similar products (VOCs); Ventilate the inferior parts of buildings (radon other gas of the Earth's crust).

The lack of ventilation in the environment is of the major causes of air quality shortage problem, ventilation standards are an important control method. And it is unthinkable that existing rules in the actual regulations can be the only indicators for the solution of numerous problems for the healthiness of the buildings.

Air purity

The third strategy for the indoor air quality improvement is the one of "air purity" but this most always be done not only with the control of sources but also with a good ventilation. Some air filters are very effective in the removable of air particles, also the majority of air filters fails to gas removable. For these reasons, source control and ventilation are better options for the improvements of the indoor air quality.
It results necessary, therefore, to undertake a new way able to prevent or place a renewed attention in the level of:
- Project and Project control;
- Material production, products, and components for construction;
- Constructive process and its control;
- Management and maintenance of buildings;

It should also be highlighted how the diversity of objects presupposes a revision:
- Project rules and modality of control;
- Construction rules and modality of verification and testing;
- The modality of product certification of buildings released in the market;
- Building Regulations and prevention norms in terms of healthiness and security of buildings.

Remember that, according to EPA, indoor air quality can be controlled by the development and implementation of standards and guidelines over air quality, standards over source emission, standards over ventilation and standards over hydrothermal comfort.

Air quality control can derive from:

- Reduction of the internal contaminants;
- Definition of adequate ventilation standards;
- Control of micro-climate factors.

Conclusions

Indoor air quality is critically important to protect our health since we spend most of our time indoors. Multiple air pollutants are present indoors, emitting different amounts of air pollutants depending on the materials used, together with human activity. Air pollutants penetrate into indoor environments through mechanical and natural ventilation and infiltrate through gaps in doors, walls, and windows. The amount of air pollutant transported in and out from indoors are strongly depended on the ventilation rate of the outdoor air additionally with its infiltration, and the existing indoor and outdoor air quality. As in general indoor air quality is related to the contribution of both the indoor and outdoor environments, strategies to investigate indoor air pollution should be formulated in accordance with the relative contribution of indoor and outdoor sources present in different conditions. From the other side, there is an increased evidence that global climate change also affects the indoor air quality and the high exposure level to pollutants. Further studies are necessary to produce a more intense understanding of how climate change affects the health of inhabitants in their homes.

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19 ECO-TIRANA: ECOLOGIZING THE CITY FROM THE URBAN HEAT ISLAND EFFECT

Eneida Berisha, Sokol Dervishi

Abstract

"The city does not stand at the point where nature and artifice meet nor are human settlements consequences of culture modifying and imposing its needs on natural or wild places" (Genovese et. al., 1998). As a matter of fact, the city of the 21st century is under attack because of its rapid urbanization and industrialization. What resurfaces is the concept of the Eco-city - a city built and living within the means of the environment, a breathing ecosystem. Tirana is currently on the precipice of this issue: it is growing steadfastly, and with more problems than ever. It is so far away from being ecologically healthy. As such, one of its prevailing and damaging issues is the formation of urban heat islands. This phenomenon is considered as one of the major problems in the 21st century as a result of urbanization and industrialization of human civilization. The urban structures generate a large amount of heat from solar radiations and other sources (i.e. anthropogenic heat). This study evaluates different UHI mitigation strategies in an urban neighborhood in Tirana, selected due to its building intensity. The existence and extent of the UHI phenomena is documented in this case study. Different variables of the urban environment are hypothesized to influence UHI and the urban micro-climate conditions. To support the process of design and evaluation of UHI mitigation measures, simulation-based applications are explored. The results show that implementations of different strategies can reduce negative impacts of hazards in cities, including overheating due to elevated temperatures, air pollution and associated public health effects. Such strategies can also lower the demand of air conditioning-related energy production. Finally, this research supports new policies for promoting sustainable urban development in Tirana, and suggests design strategies for a more resilient urban planning.

Keywords: urban heat islands, mitigation measures, modeling, evaluation, policies

Introduction

The topic of Eco-cities has been the talk of the century, but it has yet to become tangible by most of the cities of today. Many modern towns are going through rapid urbanization and technological advancement. Cities are struggling to keep up with modernization, and as such, the necessity to build prevails that of safe-building. The latter term reflects a way of thinking of the city as an ecosystem, rather than a "human artifact". The faults of the expeditious construction mirror back to the environment first and consequently to the climate. The first documentation in 1818 by Luke Howard with the study of London's climate and its 'artificial excessive heat' in contrast with the country brought forth a groundbreaking discovery (Gartland, 2010). Heat islands are widespread in urban and suburban areas because of the absorption and retain of the sun's heat by construction materials. This does not happen in rural areas, where there are natural materials. The main reasons behind the heating are two. Firstly, the urban materials are watertight and impermeable, thus there is no moisture available for dissipation of the heat. Secondly, the dark materials jointly with the canyon-like configurations of buildings and pavement collect and trap the energy of the sun. During the day temperatures of dark, dry surfaces in direct sun reach up to 88 degrees Celsius. In contrast, the surfaces with moist soil and vegetation reach only 18 degrees Celsius, under the same exact conditions. Anthropogenic heat or human produced heat, as well as slower wind speeds and air pollution in urban areas contribute to heat island formation. The following study aims to address the concept of the 'Eco-city' by introducing the very first terms and arriving to the most recent ones. The case studies presented will provide a comparison between the Eco-cities of the future and those of today. How easy is to conceive of the Eco-city today? The case of Tirana sets to bring a milestone, as a grounded and concerning issue. The meaning of the Eco-city is reinstated with Tirana, and the urban heat island effect is a prevailing issue. The current problems of Tirana is illustrated and presented.

Methodology

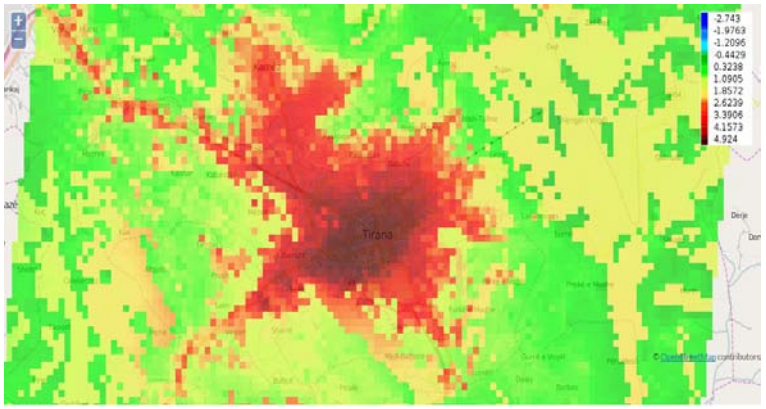


Figure 1: Heat exposure map of Tirana(European Centre for Environmental Health,2015).

Grimm et. al., and Pickett et. al., (2000) point out that there is a distinction between ecology in cities and ecology of cities. The latter refers to the study of the urban context as an ecological system, while the first refers to the study of fragments of nature within the urban context. Even though this is an utterly important distinction, the concern remains as to what ways cities themselves can be ecologic. Rather than trying to increase fragments of nature within urban areas, we need to be worried with the pervasive replacement of built gray infrastructure with natural, green infrastructure. Tirana is the densely urban capital of Albania, and currently stands on the frontlines of the issue of the steadfast growth and urbanization. It is so far way from being ecologically healthy. Recently, it has experienced changing weather patterns such as rising temperatures and extreme weather events. The effects have been catastrophic – flooding, riverside erosion – and there is an urgent need in planning the city smartly. The most prevalent damage is caused by the Urban Heat Island effect. As a booming city with ample economic activities, a large population and high density, the effects are more ubiquitous (Fig.1). The urban structures generate an excessive amount of heat from solar radiation and other sources. Tirana has a humid subtropical climate which receives enough precipitation during the summer to not be deemed under the Mediterranean climate. The summers are dry and humid, while the winters are mostly cool and wet Snow falls seldom, but it melts quickly.

Prokop Myzeqari Street

Located in the center of Tirana, the site is particular with its variety of building heights. However, what stands out is the presence of these buildings near each other. The presence of these buildings in this scenario amplifies the bad quality of the air (Fig. 2). The roads and the buildings are of concrete and impermeable a material, which in turn heighten the effects of the heat island (Fig.2). Additionally, the proximity of buildings accentuates urban canyons which do not allow good ventilation of the area.

a)

b)

Figure 2: a), b): Satellite view of the area (Geoportal Asig, 2015) and view inside the site

Here greenery seems to disappear, popping out only in-between villas and apartments as modest gardens. The zone is prevalent with high-raised apartments, but the land cover is mixed use: residential and business. Prokop Myzeqari Street (PM) is an area with a rich urban texture (Fig.2), with 80% of it built, a building typology characterized by high-rised buildings. The urban tissue is characterized by apartments; and a few villas. These buildings are differentiated by their roofs into buildings with flat roofs and pitched shingled roofs. The main road (Fig.28) are not lined up with trees and there is few evidence of greenery in the whole neighborhood. The graphs below show the difference of temperatures hourly during the month of January (Fig.3) and July (Fig.4) for the year 2015.

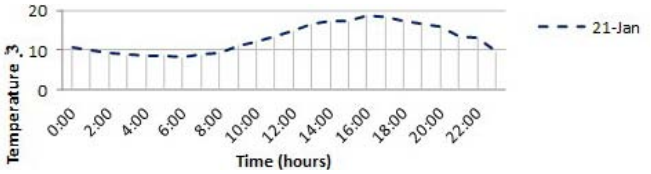


Figure 3: Climate data for 21st January 2015.

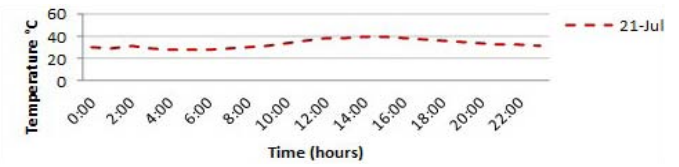
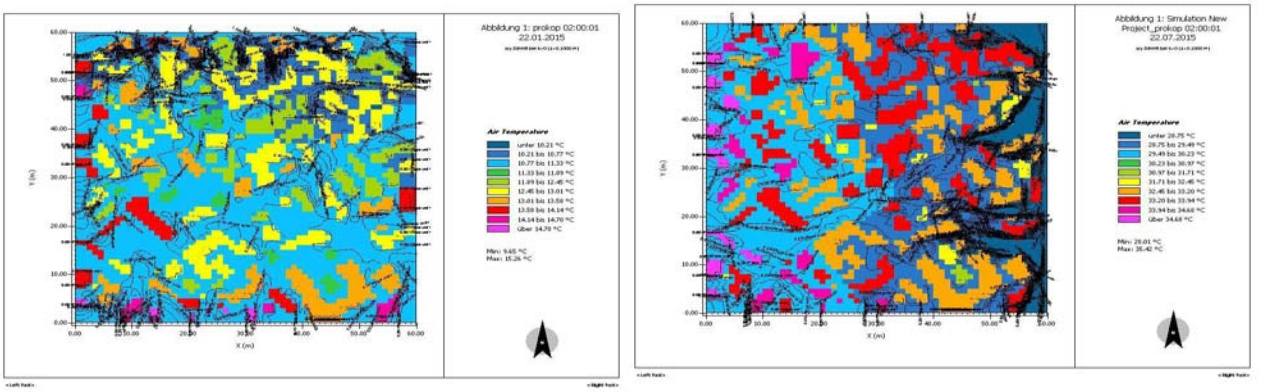


Figure 4: Climated data for 21st July 2015.

Results

Figure 5 gives the results of the simulation. The climate maps illustrate the major heats spots of the respective areas, and wind direction of the selected zones. Although the same goes for the summer season, the lowest temperature is 28.89 °C, while the highest is 34.78 °C (Fig.6).



a) *b)*

Figure 5: Climate map for Prokop Myzeqaru, 21st of January and July

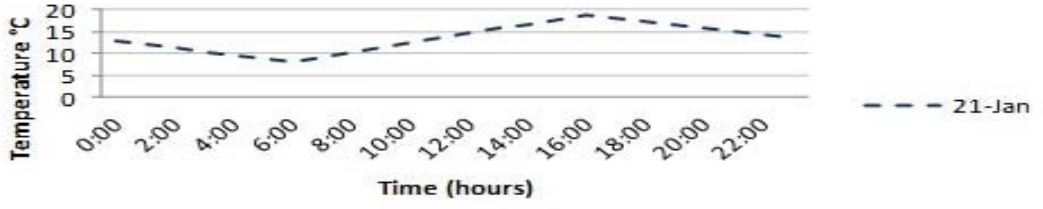


Figure 6: Temperature chart for the 21st of January measured hourly.

Figure 6 and Figure 7 showcase the actual climate conditions for the 21st of January and 21st of July respectively. As shown, there is poor to very little ventilation between the buildings within the neighborhood. This keeps the temperatures steady and at high levels. Although the same goes for the summer season, the lowest temperature is 28.89 °C, while the highest is 34.78 °C (Fig.7).

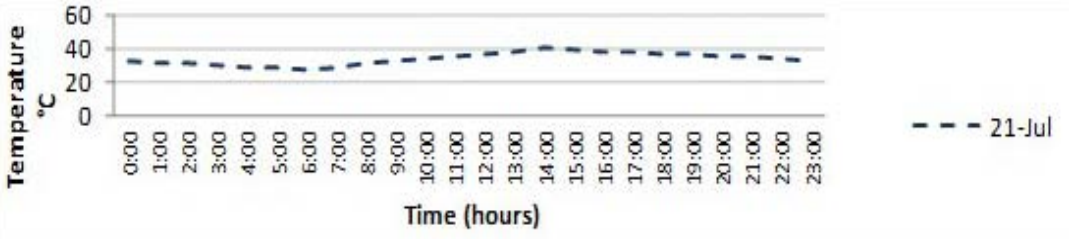
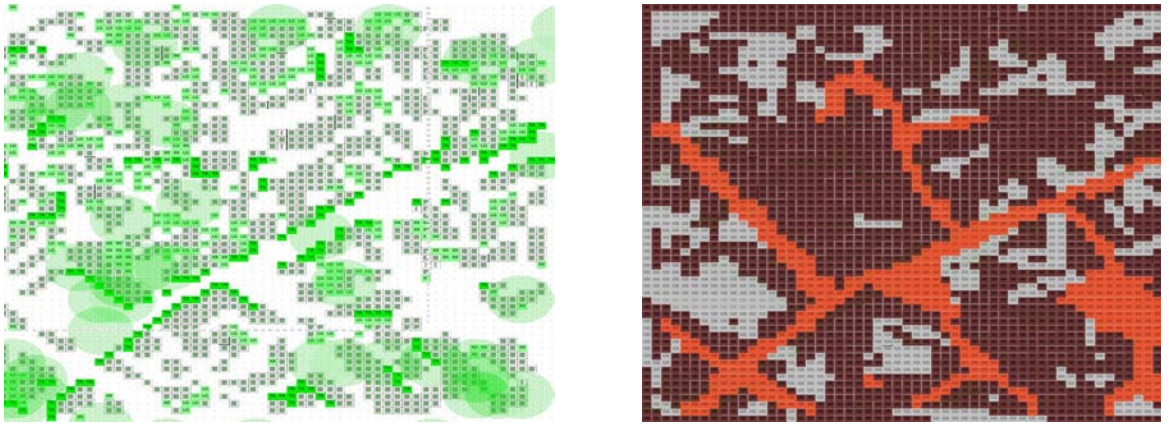


Figure 7: Temperature chart for the 21st of July measured hourly

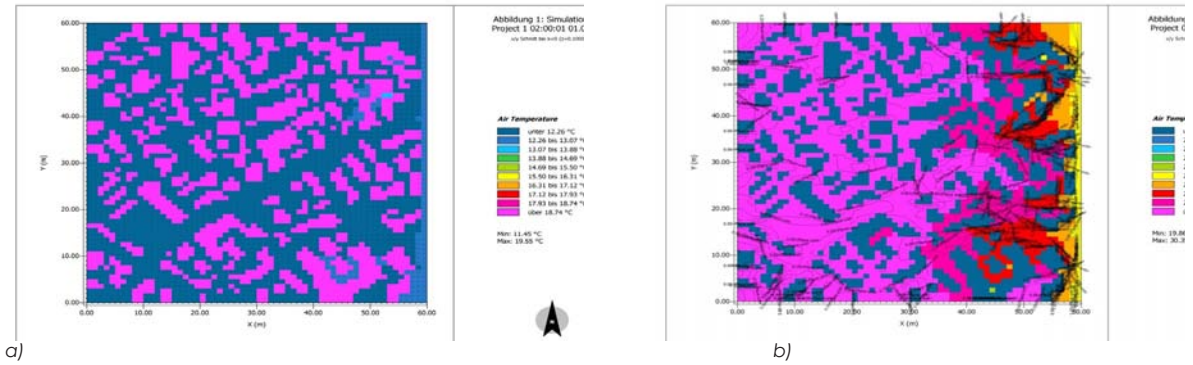
Scenarios

As mentioned, there exists a variety of mitigation solutions for the urban heat island effect. The main goal is the formulation of time-efficient, feasible solutions, which vary depending on the characteristics of each area. The two main scenarios include the adding of vegetation, and the implementation of impermeable materials – mostly for land cover. However, the third scenario serves to illustrate that the application of both options can bring higher benefits. Prokop Myzeqari Street (PM) is an area where 88% percent of the area is taken by buildings and constructions. There is no existence of greenery that may aid in the decrease of temperatures. All of facts are the reasons behind selecting all strategies. Prokop Myzeqari Street is located in close proximity to one of the main boulevards of Tirana, Boulevard Zogu I and at the center of the city. The degree of built area is higher, and so is the degree of intervention with permeable materials. The plant Senegalia Greggii was selected for the vegetation scenario. The plant was planted along the roads, in-between buildings and even across the open fields which before then were planted only with grass (Fig.8). Senegalia Greggi is a species which originates in the southwestern United States but occurs everywhere. It is either found as a small tree growing from 10 – 15 m with a diameter of 20 – 30 cm; or as a large shrub. Its gray-green leaves are deciduous and the fibers are often used for construction material and firewood. Tamarix Gallica is another plant proposed. It has originated from Saudi Arabia but it is very common in the Mediterranean region. It is herbaceous, and a deciduous shrub or a small tree that can reach up to 5 meters.



a) *b)*

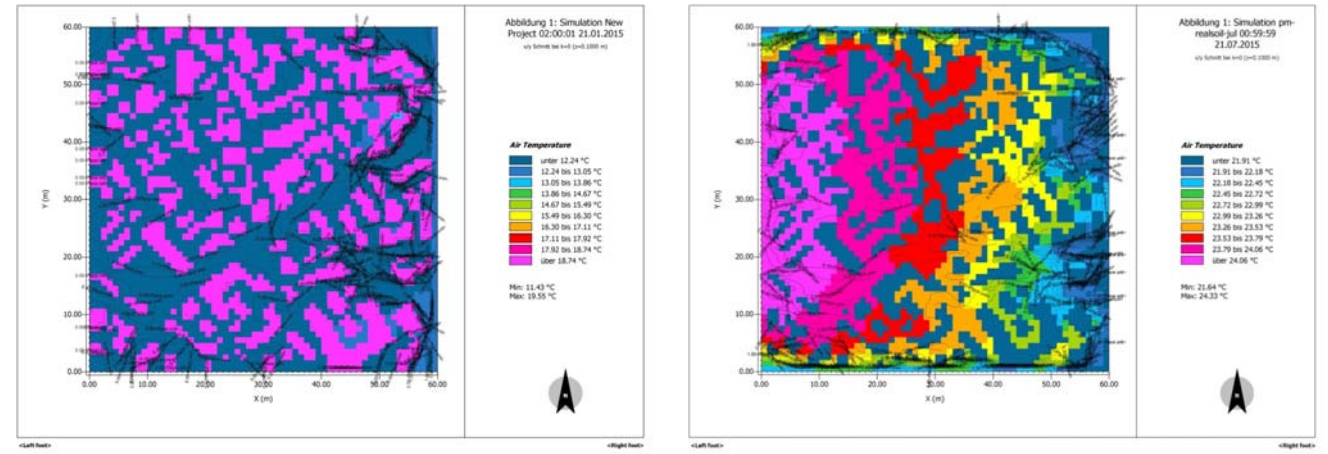
Figure 8 a), b): Implementation of Senegalia Greggii and Tamarix Gallica for PM and right, Impermeable Materials



a) b)

Figure 9: Climate map of Prokop Myzeqari Street for S1, January and July

There is a whopping drop of 2 °C as visible even in the map (Fig.9). Scientifically speaking, a line of trees has more effect in immediately lowering temperatures than a single tree. Thus, the most significant decrease of temperatures happens along the main road where the new trees were planted. The materials selected for the second scenario (S2) are granite, photocatalyctic concrete, and loamy soil (Fig.8). Granite – used for pedestrian paths and sidewalks – has an albedo of 0.3 – 0.35. The material is a type of intrusive igneous rock, and predominantly white, pink or gray. In building construction, granite is principally used as a flooring tile in commercial and public buildings. In other cultures, granite was generally used to build foundations for houses. On the other hand, photocatalyctic concrete is a recently introduced mixture of cement, able to wash away smog, and neutralize pollution. The material is based on particles of titanium dioxide, making its attributes special. The photocatalysis process the material undergoes while it is hit by sunlight makes it capable of breaking down smog or any harmful pollution attached to the concrete substrate (PCA, 2016). Usually, normal pavements are left with a severe discoloration and/or deterioration. This self-cleaning process makes it easier to keep the maintenance costs of buildings and pavements alike, at low expense levels. The cleaner the buildings and pavements are the better is the quality of air. Therefore, it is recommended that all concrete products which have a direct contact and exposure to sunlight be substituted with photocatalyctic concrete. City streets are one example. Pollution is then reduced directly at its source (Fig.10).



a) b)

Figure 10: Climate map of Prokop Myzeqari Street for S2, January and July

Evidently the most significant temperature change happens with the implementation of scenario S1 (Fig.11, 12).

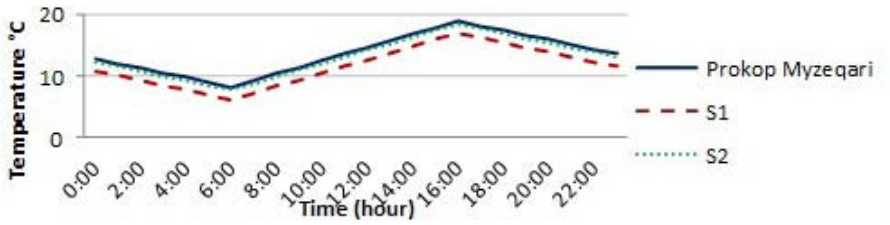


Figure 11: Temperature change after implementation for the month of January

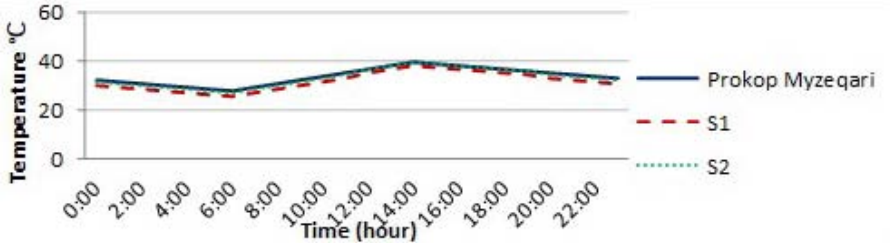


Figure 12: Temperature change after implementation for the month of July

Conclusions

This research presented the results of the project concerned with the extent of urban heat phenomena in the city of Tirana. Once more, the goal of procuring one cases within the city was to yield an understanding of the urban heat island effects. The analysis and the data secured by Weather Underground scientifically prove the existence of an issue in a crucial need to be addressed. A more comprehensive study and intensive numeric modeling with a larger magnitude would produce better results and a better predictive performance. In the future this may be used in evaluating the intervention needed for Tirana, and a better framework in restructuring and reforming the city as ecologically healthy

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Formal and informal settlements

Formal and informal settlements

20 SHTESA, TIRANA. SPONTANEOUS ELEMENTS, AGAINST AND WITHIN THE COMMUNIST ARCHITECTURE

Manfredo di Robilant, Gjergj Islami, Denada Veizaj

Abstract

Buildings not designed by architects, but simply built by their dwellers, are seldom considered in the architectural literature. Bernard Rudofsky's Architecture without architects, published in 1964, addressed in a manifesto-style the issue of spontaneity in a built environment. Most of the cases illustrated by Rudofsky are referred to buildings entirely built without a project by a professional. Rudofsky implied the mutual extraneity between buildings by architects and buildings by non-architects, and he exhorted architects to transfuse into their own projects the wisdom that he found in non-authored buildings. Though, what happens when buildings designed by architects are radically modified by their dwellers? Is this a reaction to a lack of design that needs to be compensated, or to an excess of design that needs to be moderated? How can architects take advantage of the tension between designing and dwelling, professionalism and ingenuity? Is this tension generated by symbolical values clashing with utilitarian needs? And if yes, do architects stand for symbolism and dwellers for utilitarianism, or vice-versa? This article addresses these questions by using as a case study the extensions built by dwellers to add rooms and functions to their apartments in post-communist Tirana, Albania. Shtesa, somehow translatable as an extension, is the Albanian word for this spontaneous modification that is widely visible in Albanian cities, and in Tirana particularly. Every shtesa is built literally "against and within" communist architecture, as well as it embodies the anti-disciplinary stance that architects have always to expect from the inhabitants of their buildings. Shtesas are not merely architecture without architects; they are counterattacks against the invasion of architecture by ideology and of space by politics. The theoretical background of this article is the elements of architecture research project for the 14th Venice Architecture Biennale by Rem Koolhaas, to whom Manfredo di Robilant was associate.

Keywords: spontaneous elements, shtesa, Tirana, dwellers

Introduction

The collapse of the communist regime in the early 1990s left Albanian buildings that were almost all state-owned, without property and without control. This radical change affected the architectural scale, as well as the urban scale since any form of regulation, lost the possibility to be affirmed, controlled, and if necessary enforced. The triad of affirmation, control, and enforcement is implicit in the very existence of building codes and urban regulations, notwithstanding the form of government of a city. In Albania, the presence of a communist, isolationist dictatorship prompted to the striking toughness of affirmation, control, and enforcement. Once a building or a public space was built, any modification would be virtually impossible. Even indoor spaces were subject to the absolute control of the regime. Removing a partition to create an open space, adding a second toilet, or closing a balcony to obtain a space in-between indoor and outdoor, would mean a blatant offense to the status quo. The party's neighborhood supervisors, in charge of control, would have promptly denounced to the authorities any construction activity, and the enforcement apparatuses would have brutally punished dwellers who made do-it-yourself modifications to their own apartments (Woodcock, 2016). Do-it-yourself was prohibited because affirmation, the first component in the triad that is implicit in building codes and urban regulations, was entirely monopolized by architects and civil engineers. These professionals were working in large teams as public servants since no private practice was allowed, and they had to strictly follow the principles of a Stalinist-derivative architectural style adopted by the regime from the 1950s. At the time, the dictator Enver Hoxha perceived de-Stalinization in USSR as a potential danger for his own regime, and thus loosened the ties with Moscow in the first years of Nikita Khrushchev government (Abrahams, 2015). Consequently, architecture became the most visible embodiment of the role

of Albania as a surviving, small but faithful stronghold of Stalinism. When architects presented their projects to the ruling party's technical or professional commissions, the first question they had to answer was how the project would contribute to regime's policies and ideology (Islami, Thomai, Tuxhari, 2015). The architecture was hence a direct emanation of the regime's vision, and as such was untouchable once it was built. Not surprisingly, the do-it-yourself movement was a major component of American post-war suburban dwelling culture, when and where the market of home-customization rapidly expanded, in face of unprecedented economic freedom and relatively loose rules about what owners could do with their homes (Goldstein, 1998). Do-it-yourself was the epiphenomena of a twofold opposition: individuals against public rules and dwellers against architects. These two oppositions were inconceivable in totalitarian Albania, and perhaps more menacing to the country's regime than in any other communist country. After the regime ended, the monopole of architects and civil engineers on building design vanished, the party's supervisors lost their role, and the repressive apparatuses disappeared. The triad of affirmation, control, and enforcement was not more in operation. Everything was possible, though resources were poor. It was a paradoxically perfect set of conditions for spontaneous, ingenious interventions on buildings by their own inhabitants. Moreover, this latter had the chance of becoming de facto owners of the apartments in which they lived for years or decades. Former subjects of a collapsed totalitarian regime could privatize collective property at their own advantage, and residential architecture was the test bed of this unplanned, turbo-capitalist experiment (talk at IFAU by Aliaj, 2017). Architect and theorist Bernard Rudofsky, in his 1964 book Architecture without architects (Rudofsky, 1964), magnified cities and buildings built by societies where the architectural and urban design was not controlled by a centralized government and was not a matter for professionals. Rudofsky's target was the dogmatism of Modern Movement. Perhaps, Rudofsky triumphed in Albania, and in Tirana in particular, after more than 30 years of high-culture disillusions with deterministic modern architecture. These disillusions have been embodied by flamboyant postmodernism, kitschy regionalism, left-brained deconstructionism, and ineffectual parametricism, in a more or less diachronic order. Shtesa embodied and embodies Rudofsky's vindication.

Figure 1: Balcony partialy enclosed and expanded in Rr. Komuna e Parisit-Photo by the authors

Background and mechanisms of shtesa

The first public housing projects in Albania were developed in the early years of the communist regime. Under the regime (1944-1991), housing was only public since no private building activity and the property was allowed (with very few exceptions in rural or suburban areas where the state might give parcels of land to families to build their home). In the first years after WWII, the immediate challenge was to provide shelter for the population, without particular care to living standards. In the 1960s the standards were improved, possibly as the result of the consolidation of design institutes under the direct control of the state, where all architects had to work. Typical designs of 4-6 floor apartment buildings were used to increase the housing stock all over the country, though overpopulation of the living units remained a problem. As a response, in the late 1970s, a concrete prefabricated panel's construction system was introduced, providing around two thousand apartments per year. The construction system changed, but the building typology and the layout of the apartment did not undergo significant innovations. Under the communist regime, Albanian architects experimented different typologies in public buildings, such as in the case of railway stations (Veizaj, Islami, Thomai, 2016), though housing was hardly an occasion for architectural experiments, since it was narrowly linked to the regime attempt at literally entering the private lives of its subjects. Housing standards improved but never matched the real needs for a comfortable living, and construction quality remained poor. The shtesa phenomenon started from these lacks. From the point of view of conception and construction process, shtesa usually implied starting from the indoor and ending up with the outdoors.

For instance, a family decided to enlarge the living room in the apartment where they dwelled for years, somewhere in Tirana. Perhaps, they would begin by demolishing the partition between the existing living room and the small kitchen, to create an open space. The layout of the apartment changed significantly, modifying the rituals of daily life, by adding a nuance of entertainment to cooking, as in the modernist theorist Sigfried Giedion's prophecy about post-war homes (Giedion, 1949). Despite the importance of the modification at the micro scale of the apartment, it would have been unnoticeable from the outside. In a second moment, perhaps they became unsatisfied with the cooking area, and they moved the pottery storage on the balcony. This meant to close the balcony with a small roof and a window, transforming it into an in-between space well visible from the outside. In a further moment, the family might add to the balcony some projecting shelves to host basil vases, in a micro-micro-scale urban agriculture activity again well visible from the outside. All these construction operations were relatively simple, they did not request special skills, but perhaps just the help of relatives or friends. The very core of shtesa is small and usually linked to informal networks.

Only occasionally, a shtesa might attain the scale of an entire building, as in the case, for instance, of the addition of a new floor. This work would request a skilled workforce, but the overwhelming majority of shtesa cases implied little more than self-construction by the dwellers of an apartment.

Figure 2: Floor added at the crossroad between Rr. Mihal Popi and Rr.Komuna e Parisit - Photo by the authors.

Narrowing the scope to Tirana, the spread of the shtesa phenomenon radically transformed the cityscape. The "city of shtesa" aggressed the volumetric and chromatic uniformity of the communist city. The reaction to communist "grey architecture" varied in the different countries of the former Soviet Bloc (Boucsein, 2010), and at least in the Balkans modifications by inhabitants have been pervasive. Though, Tirana seems to be the climax point in the individualist revolt against collectivist architecture. The extremism of Hoxha's regime in interpreting the communist city called in fact for an equally extreme transformation, though unplanned and largely involuntary. The ground floors of communist housing in Tirana were filled with apartments. There was no distinction between the plan of the ground floor and that of the upper floors since no pilots and no commercial spaces were included. After 1993, the rise of private economy immediately created a pressure to transform the ground floors apartments into commercial spaces. This transformation implied the introduction of architectural elements that were largely absent from the cityscape, such as shop windows. Moreover, the "commercialization" of ground floors often propagated into the public space, as in the case of coffee houses building verandas on the street. Restaurants also built chimneys and ventilation fixing them to the smooth facade of the usual four-story multi-apartments urban residential buildings. As a cautionary observation, it is worth noting how not all the shtesa elements are "original". For instance, air conditioning machines that punctuate the facades of Tirana, and parabolic antennas that affect its skyline are common to any city without strong traditions of building codes. What is peculiar of shtesa in Tirana, is how boldly many cases reflect the changing conditions of real estate property. For instance, a new private stair might be built to connect the landing of the building stairs to the enclosed balcony of an apartment, accessorized with a new exterior door. Echoing the anatomical metaphor of circulation, popularized by Le Corbusier (Forty, 2000), this operation might be described as a "bypass" to allow a circulation reaching the heart of a privatize property.

Figure 3: New private stair to an enclosed balcony, betwwen Rr.Ylber Bylykbashi and Rr.Kongresi i Lushnjes-Photo by the authors.

Table 1: First draft for a morphological analysis grid, to

Action	Element
Opening	Window
	Door
Closing	Balcony
	Window
	Door
Extrusion of internal space x direction	Room (Floor / Roof / Wall)
Extrusion of internal space x,y direction	Room (Floor / Roof / Wall)
Addition in x direction	Room (Floor / Roof / Wall)
	Balcony
	Stairs
	Roof
Addition in x,y direction	Room (Floor / Roof / Wall)
	Balcony
	Stairs
	Roof
Addition in z direction	Room (Floor / Roof / Wall)
	Balcony
	Stairs
	Roof / Tent
Addition in x, z direction	Room (Floor / Roof / Wall)
	Balcony
	Stairs
	Roof
Addition in x, y, z direction	Room (Floor / Roof / Wall)
	Balcony
	Stairs
	Roof

The interpretational challenge of Shtesa

This article invites to interpret the shtesa beyond merely aesthetic discussion. We approach shtesa as a complex phenomenon, which deeply affects the developments of post-communist architecture in Albania. Shtesa reveals a new nuance of individual/private/domestic space and adds a new layer to the communist city, creating a strong dichotomy between the private dimension and the collective one. Individualism vs collectivism, liberalism vs totalitarianism, private vs public, indoor vs outdoor, non-disciplinary vs disciplinary (i.e. dwellers vs architects): crucial tensions are condensed into shtesa, reflecting not only the Albanian situation but the perennial opposition between spontaneity and determinism in architecture. We argue that shtesa might be effectively interpreted by intertwining an approach focused on elements of architecture with a geometric analysis of the modifications to which they are subject. Elements of architecture are "things that dwellers can touch and experience", hence they attain the very mechanisms of daily life. Usually, elements of architecture are resilient to changes in architectural paradigms (Di Robilant, 2018), but in the shtesa they are surprisingly a drive-force for radical mutations. As to the analysis of the actions and the geometries implied by shtesa, they are design-oriented. A mighty first analytical grid might be as follows.

Conclusions

Shtesa celebrates the primordial interaction between dwellers and their buildings, showing the very potential of architecture to give life to repressed, unspoken desires. At the same time, shtesa shows how sharp human inventiveness can be when it comes to adapt existing spaces to the needs of daily life. Developed in the absence of any ideological, academic, programmatic pressure of the communist regime, shtesa reflects the desire for liberation, in both the physical and psychological dimension. Shtesa is de facto the tool through which an entire society shaped its relationship with freedom, dignity, and creativity. Moreover, shtesa is an individual oasis where inhabitants articulate their right to benefit from architecture. As such, shtesa goes beyond parasitism that is usually a hyper-designed addition by an architect made without political pressure (Marini, 2015). Rather, shtesa seems an echo to Bernard Rudofsky's Architecture without architects (Rudofsky, 1964): it is about non-architects that de facto, though probably involuntary, celebrate the powerful and contradictory beauty of architecture. As many medieval cities in Western Europe are built on the ruins of the Roman Empire, shtesa's are built on the ruins of communism. Hence, they are a demanding heritage. For these reasons, we propose to look at shtesa under an innovative light, far from pejoratives approaches that are now dominant in Albania. Moreover, shtesa address a troubling question of architectural theory, on a global level: the relationship between architect, design process and dweller.

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21

NEW FORMS OF DWELLING:
LIVING AND WORKING TOGETHER WITHIN THE NEOLIBERAL CITY

Marson Korbi

Abstract

The research aims to the definition of new forms of collective living against the classical housing model within the recent real estate crisis. The contemporary way of life passes through new forms of cognitive labour on which the new workers class is defined by the social individuals of digital production. In this transformation, from the factory to the metropolis, work becomes the main daily activity extended also into domestic space. This condition declares an individual way of life, separated from the public sphere of political participation, based on self-exploitation and personal schedule for better performance within the job's market.
The thesis investigates the historical paradigms of co-living focusing on two important aspects: first, the archetypes of (chosen) forms of living together sharing a communal rule (a way of life) which directly corresponds to architectural forms; second, architectural composition principles divided by categories of co-living spaces types. The main paradigms are defined by monastic architecture, the Utopian architecture of XVIIth -XIXth and by soviet communal-house experience. In those examples, chosen way of living arises as an alternative against the existing society starting from the medieval monks, through the Utopian phalanx to the apogee of soviet communal ideology.
These reflections lead to rethinking new forms of living and working together where architecture itself could be a political project for social emancipation. The new paradigm can be defined starting from contemporary experiences within some main European metropolis (Berlin, Wienn, Copenhagen, Maastricht etc.) where, mostly, groups of people (individuals or smaller families) chose to live together in a sort of res gestae against neo-liberalism. Here the inhabitants' way of life can be no more imposed by the current social system but a shared way of living and working together where architecture, in its different declination of the dialectic of individual and collective space, determines the scenario of this form of living.

Keywords: communal, living, working, a way of life, neo-liberalism

Introduction: Neo-Liberalism forms of production and Household apparatus

The new working class of cognitive labor

Today's ways of living are contextualized by the gradual switch from the material forms of production to the new paradigm of the immaterial production. This affirmation refers not only, in quantitative terms, in the amount of population occupied by immaterial labour within the new proliferation of services and affectivity industries, but at the same time refers to the important fact, that all the society is put under production. In the neo-liberalist city, the gradual abolition of the factory coincides with the contemporary spread of productivity through the entire city. This phenomenon represents the main logic of neoliberalism and its politics based on a new psycho politics regime of exploitation: instead of the older internment places – such as the family, the factory, the school, the jail (Deleuze, 2000) – now the new capitalistic model imposes a new condition of individual liberty for its own reproduction. In this context, the figure of the factory hard-worker is being replaced by the new figure, the spiritual worker, which corresponds to the definition of a new paradigm for the working class. The rhetoric of neoliberal capitalism exploits the actual known precarious condition of young workers. Now, the new productive class exploits itself imposing a self-schedule based on capitalism rhythm for higher productivity. For the entrepreneur of himself, the social worker, life became a performance where work occupies almost the entire daily activity. Finding a job itself, or compiling a cv could also be considered as (unpaid) work managed individually. Here also, the most preoccupied fact, in terms of psychopolitics, is that, what is put to work are the intellectual thinking, ideas,

reflections and affectivities; so, the psyche of man which is then transformed into big data (Han, 2016), has nothing to do with the real creative and intellectual oeuvre d'art of man's subjectivity. Capitalism, through the new condition of free independence of man – emphasized by the immaterial rivalry between intellectual workers –, exploits his creativity, by abstracting his ideas and his subjectivity from the possibility of performing the Ars Vivendi and thinking politically together.

Family housing and domestic exploitation

When we think to the house, it directly relates us to an ideal of stability, accommodation, and economic safety, something that has always been there. It is considered the apogee goal of life success in terms of possession and personal realization. The family, even the many transformations of industry in the last decades has changed its composition and enlargement, remains the main institution protected by state and market system. In neoliberalism, the role of the family has been even more convenient by the deregulated real estate processes, as we saw during the 2007 dynamics bubble. The family becomes now not only a biopolitical apparatus but fundamentally, within neoliberalism, conserving the idea of an isolated environment, the family house is transformed into a mere product of consumption. That is, a market product managed through the ideology of possession. Although that, what we should argue and focused in, is the family apartment typology as a representative space of the genesis of labor activity, that is maintaining the household through unpaid domestic work. The micro-state condition of home governmentality has its origin from the Roman definition of the word family where "among the Romans it did not at first even refer to the married pair and their children, but only to the slaves" (Engels, 2010); this in our days, in one hand, assembles the economic hierarchical based relationships within the house, and, on the other hand, describes the domestic exploited work conditions of the household – fundamental for the reproduction of labour force. What can be considered as an interesting fact is the "retire" of nowadays immaterial labour back to the place of the domestic unwaged work: the house. In these circumstances, un/waged work paradoxically, becomes an activity spread on daily life schedule which, unlike the previous factory worker, assumes as its own "representative" elementary place also for improving (for productivity) itself, and for reproduction, the individual room within the house.
In conclusion, we can say, that the abolition of the isolated family house could be possible because of its inadequacy: both for the reason of the new condition of cognitive and domestic labour, and both for it obsolete economic accessibility by the new working class. We can think for the working class to represent itself in an adequate dwelling, freed by domestic exploitation and precarious conditions of work. As Marx says: "Only in the community (Gemeinschaft) with others each individual has the means to develop its provisions in every sense; personal freedom becomes possible only in the community" (Han, 2016). These considerations should trigger architects first and then people next, to think on how it could be possible to live together alternatively, against isolation and exploitation, by implementing sharing and common principles, capable to explicit the new condition of the contemporary working class.

How to live together: **historical paradigms**

Monasticism: Living through the rule

The monastery paradigm can be considered today for its strict organization of life, depending on a free individual choice to act an ascetic form of life within the archetype of the hortus conclusions. "For monks, living together means not only to share a place or a dress but, first of all, a habitus" (Agamben, 2012), that is a way of living which corresponds and overlaps to the rule. Emblematic – as a mature status – of the correspondence between performative productive life and architectural spatial configuration were the two paradigms of the Cistercian and Carthusian monastery (X sec). These models declare two opposite forms of living together by following the rule. The Cistercian's diffusion consisted of the standardization of the typical plan which followed a series of identical abbeys through many European countries after its foundation. The main characteristic was the modular composition around the square shape cluster of collective buildings which fundamentally, corresponded to the daily cycle of life within the monastery. For Cistercian, the coenobium was meant to be "in all and for all communitarian", therefore, in terms of form and living, the grade of sharness was brought to maximum, which meant the constitution of a self-sufficient organism. In the other paradigm, the Carthusian monastery, the dialectical relation between individuals and community was switched to an individual (almost) isolated form of

life, organized through the coenobium archetype. Here, the rule, (based on silence and contemplation in solitude) corresponded to the architectural complexity of the monastic cell that was an isolated organism, repeated identically around the cloister of the monastery. Living alone together, for Carthusian monks meant that only a few professions were shared, and only a few socialized moments could happen in the communitarian rooms juxtaposed to the cloister. This model, of individuals living together, could be considered as the affirmation that living together could be possible if there "is always the possibility to be alone".

Utopian socialism: Living within the factory of the new "universal harmony"

Society transformations during industrial revolution were understood by socialist's philosophers and philanthropists, such as Charles Fourier and Robert Owen, whose attempt was too explicit the new life condition of people engaged with production. Domestic and productive labour, in both Fourier and Owen's palaces, were collectivized and shared by implementing archetypical elements of aggregation. Charles Fourier argued on a social system based on individual and class concurrence and proposed as an alternative to unify efforts in order to achieve the "universal harmony" (Benevolo, 2005). For him, the apogee of this new condition of equal individuals coincided with a new settlement: the Phalanstery (1829). This new ideal building, designed as an immense baroque (social) palace was a sort of productive machine of living. Here, the harmonic world of Fourier assumed work as a pleasant activity, therefore he invented a rule of its own where workers – the inhabitants – life was organized through a schedule of different productive activities every 1, 5 hours. The factory rhythm had a spatial corresponding with the chorographical rue intérieure crossed by every worker while reaching the different working places in the open courtyards or in the internal laboratories. The other utopian proposal of Owen, the Ideal Community of New Harmony (1825) was designed as a quadrangular structure. Similar to a monastery, these modern parallelogram machines, designed as a system of infrastructures dispersed over the territory, were organized as cooperatives of families directly involved in factory production, collectivized domestic labour, and agriculture cultivation. Also, here this way of living through the rule (rhythm) of the classical factory was corresponded to a physical mean in the way, literally, domestic and productive fabrics were physically juxtaposed to the housing parallelograms. The utopian ideas of Fourier and Owen of a world made of Phalansteries, and productive Parallelograms, could be considered, in one hand, as a metaphorical attempt to capture a (physical and political) piece of capitalism society within large communes, in order to equally house the multitude of workers; on the other hand, their ideological role was fundamental in the following communitarian experiences, and also influenced a series of future (modern) architects, feminists movements, and researches to investigate new forms of domestic spaces freed by the hidden exploitation of labor within homes' walls.

Soviet communitarianism: a dom-komuna for the working class

After the October Bolshevik revolution of 1917, the ideal of a socialist society was followed by the success of constructivist architecture. Most of the vanguards' architects focused their work and research on a new type of communal dwelling for the working class applicable within the new condition of the abolished private property. The research of the dom-kumuna aroused a more clearly architectural definition after 1927 through the work of the OSA group, led by architect M. Ja Ginzburg. Some of the main principles of the new "social condenser" have to be focused on the possibility to liberate a woman from domestic work, and, at the same time, to effort the social emancipation of the workers through the implementation of more collective spaces. The paradigm of the dom-komuna brought also a typological renovation as the principle of the rue intérieure – used in most of the proposals – assumed a dual character both in spatial and social terms. As a linear element of togetherness (like the Narkomfin, or the Commune of Barshch and Vladmirov), living within a complex commune-building could be considered – due it spatial articulation and scale – as an urban metaphor of "the building in form of the city". These linear models, criticized as utopian super-collectivizations, disappeared in the proposal for the city of Magnitogorsk (1930) designed by I. Leonidov. Its commune was designed – for a smaller group of cooperation, 8-6 per unit – as a mileage of units in skyscrapers, or as small low-story blocks within the proposal of the linear city plan. This new formal solution was both an alternative to the super-communes but also an attempt – within soviet cultural conditions – to a gradual collectivization of the dwelling. In the last period of the dom-komuna experience (1930),

instead of the previous (almost) all-equipped F cell of Ginzburg, the minimum dwelling for the Soviet worker was reduced to the individual cell – the room – besides of that, everything was shared with the others.

New forms of contemporary collective dwellings: Together within neoliberalism

In the contemporary scenario, we are used to seeing co-living experiences as commercial slogans versions of the classical real estate collective housing. Usually related to economic advantages some contemporary projects could also demonstrate that living together is possible through spatial declination of archetype principles and organization of life. Here, also the family household as a private habitat could assume an upgrade to a higher level of participation in the way domestic work, and life activities related to reproduction and social relations could escape from the ideology of the isolated family habitat within new architectural habitats of togetherness.
Afterward, are illustrated a series of contemporary examples on which we could recognize analogous elements and principles to that of historical investigated paradigms. The first project of Vandkusten architects built in 1984 in Jystrup (Denmark), represents an obvious declination of the rue intérieure typological principle through a linear aggregation of a series of family units. The internal covered street, ideal for Scandinavian climate, gives to these small nuclear families the possibility to socialize and to act their life in collaborative and interactive forms during all the year. Its urban character gives also access to collective facilities, where preparing common dinners, studying and taking care of kids, of the gardens, and other activities become a form of communally shared production. In the project of Jo Janssen Architecten in Maastricht, built in 2015, the dialectic between individual and collective living is declined – similarly, to the Familistère of Guise spatial character – within the courtyard block typology, hosting flexible

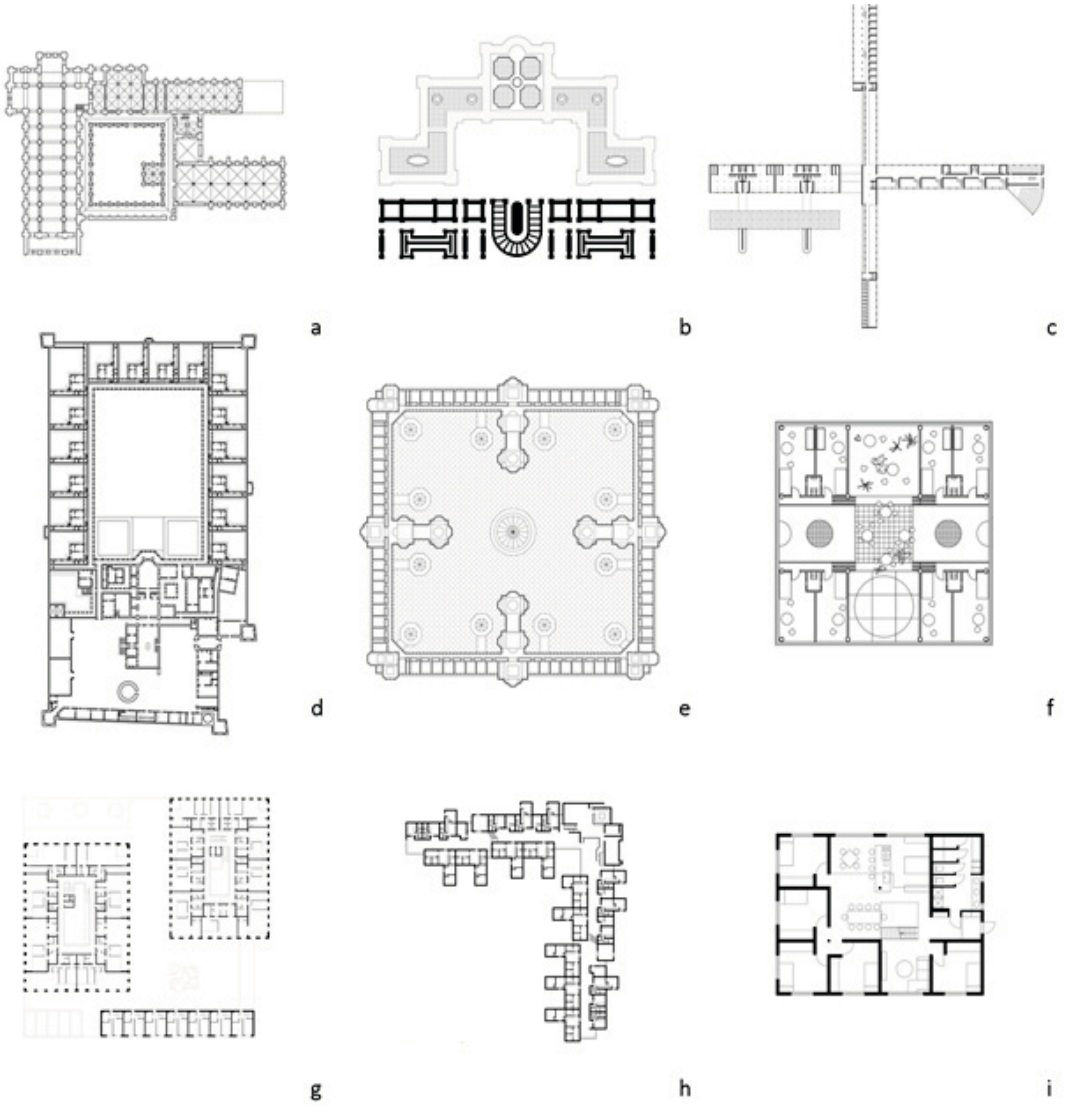

Figure 1: Plans:a. Cistercian abbey of Fontenay,1118;d.Clermont Chartreuse, b. Charles Fourier, Phalnastery, 1829, e.Robert Owen, New Harmony Community, 1825, c. M. Barsc e V. Vladimirov, Commune, 1929, f. Ivan Leonidov, Commune for Magnitogorsk, 1930,g. Jo Janssen Architecten, Piazza Ceramique, Maastricht 2007, h. Vandkunsten architects Jystrup Savvaerk Cohousing, Jystrup 1984, i. Naruse Inokuma Architects, LT Josai, Nagoya 2013.

apartments served through collective passages on each floor. The two building blocks, each characterized by its own common covered atria, could also be considered as an interesting experiment of living and working due to the fascinating integration of collective and individual working spaces within and outside living units. Besides ground floor offices, each apartment consists of a limiting internal core containing individual services and working studios. Here, elements, such as the monumental stairs, the main atria, or the large passages assume an urban character on the way life is manifested in the most crowded daily moments of offices' activities.

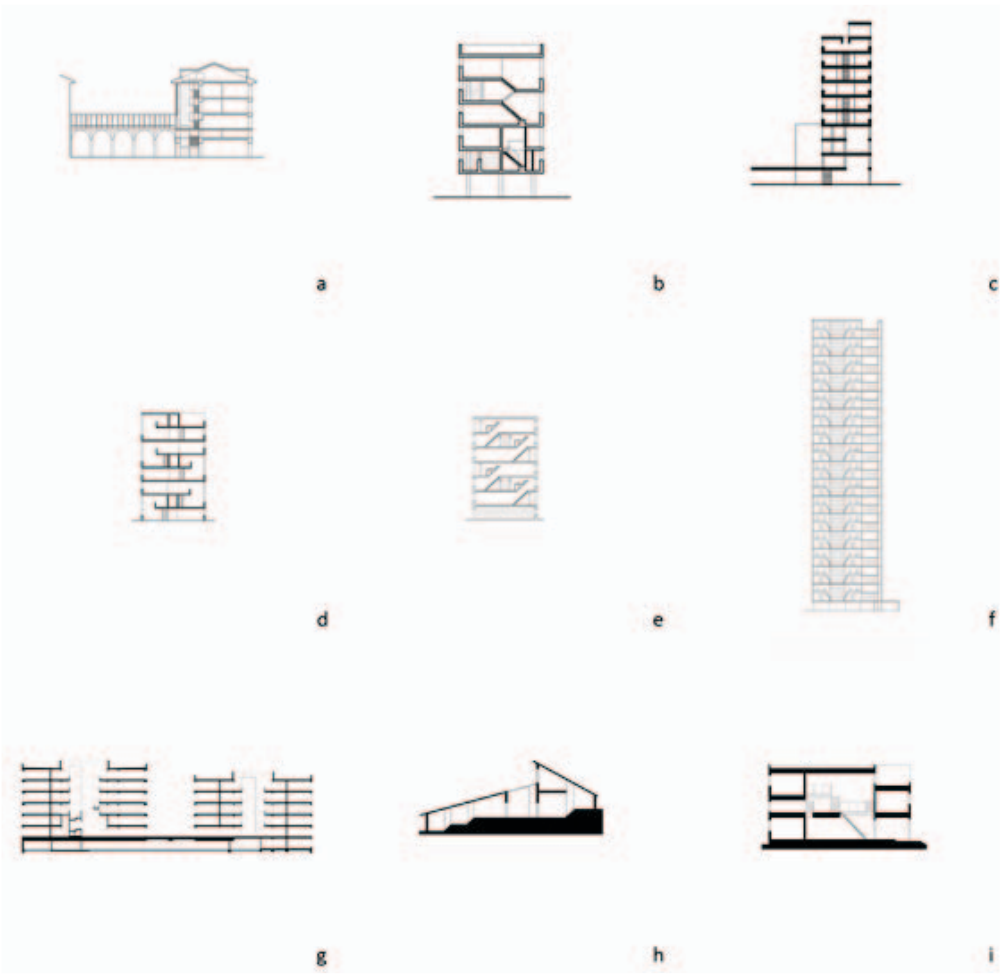

Figure 2: Sections: a. Charles Fourier, Phalnastery, 1829; b. Moisej Ja. Ginzburg, Narkomfin Building, 1930; c. M. Barščˇ e V. Vladimirov, Commune, 1929; d. Ivan Sobolev, proposal for a Communal House, 1927; Leningrad group (OSA), Dom-Komuna, 1927; f. Ivan Leonidov, Commune for Magnitogorsk, 1930, g. Jo Janssen Architecten, Piazza Céramique, Maastricht 2007; h. Vandkunsten architects Jystrup Savvaerk Cohousing, Jystrup 1984; i. Naruse Inokuma Architects, LT Josai, Nagoya 2013.

The LT Josai project of Naruse Inokuma Architects, built in Nagoya (Japan) in 2013, refers to a temporary use by young workers which, in this case, reacquire that individual dimension of the minim dwelling – almost identical to Leonidov's proposal for Magnitogorsk in 1930 – of the contemporary spiritual worker. This project is also the spatial demonstration of new forms of living corresponding to contemporary ways of working. What is curious is that, what is being shared beyond domestic labor, within the collective kitchens, dining room and laundry, are also the several obtained areas – through the stairs, the mezzanines, and the atria – for working alone with laptops or also with the others. This project is emblematic in the way how the overlap of domesticity and labor can be spatially represented through a new revolution of domestic space which, on one hand, assumes the precarious condition of capitalistic schedule, and on the other, it explicit a representative condition and place for the working class: the individual minimum dwelling.

Perhaps the genesis of these projects is not related to a political ideology, neither organized by an ascetic rule or even by a philosophy for the sake of production, but of course, one of the main conditions of sharing life and labor consists in the possibility to perform collectively a habitus; which means nor a form of several rituals, neither a strict regular, but, a way of being and acting a – freely chosen – form of life. All these factors are in some way implicit on the daily contemporary capitalism life, so, under these circumstances, the only way to liberate from domesticity should be a gradual passage from the former isolated living, passing through a higher collective participation, finally to the acquisition of the ideal dwelling of a free liberated man: the individual room, which means, besides independence, the possibility to collaborate and to live equally with others.

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22 SUSPENDED IDENTITIES: READINGS ON THE SPONTANEOUS TRANSFIGURATION OF THE ALBANIAN ARCHITECTURAL LANDSCAPE AFTER THE FALL OF THE COMMUNIST REGIME

Arba Baxhaku

Abstract

The research investigates the spontaneous transfiguration of the architectural landscape of the city of Tirana, after the fall of the communist regime (starting from 1992), paying particular attention to the transformation of residential buildings. It specifically investigates possible reinventions of the Albanian traditional house of Ottoman influence inside the spontaneous transfiguration of socialist housing in the contemporary Tirana. The research is divided into four parts: the First Part covers the evolutionary history of Tirana, from its Ottoman foundation to the definition of its identity as a capital city until the collapse of the communist regime; the Second Part analyzes the transformations of housing that made evident after the collapse of the totalitarian regime by means of the analysis of some exemplary cases; the Third Part explores the theme of the traditional Albanian house, searching a sort of Albanian dwelling tradition; the Fourth Part, in the form of a final note, proposes a project focused on a sample study area.

Keywords: spontaneous architecture, informal architecture, ottoman house, socialist dwelling

Introduction

Economic and political changes influence the shapes of architecture. The Albanian case after the collapse of the communist regime represents a specific example of the conflict order v.s. will, of formalism v.s. spontaneity.
Immediately after the collapse of the communist regime in 1992, a new dramatic break with the past takes place, manifested by a rebellion of the individual against all that is public, including public spaces and buildings constructed during the regime. In a total state of anarchy, the occupation of the soil starts from the public places of the city, like the green areas occupied by the inhabitants who start to build their own private space.
This research work aims to become a starting point for the comprehension of the identity of Albanian architecture and, thanks also to the Project Proposal inserted as a final note, it is proposed to assume a possible leading role for the transformation of the existing building heritage and the rewriting of the traditional housing typologies in the contemporaneity.
The research seeks to draw a link line between the architecture of the Albanian tradition and the informal character of the spontaneous transformations of contemporary Tirana; thus trying to establish a connection between the extremes of the functionalist formalism, typical of the city grown during totalitarian regimes, and the extremes of informal architecture, which depicts the constructive freedom of recent times, it tries to provide a critical reading applicable to the recovery operations of the existing architecture.

Tirana, signs and traces of a capital

Tirana is settled in a crossway of references brought by ancient paths engraved in the Albanian territory,original connections between East and West. The local tradition overlaps with the 'imported' architectures that depict, throughout the twentieth century, the image of the totalitarian powers that have governed the country. This suggests the physiognomy of a city crossed by heterogeneous cultures that create its identity: the pre-existing oriental one, made of intimate places, gathered, of gardens, mosques, and bazaars; the European one, perceptible in the Italian architecture of the Fascist period, which traces the foundations of the capital city, with its classical forms and monumental structure;
the identity of the communist utopia, to which belongs most of the housing constructions, the wide courts and the continuation of public spaces; finally the contemporary one, which tries to reinvent a new identity of the city.

Figure 1: Signs and traces that have generated Tirana and their relationship with the current city.

Tirana, that starts to be the capital city of Albania since 1924, is designed according to new set ratios, in which the long monumental avenue with the imposing buildings that parade decorated with the symbolism of power predominate.

The historical city is surrounded by new interventions, then marked deeply by the long axis of the boulevard and finally fragmented by the new roads, destined to hide behind the architectures of western influence.

During the communist regime, Tirana expands according to the functionalist principles, mainly residential constructions along historical routes, on the perimeter of the Ottoman districts, where the small fenced houses are demolished.

The construction of the new districts, influenced by the Soviet and Eastern European experience, follows the principles of the rationalist research, where the relationship with tradition is so specified by Argan (1984): "(...) architectural rationalism flaunts a clearly anti-traditionalist attitude: in the sense that in the geometric form it seeks an absolute value, above the history (...). We can, therefore, consider the so-called architectural rationalism as a close analysis or critique of tradition, directed to trace the most authentic and original foundations, to restore the essential values: therefore it leads back, be it against the academic classicism, to an ideal classicism and against a customary naturalism to the very foundation of the idea of nature"(Argan, 1984).

After the collapse of the communist regime in 1992, the break with the past is manifested by the rebellion of the individual against public space. Edi Rama, protagonist of important redevelopment interventions of the city, mayor of Tirana from 2000 to 2011, describes the cause of the transformations occurred during the first years of pluralism: "It was a space to be retained by people who had been deprived of every single means of expression of individualism starting with private property(…). So the first ten years were the years of re-appropriation of private space and of abandonment of public space. Coming back to individualism was very traumatic" (Haller, 2010).

Poorly built structures, emerge in the inner courtyards of the neighborhood's, in the inter-spaces between one building and another, in parks and squares. They are made of ephemeral materials that unconsciously report to the provisional nature of the city's past architecture.

The collapse of the communist regime is followed by a new political order related to a capitalist economic regime. The configuration of the city changes, as already noted by Aldo Rossi who refers to the analysis of Max Weber for his study of the city: "the economic function cannot, in any case, constitute a city in the sense of the tradition of the West; for a city to be formed it is necessary that there be a political constitution that creates the city. (...)Different political systems generate different forms of cities and different characters of urban space and different ways of living." There is a rapid turnaround: the entire residential property that belongs to the state during the regime is privatized, individual apartments become the property of those who live there. The change in the political system does not allow the effectiveness of the regulatory plan, approved in 1989 (Shkreli, 2008). In a state of total legislative confusion, in the passage of power between different regimes, the city is 'assaulted' by illegal constructions that, starting from the occupied land in the suburbs, invade even the city center, "70% of the buildings built in Tirana after 1991 were without a building permit" (Shkreli, 2008).

The first to be transformed are residential buildings, especially those built during socialism. Their modification takes place due to the need to dilate the narrow interior spaces, but openly ignoring any attention to the external aspect, almost recalling the character of traditional Albanian architecture, in which the composition and the dimensioning of the rooms

is indifferent to the relationship with the street: "All those gray buildings from the Communist era were deformed by pressure from the inside (…). This pressure pushed from the inside of the buildings to gain more space breaking throw ceilings, by getting something higher up, by breaking the windows in the first floor to achieve more horizontal space, by transforming balconies in parts of the inner space, by throwing everything out to break the omnipresent uniformity of public space"(Haller, 2010).
As in the Ottoman cities, the façades 'devour' the public space, almost as a claim full of resentment towards everything that the 'public' concept has become synonymous with. The citizen, alienated, forced for a long time to the annihilation of his individuality under the shadow of a mass reality, seeks diversity through a multitude of images.

The case study of district '1 Maji'

District '1 Maji' represents an exemplary synthesis of the transfiguration that took place in the socialist architectural heritage after the collapse of the regime. Through the morphological analysis of its buildings, we can better understand the traits of this transfiguration and grasp the essence of the identity of contemporary Albanian architecture: a combination of the rigorous design of totalitarian regimes and spontaneous interventions in recent years. The district, borderline to the north by the boulevard 'Bajram Curri', along the river Lana and south-west from the 'Unaza' ring road, lies in the area traced by the Master Plan of the Italian planners for the southern extension of the city, New Tirana (Tirana e Re). A first project was laid out in 1956, whose construction would have been completed in the following years. Manifesto of countless residential typologies, compiled by the Central Office of Studies and Projects of the Ministry of Construction, the '1 Maji' district represents a complete picture of housing research during the years of the regime. The perimeter is circumscribed by residential buildings, from two to four floors, built entirely of bricks and covered with pitched roofs at the top, looking for a reference to tradition. The north side is crowned by a row of three-story buildings, whose facades are punctuated by a neat grid of windows overlooking the river. From the triangular perimeter, punctuated by the geometries of the residential blocks, a rule is born which continues inside the quarter and is completed over the years by new buildings. The original plan of the district is represented through an abstract morpheme where the fundamental traces of the area emerge; the presence of the river and the main routes of the city that delineate the perimeter. Thus the "rule" that generates the design of the original project is exalted. The "uniform orientation" of buildings in line within the district and the homogeneous spacing between the blocks outlines an orthogonal grid of paths. The transformations that took place after the collapse of the regime overlap the morpheme of the project, fragmenting its uniformity; the "rationalist rule", born to counteract the "disorder" (Hilberseimer, 1978) of the historical city is dissolved.


Figure 2: Residential building in the district '1 Maji' (source: Enri Mato).


Figure 3: a) Plan of the district '1 Maji' in 1989.


b) Plan of the district '1 Maji' in 2016.

The first ones to be erected are the buildings that face the main road along the river Lana: two blocks with a rectangular plan, 4 stories high, 55 meters long and 10 meters wide and one last expression of a singularity in the solution, which relates

to the angle between the two roads. The blocks are marked by three smaller units, where each staircase serves three to four apartments per floor. As a result, the apartments have minimal surfaces, from 36 to 50 square meters.
In the Sixties, after the break with the Soviet Union, in the 1 Maji district, construction along the river was completed by adopting a different typology, distributed by the Central Office of Studies and Projects. The aim of the architectural research of the period, aimed more and more towards standardization, is expressed in the drawing (table 60.1) with inside the typological project realized to complete the north side of the district. The design of the project appears as a table, a complete picture that contains all the features that housing architecture can assume in those years. From the facades of the district, "1 Maji" emerges "the general law (which) dominates multiplicity" (Hilberseimer, 1978).
The elementary cell, the "single compartment", as Hilberseimer (1978) teaches determines the external appearance, the rule is highlighted through the repetition of the elements in series, "the nuance is canceled, the measure reigns". Along the streets of the district, surrounded by facades punctuated by the rigid rhythm of uniform openings emerges the "architectural form reduced to its more sober requirement" (Hilberseimer, 1978).

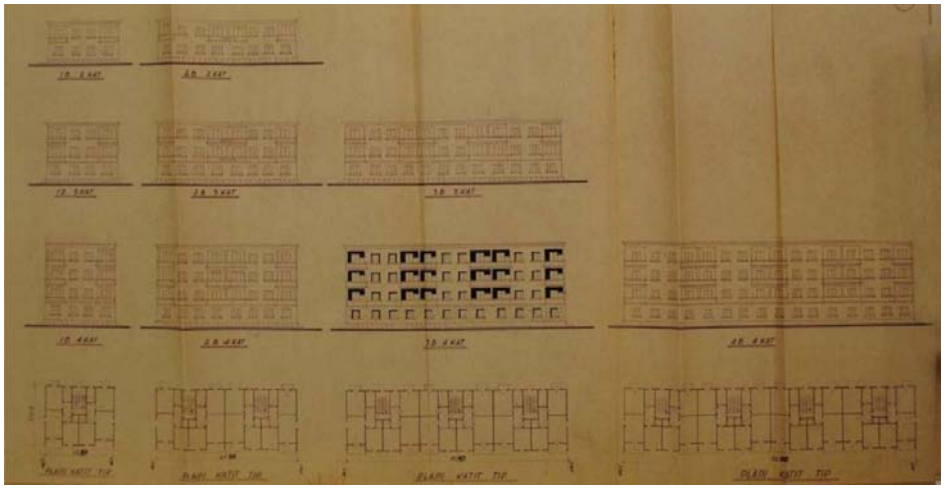

Figure 4: Design of residential building (source AQN).

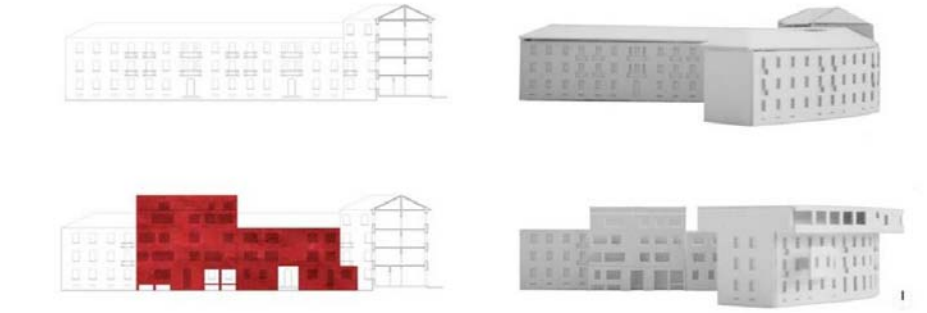

Figure 5: Study of the transformation of the facades in the district '1 Maji' (on top of the original project, below the recent transformations).

The collapse of the regime is manifested through the transformation of the state property into private property: "Mutations, often violent changes, take place in the cities (...) morphological examination,(...) it leads us to the belief that this force is essentially economic; one of the explanations of these economic reasons, is given in the capitalist city, by speculation."
The geometries of the residential buildings are modified in plan with the addition of new volumes that are added to the existing one.
The voids decrease, the distances between the buildings are filled and the paths tighten. The models of some buildings in the district allow a comparison between the original project, reconstructed through the archive material, and its contemporary transformation. From the models of the initial project emerges the rhythm of the facades, determined by the repetition within the building of the individual apartments. The abstraction with which the models of the transfigured facades are represented allows a clear reading of the overlaps on the existing one; in this way, the relationship between the previous rule and the spontaneity of the interventions generated by internal needs is highlighted.
Thus, a spontaneous transfiguration of the built is born, which "refers consciously or not to earlier examples that it uses as antecedents" (Martí Arís, 2007). The existing buildings become the skeleton of contemporary additions, a process that has accompanied architectural transformations for centuries. The law of uniform facades ceases to be the only face of the neighborhood. The Western-functionalist rule is fragmented and sinks into the old order dictated by the interior of the 'Ottoman rooms'.

The Albanian traditional house

Considering the composition of the traditional Albanian house as a key of reading it is possible to base the analysis of the transformations of the residential building of contemporary Tirana, imagining a parallel between the character of the traditional house, whose composition takes place around a central space surrounded by protruding volumes, and the spontaneous additions on residential buildings that extend the surface of the apartments in recent times.
The Albanian house, as it has come to the contemporary, through the period of Ottoman occupation of the Balkans which lasted over five centuries, shows a strong influence of the Ottoman character of living. During the seventeenth and eighteenth centuries, the type of housing that spreads in all the main cities of the Albanian territory is the one that the Turkish architect Sedad Hakki Eldem calls the house with an outdoor sofa. The Albanian house finds its origin in the memory of a primitive hut, the "house of fire", where the fire space was, already "the house itself, composed of a single environment". Because of its central position in the composition of the house, the room of the fire (oda e zjarrit) evokes the ancient atrium of the Roman house. Like this, in its evolution it is preserved unchanged and develops around itself all the spaces of the dwelling: "the internal part of the house of the Greek and Albanian peasants is divided into two parts. The biggest one is the house of fire (shtëpia e zjarrit). The fire is lit in the terracotta hearth. [...] When the house has two or more rooms, the family lives in the firehouse, usually women." (Hahn, 1854).
The architect Emin Riza, in his research on the Albanian dwelling, describes a type of house present in central Albania that reflects the archaic house of fire. Beyond the long blind walls of the narrow cul-de-sac routes of Tirana, "simple" and rather "primitive" dwellings developed around a double-height fire room, recall "ancient concepts and schemes who have found suitable conditions for conservation and reproduction in the city of Tirana and in the surrounding areas" (Riza, 2009). A geometry inclined to the square that varies from "25 to 30 m^2" and which can reach "up to 5 meters in height" distinguishes the "compositional core of the dwelling"(Riza, 2009). The height allows a two-level arrangement of the surrounding environments: wooden stairs lead to an "internal balcony, called mafil" that surrounds the second level of the perimeter of the room and allows access to the upper rooms. The fire room houses various functions of daily life, eating, cooking and sleeping, and is configured as a nucleus that generates the construction of the house itself and which always retains a central role in its expansion: "while in the other types this environment, in the transition from simple to the more evolved variations, loses little by little relief in the composition and dissolves functionally, in the house of Tirana, in every variant, the fire room remains unchanged as for its central position in the composition, as well as for its functional load" (Riza, 2009). The variations of this type are created from the "relationship that the fire room has with the environments on two levels that surround it" (Riza, 2009). From the simplest variant, with the "house of fire" as a unique space of the dwelling, a real type develops in which the double-height volume progressively acquires the distributive role of the different rooms of the house, the closed rooms (oda) and open ones (hayat).

Figure 4: The house of fire (source AQN).

Conclusions

The transformation of the built is an ancient practice that has allowed architecture overreach the centuries changing their typological and functional nature: these have therefore come to our days as a real palimpsest of signs and traces, evidence of past epochs. Building on the built, changing the existing according to the needs of the time, has always been the modus operandi in cities in which stratifications, overlaps, additions have continually coexisted.
This research draws its conclusions through the proposal of a possible model for the recovery of the housing construction heritage of the communist regime in Albania. The references to the project are inherent in the compositional character of the traditional Albanian house addressed in the second part of the study.
Starting from the original conformation of the buildings, the idea of the project accepts the spontaneous additions already

made and reconfigures the spaces by introducing forms and typologies of the Albanian tradition - for example, the fire room - responding to the problem of the expansion of the city with an operation of re-writing the existing one.
The project, therefore, proposes the recovery of the "1 Maji" district of Tirana as a possible model for future interventions on the housing heritage built during the years of the communist regime. The transformations that took place since 1992 become a possible criterion for intervention on the existing one.
In the project idea, the series of the constructive elements of socialist construction is broken; from the geometric rule of the facades of the western tradition, new volumes protrude. These new volumes respond both to internal needs and to the memory of traditional-ottoman houses whose *oda* emerge from the basement of the stone fence, casting their own shadow on the road.
The transformation of the residential blocks takes shape from the interior of the living cell, in which the distribution of spaces is re-designed: evident is the reference to the centrality of the traditional fire room, of the Ottoman sofa, which becomes the distributive principle of the various rooms. At the same time, a system of light wooden volumes is proposed that allows the expansion of the rooms; the volume, an addition that is added to the facade following the principle of spontaneous transfigurations. This creates a further joining element between the Ottoman tradition of the *oda* that leans on the stone fences and the existing construction. New geometries enter their logic into the transfigured facades introducing a new rule. The new facade is transfigured by the rule of volumes that enlarge the interior of the rooms: the volumes of the new composition are added to the spontaneous transfigurations, finding in those signs a possible identity of the Albanian architecture.

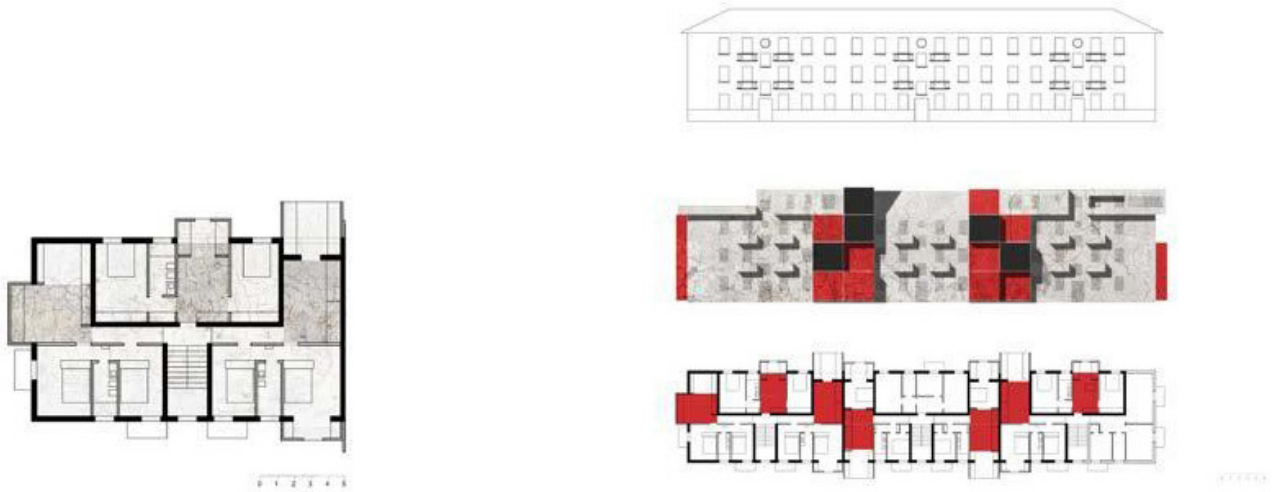

Figure 7. Transformation of living cells.

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RAREFY/DENSIFY. STRATEGIES FOR THE REUSE OF DROSSCAPES

Michele Montemurro

Abstract

The shared vision of tomorrow's European city is that of a dwelling, ecological or environmental regeneration where balanced economic growth and territorial organization of activities are based on a polycentric settlement structure, consisting of a network of compact urban nucleus alternating with natural spaces and cultivated countryside to counter urban sprawl and ensure a high level of environmental and living quality.
Brownfield's, waste areas, drosscapes have become the occasion to redefine the form of cities, assuming as a paradigm a renewed relationship between open and dilated nature spaces and dense, internal properly urban spaces.
This allows concentrating the attention on the environment not only in ecological but above all morphological terms, raising the reflection on the issues of densification, rarefaction, morphology, and vacuum of nature.
Any modification can be an ideal continuation/transformation of the existing one according to various techniques such as building replacement through demolition/reconstruction of buildings that have run out of their lifecycle; the restoration through the restructuring of buildings or groups of buildings; densification, or construction in the residual spaces of the urban fabric (infill) or in the growth of the volumetric dimension (build on and retrofitting) of the existing; the rarefaction, that is, the emptying of some incongruous and obsolete parts to realize the renaturalization of the open field.
Taranto, an industrial city in deep decline, strongly linked to the ILVA steel industry events, is a complex and paradigmatic case study for experimenting with drosscapes re-use strategies and new settlement/dwelling models to redefine the form of the city and the activities that these new spaces can accommodate by offering the city new urbanism of greater collective value and new opportunities for economic revival.

Keywords: drosscapes, densification, brownfield, morphology, urban form

Introduction

In Europe, more than two-thirds of the population live in urban areas and this share continues to grow, highlighting how the development of our cities will be crucial for the future economic, social and territorial development of the European Union. In terms of objectives and values, there is a shared vision of the European city of tomorrow as a place of housing, ecological or environmental regeneration, in which balanced economic growth and the territorial organization of activities are based on a settlement structure capable to recover a healthy relationship with nature and to control urban growth, to counteract sprawl and guarantee a high level of environmental and life quality. The dismantled areas or the obsolete neighborhoods of the shrinking cities, due to the economic or functional crisis that has led to their progressive abandonment, are the most evident urban effect of a change that, with the transformation of the economies and production technologies, progressively redefines the models and the settlement and performance characteristics of the places. But they are also "a historic opportunity for transformation that will not show up for many years to come" which allows us to concentrate "attention to the environment not only in ecological but above all morphological terms" (Gregotti, 1990). The empty spaces that open up in the consolidated fabric of the city trigger opportunities for transformation according to new and more appropriate urban ideas because the processes of functional reconstruction, obsolescence of neighborhoods, the contraction of entire cities like Taranto (Puglia, Italy) offer valuable spaces strategic for their positional value, for infrastructures and for accessibility, in terms of shape and size. The decline of Taranto is strongly linked to the events of the ILVA iron and steel plant, which has caused pollution, depopulation, abandonment of entire neighborhoods, obsolescence of entire parts of the city, in a site of extraordinary geographical beauty. It is a

complex and paradigmatic case study useful for identifying and experimenting urban transformation strategies that adopt rarefaction/densification as design tools for the redefinition of the urban form based on the value of a renewed relationship between city and nature.

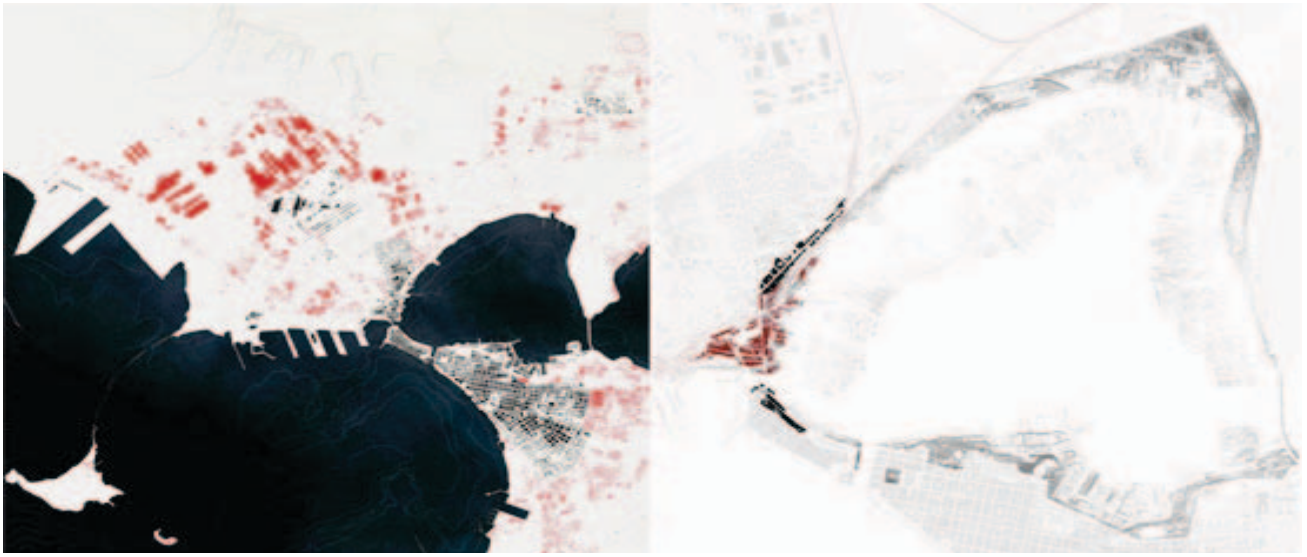

Figure 1: Taranto. Morphological structure of the city. The shores as places of the different relations between the city and the water- Francesca Manzari, Enrica Matarangolo, Valentina Pentassuglia, M. Alessandra Rutigliano, Milena Sinisi, Prudenzia Urso, Vanessa A. Vacca.

Figure 2: Taranto. Plans of the project- Francesca Manzari, Enrica Matarangolo, Valentina Pentassuglia, M.Alessandra Rutigliano, Milena Sinisi, Prudenzia Urso, Vanessa A. Vacca.

Strategies for the reuse of Drosscapes. Theoretical framework

The end of the life cycles of some parts of the city, due to functional reconstruction, to the obsolescence of some parts, to contraction, often produces drosscapes (BERGER, 2006) whose regeneration imposes a reasoning in terms of form: the Re-cycle is the contemporary approach to regeneration that requires the project to be contextual and adaptive to local conditions, but also re-founding from a morphological point of view to provide solid interpretations of the present (Russo,

2013). The relationship between the city and nature plays a fundamental role. Nature, also through the environmental and sustainability paradigm, has once again assumed the value of a constituent element of the contemporary city, succeeding in driving the housing culture towards the awareness of having to stop the consumption of soil, proposing new models capable of giving greater structure to the urban form and value to the empty spaces within which the contemporary city is located. An answer that architecture has provided to this new and important need was the strategy of building in the built, that is a practice of intervention on empty areas or parts of the existing city, abandoned or disused, based on the construction of urban elementary units with density, internality, finite dimension and recognizable formal structure to counter the low density expansions, improving the general quality of the existing city with punctual interventions (Purini, 2012). The space within which we will live for the next few decades is largely already built so that our goal is now to give meaning and future through continuous changes to the city, the territory, the existing materials and this implies a modification of our design methods that allow us to recover the ability to see, foresee and control. It is in fact from the vision that we must begin (Secchi, 1984) but that it is an evolutionary vision and in continuity with the existing structures. Argument that, as Purini writes, "is inscribed in a cultural orientation which, rereading Pier Paolo Pasolini, favors progress with respect to development, an orientation that not only focuses on the environmental question but projects this into the dimension of a landscape memory and urban life as the primary foundation of the communities " (Purini, 2012). The voids generated by the dismantling allow us to rethink the city by finite parts, according to "urban fragments" capable of interpreting characters and formal structure of the place according to a "modification theory" (Gregotti, 1984) that replaces the modern principle of tabula rasa with that of palimpsest, founding the construction of the form on the knowledge and description of the latent forms. This strategy implies that the transformations of the landscape-territory and of the cities take place only on already urbanized areas in which any modification (Gregotti, 1984) can constitute an ideal continuation/transformation of the existing according to different techniques such as building substitution through the demolition/reconstruction of buildings that have exhausted their life cycle; recovery through the renovation of buildings or groups of buildings; densification, that is the construction in the residual spaces of the urban fabric or in the growth of the volumetric dimension of the existing (infill); the rarefaction, that is the elimination of some incongruous and obsolete parts to realize meaningful spaces, which can coincide with the re-naturalization as it is the open space of nature the new element of urban continuity resulting from that epistemological inversion (Rowe & Koetter, 1977) accomplished by modern and contemporary thought is placed at the center of the modification operation. The reduction of land consumption through the densification of urbanized areas and the re-naturalization of empty areas in abandoned areas, expresses the intention to redistribute volumes and spaces within urban boundaries giving recognition and finiteness to its parts according to a morphological program referring to a renewed idea of a city that assumes the spaces of nature as a continuum within which elementary urban units, collective and public spaces are available, in which the polis can recognize itself.

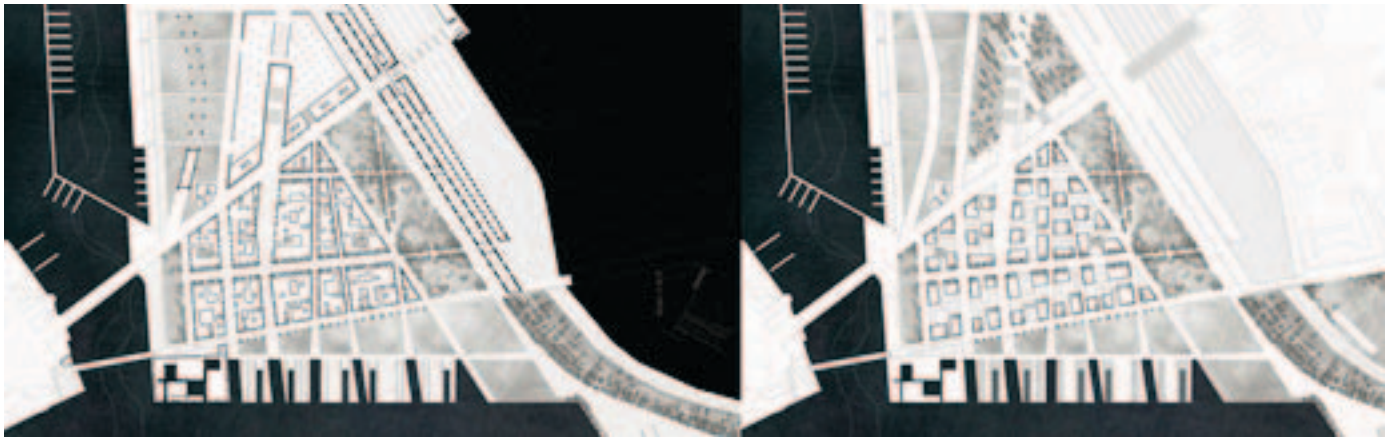

Figure 3: Project. First and third level plans of Porta Napoli project - Francesca Manzari, Enrica Matarangolo, Valentina Pentassuglia, M.Alessandra Rutigliano, Milena Sinisi, Prudenzia Urso, Vanessa A. Vacca.

Rebuild Taranto. Urban regeneration processes in "Fragile" de-industrialized areas

The geographical uniqueness of Taranto evokes its original beauty: built on an island that separates a wide gulf (Mar Grande) from two smaller and interconnecting internal basins (Mar Piccolo), the physical form of the site was the reason for its foundation of Greek origin. The realization in the modern age of large industrial plants (Ilva, Agip, commercial port, etc.) has linked to them the economic and social fate of the city, necessitating the construction of satellite districts and periurban expansions that have put the form and the identity of Taranto in crisis, now emblem of the shrinking city in contraction due to the continuation of the economic, social and environmental crisis. This condition has undermined the value of the Mar Piccolo as a space for representation of the city, scene of a maritime theater and urban barycenter opposite to those vectors of extensive expansion that direct the city towards the internal territories. It is a place together productive (mussel farms, harbor spaces, shipbuilding, arsenal) commercial (fish market), infrastructural (railway, roads, piers, moorings, docks) representative (promenades, historical center, markets, gardens). But it is also the space of visual and physical relationships between the different parts of the city that overlook it, interpreting the natural forms of the coast: the tip of Porta Napoli, the island of the old center, the nineteenth century city with the Arsenale on the east coast, the Tamburi district and then Paolo Sesto to the west, more inside, the military areas of the Navy and the Air Force being decommissioned; therefore a set of urban parts endowed with their own finiteness and recognition alternate with others without shape around the basin of the Mar Piccolo, waiting for a renewal.
We have hired Taranto as an extraordinary laboratory of settlement experimentation in which, together with the environmental, morphological and housing issues, we can tackle specific actions: redefine a renewed relationship between the "satellite" neighborhoods such as Tamburi and the water; to develop a new type-morphological order for the district of Porta Napoli, the city gate, as a 'new urbanity' of the 'polycentric' city; free the empty spaces of nature, to be taken as necessary 'intervals' between the urban parts; to identify renewed settlement / housing paradigms, capable of making public spaces in nature coexist in the contemporary city with the density and finitude of its urban parts; rebuild a solid and articulate relationship between the city and the water.

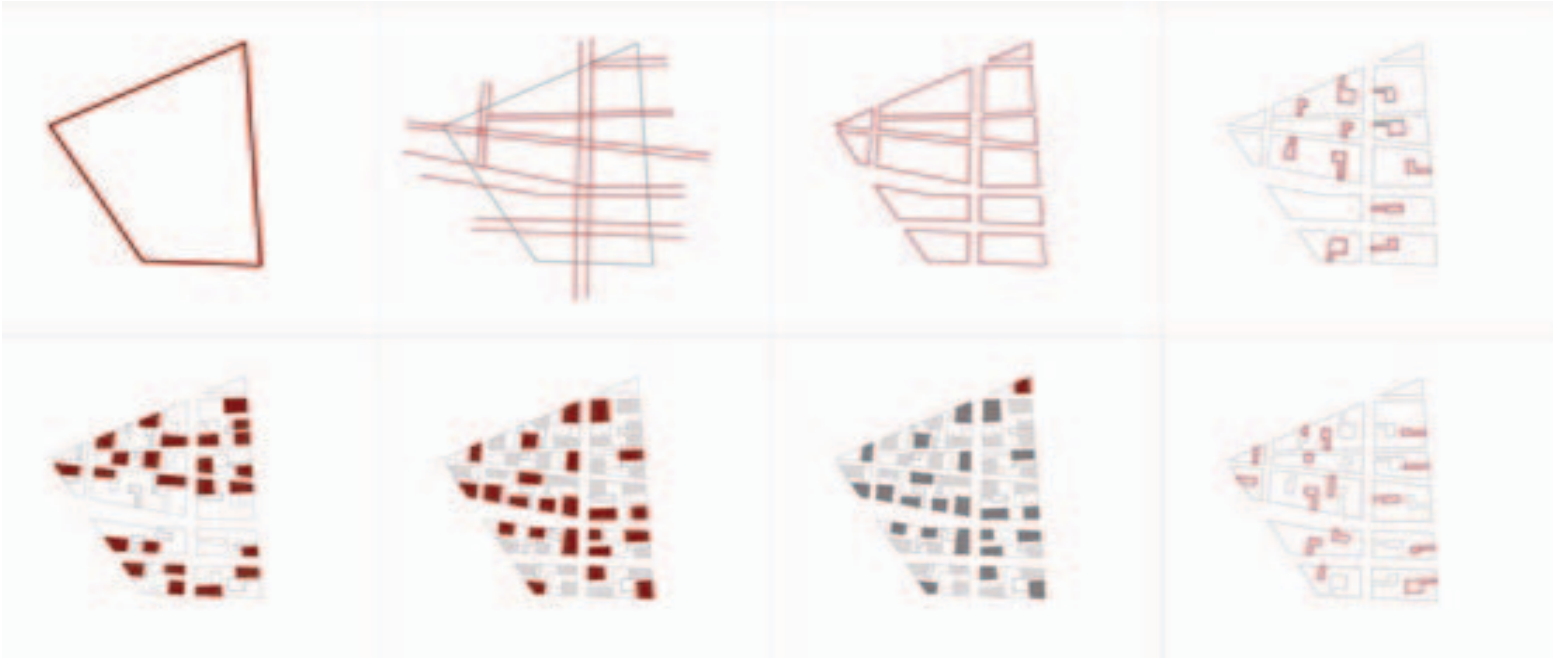

Figure 4: Project. Delimitation, streets, blocks, courts, volumes, towers - Francesca Manzari, Enrica Matarangolo, Valentina Pentassuglia, M.Alessandra Rutigliano, Milena Sinisi, Prudenzia Urso, Vanessa Vacca.

The project as knowledge. Rarefy/densify as a method to rebuild the urban form

The research to which this essay refers has developed in two complementary phases and brought together in a continuous way: the first more analytical, dedicated to the formation of a cognitive framework, the second synthetic and project aimed at defining a project proposal is able to offer solutions in terms of forms and strategies to the problems highlighted during the research phase. Analysis and design are not considered as two phases of a linear and deductive process according to which, in a deterministic manner, the project must emerge objectively from the preliminary historical-analytical survey, but rather the project is considered as verification and address of the phase of analysis that can change during the project following an inductive and circular way (Monestiroli, 1999).
The taxonomic and comparative analysis, carried out starting from the knowledge and description of the anthropic and natural structures of the urban area, has been applied to the main European experiences of transformation/reuse of urban port areas characterized by the presence of large industrial or productive areas, infrastructures abandoned or being dismantled, has made it possible to identify the appropriate renewal strategies for the city of Taranto. Recognized the geographic value of the point on which the district of Porta Napoli and the west bank of the Tamburi are built, the aim of the project was to reconstruct the urban form of the area that goes from Porta Napoli to the Galeso station through actions and interventions able to measure themselves with the complexity and fragility of the natural and anthropic system of the Mar Piccolo. The tip and the shore are taking as representative places of the boundary between city and nature as well as places of representation of the city's identity, combining the aspirations related to the environmental and urban renewal with the more general need to reconstruct the urban identity of Taranto. In particular, the project, assuming as a conceptual and operational tools the double register of rarefaction/densification has tried to redefine the balance between new building volumes developed on the existing fabric and the construction of urban spaces able to reconnect the interrupted relationship between the city and the sea, building the necessary intervals to make recognizable the urban parts of finite size and form consistent with the idea of city for parts of Taranto.

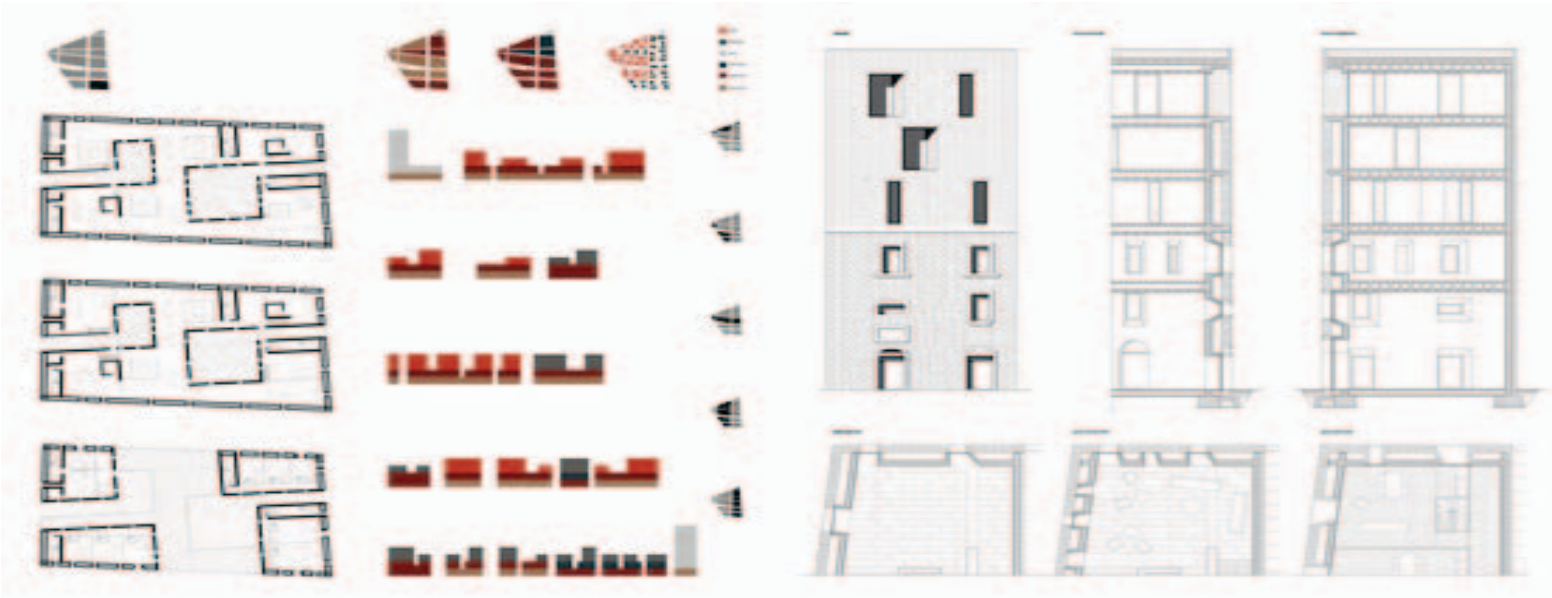

Figure 5: Project. Blocks articulation and construction details - Francesca Manzari, Enrica Matarangolo, Valentina Pentassuglia, M.Alessandra Rutigliano, Milena Sinisi, Prudenzia Urso, Vanessa A. Vacca.

Study cases. The tip and the shore as conspicuous points of the city

The study area marks the entrance to the city near the bridge that connects the historic center to the mainland; it consists of two parts that are recognizable and closely related to each other, the district of Porta Napoli, on the tip and the west waterfront of the Tamburi district, along the high bank that borders the Mar Piccolo to the mouth of the Galeso river. It is an area bounded by a natural embankment that tends to separate a flat strip along the Mar Piccolo from a higher part, on which towards the North the Tamburi district is located. There are many infrastructures (railway station and national, local and industrial nets, the tourist and commercial port, urban and extra-urban roads, shipyards). The existing building fabric is mainly made up of abandoned warehouses that favor the isolation and degradation of the station, making it an insecure place far from the sea. The relationship between the Tamburi district and the sea is impeded by the presence of the railway that separates the district from the bank, fenced and not very accessible, which interrupts the continuity of the inner urban banks of the Mar Piccolo.
Recognized the great vocation of infrastructural hub (railway, commercial port, tourist port, buses, cars, exchange parking lots, bicycles, pedestrian paths) that Porta Napoli can assume for Taranto, through the rationalization of the infrastructures their systemization, the upgrading of the pedestrian links between the tip and the Borgo Antico, the project has addressed the theme of the reconstruction of the urban form by elaborating a proposal that moves on a double register:

- The redefinition of the architectural form and urban structure of the Porta Napoli area with the construction sites, the tip, the piers, and the station and the Tamburi district with its seafront;
- The creation of a continuous system of public spaces along the banks of the Mar Piccolo, which separates and identifies urban parts of a finite shape, redefining the limit towards the water to reconstruct the relationship between city and sea.

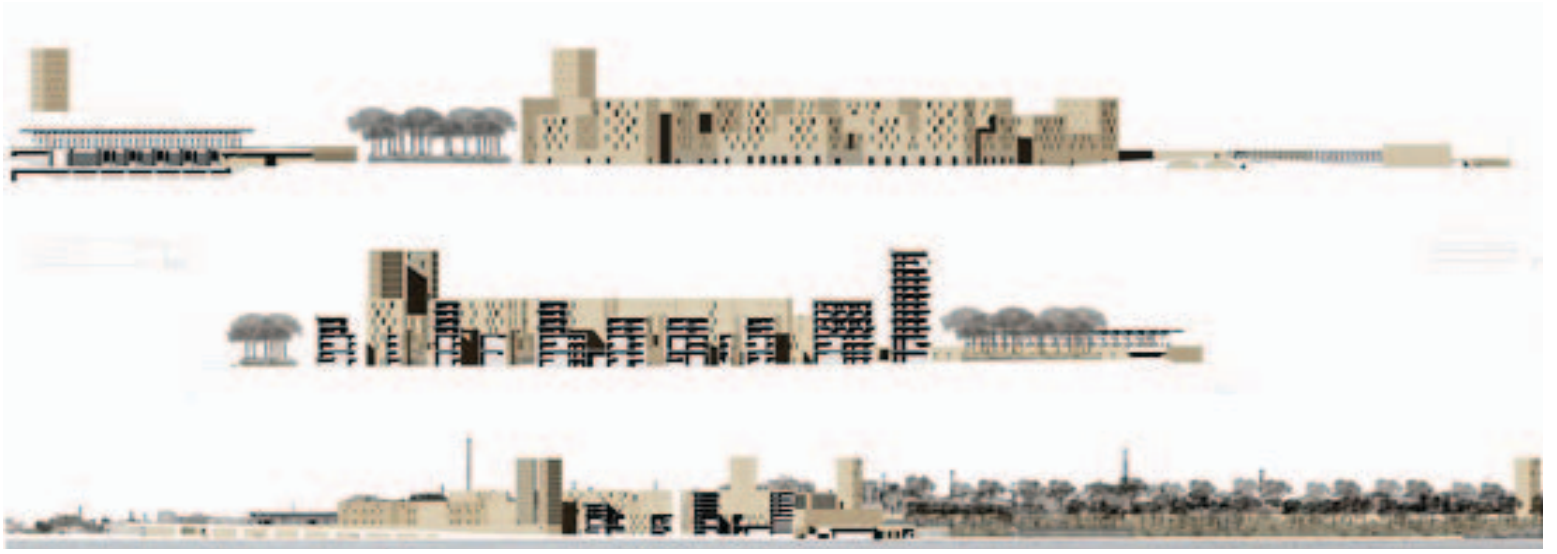

Figure 6: Project. Profile of Porta Napoli "citadel". Section on the blocks. Profile of the entire project from the basin of Mar Piccolo - Francesca Manzari, Enrica Matarangolo, Valentina Pentassuglia, M.Alessandra Rutigliano, Milena Sinisi, Prudenzia Urso, Vanessa A. Vacca.

The design techniques applied were the rarefaction and densification. The elimination of some disused urban volumes allowed to give complete form, dimensional finality and recognizability to the new "citadel" of Porta Napoli through the empty spaces and the characterization of the "intervals" of space such as gardens, squares, walks and rivieras that recover the direct relationship with Mar Grande and Mar Piccolo.

New sense has been given to the workplaces as the maintenance yards of fishing boats, making them an integral part of the city, alternating with restaurants, bars, spaces for entertainment and music along the promenade that connects the old town to the Galeso railway station. A terraced garden connects the upper coast of the Tamburi district with the new seafront at the bottom, passing the trench of the railway and gives unity and shape to the district defining the urban landscape on the Mar Piccolo. The densification was carried out by raising and reshaping the existing building fabric, taken as a memory of the morphological structures of the existing city, its fabrics and its streets and the traces of what was the terminal part of the Via Appia. The volumetric conformation of the new citadel is compared with the size and metric of the building fabric of the old center, a dense concretion incised by narrow streets sometimes torn by the collapses, with which it establishes a direct formal relationship through a careful declination of the form of urban spaces as streets, alleys, courtyards, terraces, the "villa" and the urban park, offering flexible spaces for co-living and co-working.

Conclusions

The challenge contained in the project is to offer a model of intervention that can guide the strategic choices related to urban and environmental rehabilitation actions, towards those aspects of the immaterial reality (beauty, culture, social cohesion, participation) on which the reconstruction can be founded economic and social areas of the intervention, combining the needs of local development with advanced processes of de-industrialization and more sustainable forms of tourism, recognizing for Taranto a role of reference in the Ionian and in the whole Mediterranean. In this sense, morphological operations such as rarefaction and densification allow remodeling the brownfields or drosscapes of the contemporary city by constructing new models of cities capable of becoming proactive development tools, not only spatial and urban but also economic and social.

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24 THREE DECADES OF (UN)PLANNED TERRITORIAL DEVELOPMENT. THE EVERGREEN QUESTION OF SOCIAL HOUSING IN ALBANIA

Saimir Shtylla, Erblin Berisha

Abstract

Fall of the Berlin Wall triggered the begging of a long transition for the Western Balkan's Countries implying significant social, economic and political transformations. Since the early 90's, the boom of (every kind of) informality, has been silently accepted by every government in Albania. Furthermore, the prevailing of private initiatives, more precisely the laissez-afire, with the consequent "vanish" of public interest awareness, redefined informality as a hegemonic economic principle. Spatial planning in Albania has been perceived as a mere technical tool by technocrats to control the territory, but completely powerless to contrast informal settlements developed in outskirts of the urban centers. This phenomenon, resulting from the high internal migration developed regional disparities and inequalities, highlighting the lack of opportunities and living conditions in the rural centers. Actually, these settlements are undergoing into a gradual legalization process, representing a clear political intent to recognize and afterward start their urban integration which is threatened from the private market transformation once the legalization process is over. As long as the private (legally and illegally built) housing market has prevailed toward social housing, the recent global crisis recalled to the public opinion the importance of this common good. From this perspective, the recent changes regarding spatial planning as an integrated approach: the adoption of Social Housing Strategy 2016-2025; introduction of the law for the energy efficiency and the ongoing legalization process, represent a historical momentum to re-establish the focus on (sustainable) social housing.

Keywords: Albania, spatial planning, informality, sustainable social housing

Introduction

Former socialist countries have been subject of multidimensional transformation processes (Cotella & Berisha, 2016). Besides having reduced transition as a mere economic issue, the paper analyses the impact of the transformations triggered by the political shift in the early 90s in Albania on planning and social housing on six dimensions: polity, economic, institutional, social, behavioral, and representative power of the analytical framework. The contribution is structured in four parts. The first part describes the multidimensionality of the transformation period. The second one gives an overview of the outcomes from three decades of unplanned territorial development in Albania. The third part sheds light on the tradition of social housing in the region and in Albania and the fourth part after a describing the correlation between social housing and spatial planning in the past, the authors highlight the importance of social housing as a strategic instrument to plan.

Multi-dimensional transition: toward an analytical framework

The simultaneous multidimensional transition has been investigated by several authors (Offe, 1997; Bitzenis, 2009) while others (Thomas, 1998; Nedovic-Budic, 2001) highlight the impact of transition in the redefinition of urban planning and social housing policy in the free market system. They have pointed out the necessity to analyze transition from different points of view interesting various dimensions such as: (i) polity – i.e. dictatorship to democracy shift; (ii) economic – planned economy to free market economy shift; (iii) institutional – shift into a decentralized system of government. Furthermore, this process catalyzed other transformations in the: (iv) social dimension – socio-spatial transformation, shifting from rural-like to urban-like population; (v) behavioral dimension – i.e. shift in terms of values and behavioral traits of the various segments of the civil society. All these transformation processes mentioned above might be easy to comprehend if analyzed from

the perspective of: (vi) representative power dimension – i.e. entry of new external and local actors (creation of new local elites). On these base, the Albanian transformation path has been analyzed, by paying particular attention to the interlaced question of spatial planning and social housing.

(Almost) three decades of (un) planned territorial development in Albania

Even though about three decades have passed since the downfall of the communist regime in Albania, the interplay between the transition's processes, issues like spatial planning and social housing have been rarely investigated. This section gives empirical evidence on how the transition has influenced spatial planning in general and in particular social housing.

Polity, economic and institutional dimension.

The shift from the dictatorship towards a pluralist system was approached better than the harsh scenarios seen in other East-European countries. However, the first phase of the transition did not imply the reset of the previous social structure as long as the previous system's legacy was very influent and diffused in every part of society. The inexperience of the new democratic actors and the inadequate social organization of the old and new elites to deal with the enormous challenges within political and social life. Most significant reforms even though elaborated in conformity with the Western systems logic and based on EU standards, were not successfully implemented because society was not ready to fully accept and adopt them. Simultaneously with the reforms, occurred the decentralization process in the administrative level where the local units were powered with planning responsibilities, unfortunately, perceived as a mere bureaucratic competence rather than a responsibility to properly address the territorial development policies. Indeed, spatial planning has been deliberately excluded from any political discourse because of the political intent to permit the inappropriate exploitation of natural resources and public proprieties for political interest with the consequent birth of the laissez-afire phenomena. As suggested by Muço (1997), the Albanian transformation process was problematic because of being rooted in the inefficiencies of the past economic practices in terms of: (i) property structure – progressive appropriation of property by the communist regime; (ii) idealization of national self-reliance as the main orientation of the economic policy; (iii) strong orientation towards industrialization. Since 1990, an important economic restructuring activity involved the whole country following the process of privatization and liberalization of the state properties in coherence to neo-liberal agenda (Rrapaj, 2015). Starting from the introduction of the free market principles, the privatization of public assets brought to the reduction of the welfare state policy (including Social Housing). Also, (Rrapaj, 2015) stresses the fact that Albania's transition to neo-liberalism took place in the absence of the welfare-state, contrary from the experience of the Western countries. From an institutional perspective, the necessity for a higher autonomy, highly supported from the EU, occurred in an atmosphere of confusion with the local administrations preserving a centralist perspective for at least a decade. The first administrative division was set on two levels: in the first level, there were 44 Bashki and 313 Komuna , distributed in 36 Rrethe . In 1993, twelve prefectures incorporated with the Rrethe4 and together with a set of state agencies acted as an outpost of various central ministries. As emerged, the chaos of competences compromised the decentralization of finances, as well as the efficiency of the public administration. To solve these persisting conflicts, after signing the EU integration chapter on local self-government, the government introduced a new administrative reform dividing the country in 12 Qarqe and 373 local units (65 Bashki and 308 Komuna). Although some problems were solved, the identification of the responsibilities at the regional level in the absence of the self-government political legitimacy remained a permanent problem. The EU pre-accession requirements, favored a new reform (Law 115/2014) that reduced the numbers of level local units to 61, but the number of regions remained the same.

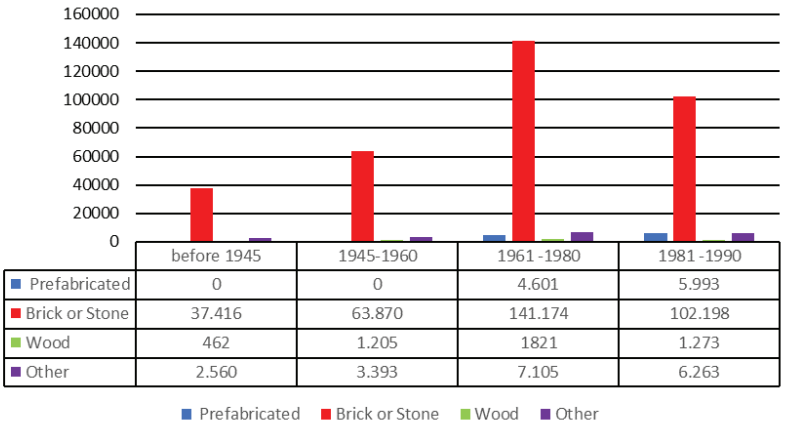
Social, behavioral and power dimension

During the socialist regime, Albania had a rural-based economy and 67% the population was concentrated in those areas, making the country as the most rural-like in Europe. The uncertainty of land ownership and the vacuum of the legal framework created after the collapsing regime, facilitated those who claimed to be owners (even though they

were not) to claim and occupy a portion of vacant land in the peripheral areas of the main cities. Afterward, it began an unseen boom of illegal buildings on these claimed lands that initially was totally neglected but after a couple of years became an evident informal reality. The World Bank Report (2011), counted almost 350 000 – 400 000 illegal dwellings in Albania. Informality has been driven by different factors such as: (i) the incompetence of the State to respond to the demand for social housing; (ii) the economic convenience to boost the informal urbanization in order to reach a double-state purpose, renovate the private housing stock and obtain high levels of employment in the construction industry; (iii) the political corruption phenomenon and the lack of control from the central state or the local authorities. During the transition process, behavioral changes affected large aspects of social life, too. In a spatial planning perspective, the introduction of the neo-liberal doctrine manifested the superiority of free-market capitalism on the public sphere and interests. Consequently, territorial planning rapidly shifted into an uncontrolled activity at the central and local level, a legitimacy crisis concerned with the introduction of the new hegemonic paradigms like the market liberalization. It does not surprise that most citizens perceive planning as a distant activity where they are not involved. Precisely in this context of socio-economic and behavioral transformation that the informal activity has developed intensively. Since 1990, in Albania, as in similar contexts in the Western Balkans and CEE , the geography of stakeholders and consequently the power system changed. These changes can be explained through two perspectives. Externally, by focusing the attention on the exogenous actors and their interferences mechanisms. Internally, through an internal investigation of the system of the actors involved for a better explanation of the variation of power equilibrium within the Albanian system. A substantial difference emerged when two important actors came into the scene to change the system: international actors (including WB , IMF etc.) and private actors, too. In the new chaotic configuration of power, the international and private interests were key drivers on the definition of the new power equilibrium in the Albanian domestic context in the social, economic and political sectors.

Social housing tradition in Eastern Europe and in Albania

The East-European and Western Balkan countries, in particular, highly influenced by their respective socialist regimes in every field of social life, have undergone through identical and simultaneous processes of reforms to meet the EU full membership criteria (Tsenkova & Nedovic-Budic, 2006). Despite some of them achieved the full EU membership (exception made for the western Balkan countries), that does not mean that they fulfilled every standard and in particular the Social Housing did not preserve its importance in the planning processes and tools.
After the end of WWII, Housing shortages in the socialist countries were not only concerned with those who had lost their homes during the conflict but it became even more critic when due to the growing demand from the internal migration flow toward the urban centers. Large-panel dwellings (known also as prefabricated), revealed to be an efficient solution at least quantitatively. According to the 2011 census, in Hungary, there were 519.679-panel dwellings and 257.584 dwellings with middle/large blocks cast concrete, representing the 21.1% of the national dwellings. In the Czech Republic, according to the Census 2011 there were counted more than 1.2 million walls paneled dwellings hosting more than 2.7 million people or about a third of the country's population West Germany counted 500,000 apartments but there was no comparison to the 2.1 million apartments built in East Germany (Eli Rubin, 2011). Along with the downfall of regimes in the respective countries, also the implementation of this building system for mass housing ended, too. But the worst had yet to come because social housing stock was going to be lowered further because of the high privatization rates. According to (Pittini, Ghekière, &



	before 1945	1945-1960	1961 -1980	1981 -1990
Prefabricated	0	0	4.601	5.993
Brick or Stone	37.416	63.870	141.174	102.198
Wood	462	1.205	1821	1.273
Other	2.560	3.393	7.105	6.263

Figure 1: Dwelings in albania (source: INSTAT 2001)

Dijol, 2015), former communist countries that joined the EU have serious problems with social housing and high ownership rates if compared to west European countries like Bulgaria 81, 7%, Hungary 92 % etc.
Unlike the socialist countries mentioned above, Albania was more rural-like, where only about a third of the population lived in the urban centers. Population growth in most important cities of the country was programmed and controlled in relation to the national housing strategy. Despite being not a critic in comparison with the other East-European countries, providing a dwelling for everyone was difficult for the regime as long as the centralized economic model was established and the country was dependent from the aids of the strategic partners. The most economical solution at that time for the regime was the construction of the brick-layered dwellings but when the demand grew further the central authorities shifted toward prefabrication with the assistance of the Chinese government, the strategic partner of that time. According to the national statistics (Fig. 1), from the 507,180 dwellings in Albania 22,945 made by prefabricated panels, representing a small amount in comparison with the other East-European countries and this is justified with the low urbanization of the country. Political changes in Albania in the early 90s affected the state-housing sector as well. The public rental dwellings were about 35,5 % and within ten years it was drastically reduced to 1,0%, which means that 97,2 % of the state-owned houses were privatized (Whitehead & Scanlon, 2007). During 1993–2010, there have been invested ALL 13,903,000,000 (EU 99,307,142.85) in housing programs where the biggest part of the investments origin from the state budget (59.6 percent) and the remaining part from Donors and privatization funds (Dauti, 2014). Limited budget apart, social housing is constraint by public land availability. If the mean value of the vacant land owned by municipalities that can be used for building social housing units is 8,366 m^2, in the rural areas it is 77.000 m^2 (Dauti, 2014).
This issue is indirectly related with another important issue that is informal areas. According to the ALUIZNI , the total area of the national territory occupied by informal buildings is 19.300 hectares (ALUIZNI, 2017).
Actually, the government is involved in the legalization process which represents a big step toward the recognition of these realities that have been neglected in their beginnings and now are isolated frames in the edges of the most important cities like Tirana and Durrës. In fact, there is a bigger threat around the corner once the legalization process is complete which the free market transformation. To avoid this risk, that can increase further the social housing shortage, there should be a refocus of this issue at the planning tools and by taking in consideration the guidelines of the recently-adopted Social Housing strategy 2016-2025.

SHS 2016-2025. Social housing as an instrument for planning

The strategy represents a clear intent to reset the current system that revealed to have limitations and anomalies in the assignation criteria, scoring system, and cooperation between local administrative units. During 2005-2014 there have been registered 35,011 applications for the four social housing programs and it is evident that providing housing is difficult for the public administrations and most probably a matter of luck for the applicants. But the real responsibilities of the government and the local government units are related to priority given to free-market housing and the lack of control toward the illegally built houses.
Public-Private partnership (PPP) is considered fundamental for the total implementation of administrative measures for The Social Housing Strategy 2016-2025, amounting approximately ALL 7.3 billion and divided into two phases. About 78 % will be covered from the state budget for projects and subsidies for housing programs included in the action plan. A small part 0,4 % will be covered from the UNDP funds and the remaining gap 21.6 % from other donors. Efforts to involve private actors in the implementation of the strategy are necessary but they should not be considered as random investors. Social housing should not be seen as a governmental issue but should attract private investors as well because the more they will be involved the least will be the bill for the public.

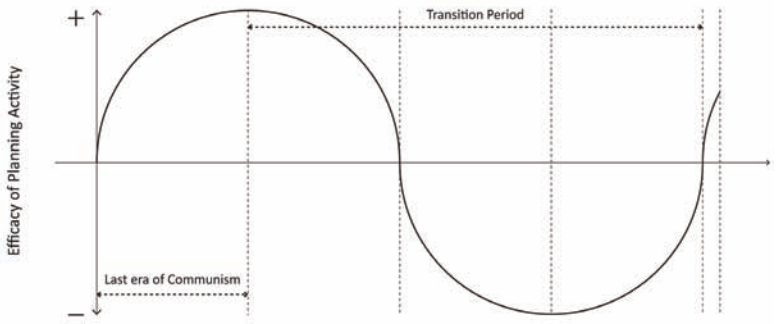


Figure 2: Correlation between spatial planning efficacy and social housing in Albania- (Source: the Authors).

As emerged, social housing in the East European countries was highly affected by the collapse of the respective regimes. In Albania, the issue of social housing has not been considered in the planning tools at national and local level. It is interesting to observe how the efficacy of spatial planning is directly influenced by investments on social housing (Fig. 2). There is a substantial convergence that links planning and social housing. By analyzing the Albanian case, it is clear how during the communist regime the investments in social housing (among others) increased the efficacy of planning activity, whereas during the transition period, the lack public investments of social housing coincided to the loss of credibility of the planning system. In that period, social housing as a social primarily need, has been replaced by private initiative, often contributing to the development of illegal practices.
After almost three decades of uncontrolled and unplanned territorial development, brought to the overexploitation of valuable agricultural land. In a regime of land scarcity and low budgets, the necessity to rebuild the social housing sector in Albania is evident as long as having a shelter is a fundamental human right. The reactivation of social housing as in instrument in the future planning tools should be the result of a debate above all. A synergy between public institutions; academic institutions and private investors could be very productive not only to spot the difficulties also to spot solutions above all. Academic representatives' support through their research activity can be the best "advisor" for the future investments in social housing for planning purposes. The Public actors, contrary to what has been done in the last three decades should not sacrifice public interest toward the private market but they should ease the stops of various nature that could threaten the success of the Social Housing Strategy 2016-2025. Private investors, considered as contributors for the implantation of the strategy, should be stimulated to invest in social housing and the encouraging examples in northern Europe are a good hope.

Conclusions

Imposing social housing as in instrument means to avoid the risk of private market transformation in the legalized areas. It will not only guarantee the possibility regain the necessary land to build Social housing but it will be a turning point for these areas, too. The transition process often underestimated, involved the entire social, economic and cultural sphere. As highlighted above, spatial planning and social housing sectors are undoubtedly influenced by the multi-dimensional transformation process. Despite the gravity of the situation, the Social Housing Strategy represents a big effort but not enough. What seems to be necessary is enhancing the debate between various actors involved that can only help further in order to implement the strategy correctly and to generate interesting ideas of how to recreate a fair and transparent system differently from the present.

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25 HISTORIC AND POLITICAL TRACES IN URBAN STRUCTURE OF EX-YUGOSLAV CITIES

Andrej Šmid

Abstract

In the history of ex-Yugoslav cities, there are only three different structural units that can be observed as regular and designed urban tissue entities and there are other, irregular urban structural forms. The regular structural forms are remains of planned city history and the irregular structural forms are remains of political permissive attitude towards city planning in the late 20th century. The paper is based on my doctoral thesis "Similarities of ex Yugoslav cities" that is being finished. The observation of around 100 cities in the ex Yugoslav area has been conducted in order to define if the socialist state of Yugoslavia, founded on the borders of two European empires (the Habsburg and the ottoman) has affected the cities in a way that could result in similarities of their urban structure. The basis of this comparative study was an observation of satellite images of cities. The main result of the study is that similarities exist, but they have to be interpreted "cum grano salis". Main cities that have been thoroughly observed: Split (CRO), Belgrade (SRB), Sarajevo (BIH), Priština (KOS), Maribor (SLO).

Keywords: ex-Yugoslav city, urban structure, urban development, urban history, formal and informal settlements.

Introduction

Tracing the official urban planning achievements in the former Yugoslavia and all the states that emerged from this dissolved state, one could easily conclude that massive urban developments changed the ex Yugoslav cities in a way that the history is not traceable anymore. Two observations apply here: the first is that the new developments rarely took more than a fourth of the existing urban tissue. The second is, alas, much more disturbing: the official urban planning developments occupied a minority of the urban developments that took place in the ex- Yugoslav cities: the majority of space consumption were irregular, nonofficial, organic, spontaneous, individual developments. The official and the unofficial reached their goals: they both changed the city images for an eternity.

The ex-Yugoslav city - official history

An ex-Yugoslav city is an urban form, developed through centuries of history but forged in the 20th century - the socialist city, designed and build in 1960es, 70es and 80es, has a unique official history. The official history shows the socialist city as the planned urban mechanism that follows the rules of the CIAM paradigma and until the 21st century, everyone followed this official history.
The city of Sarajevo could be the best example of the "urban planning dogma" since all the official sources follow the same explication pattern: the city is linear and was formed in an amphitheatrical setup in Ottoman times, then carefully expanded by the Austrians in the late 19th century and again even more carefully extended after the WWII in the sensible socialist city expansion that was ingenious in architecture and even more successful in urban planning. All the city developments are well planned and the city in the socialist period was developed and expanded by numerous public buildings on one hand and by the new well-planned neighborhoods on the other hand. Such urban planning history is made up. The existing city fabric as studied and observed in an attempt to find ex Yugoslav city similarities is recognized in the much more vivid state than through corny "official urban history" optics.
The socialist official urban planning fed itself on superstitious beliefs that the urban planning covers all the citizen's needs on one hand and the enormous drive of the rural inhabitants to the cities in the 1960es and 1970es. The socialist state of

Yugoslavia created an almost self-sufficient industrial production and the industrial workplaces were mostly connected to towns and cities. The quite ever-expanding industrial facilities powered a mighty residential development of almost any ex Yugoslav city and town and the rising cities expanded the local and state government apparatus. As the state became a very decent working and living environment and was fully transformed from mostly rural to mostly urban in only five or six decades (from 1920 to 1970), the city expansions were easily realized as residential developments. The official history of any ex Yugoslav city - be it Koper on Slovenian Adriatic coast or Osijek near to the Hungarian border, even of Prizren or Mostar or Ohrid urban developments - is defined by the "beautification": the city development official history shows outstanding monuments of medieval times, of Austrian "fluchtlinien" planning or Italian palazzo and piazza design, of ottoman square and open space design jewels, in some cases even whole city parts built in enlightened city planning periods (like Dubrovnik renaissance city core or Nikšić royal extension). This paper and my research of the cities mentioned in the ex Yugoslav region does not deny any of the "official" urban qualities and values in any way. The intention of my research is only to label the "official" urban history as the sincere "beautification" and "promotion" of the cities and of the "urban planning" apparatus.
Alas! The "official urban planning" and the "official urban history" is far from covering all of the city fabric in almost any ex Yugoslav urban entity. Even today, some two decades after the complete dissolution of the state that created a unifying credo of official city planning, the urban planners are stuck right to the former "official" city understanding. It was inevitable that this official vision of an official city was broken. Observing and evaluating the city shape and urban tissue on more than 50 ex Yugoslav cities, the comparison between them lead to numerous statements. Perhaps the most shocking observation is that in the majority of the observed cities the "official" or "regulated" city structures cover less than half of the city built areas. Majority of observed cities are up to 50% unplanned, some of them are up to 90% unplanned or "irregular" - these show only one or two major urban gestures of planned beautifications and some planned neighborhoods and not much more[1].

The "official city" structural periods

The observation of the city similarities in the region of ex Yugoslavia was started in studying the "official" city structural periods.
The most interesting result of these observations was the fact that the cities rarely have more than three big development structural units, they could be called:
The city core urban structural unit;
The "imperial" or "royal" urban structural unit and
The "socialist" urban structural unit.

The city core urban structural unit

The city core structural units are normal structures that date to Roman or medieval urban city foundations. There are roughly three core design principles in the observed region: the Roman provincial core, the western walled medieval core, and the Ottoman market town core. All of them are still traceable and the structures are readable in city fabric, although much more in the ex Yugoslav areas that were ruled by the Austrian and Austro-Hungarian empire.
The core period is the beginning of city development. It does not matter if the background is initiated by the Romans (Split, Belgrade), Ottoman reign (Sarajevo, Priština), southern Austrian provincial border government (Maribor) - the core is fully formed and developed at the end of the medieval age.

The "imperial" or "royal" urban structural unit

The "imperial" or "royal" urban structural unit is clearly readable in the western part of the ey Yugoslav state region. As before mentioned, the area was quite clearly divided by two neighboring empires:
The Austrian and later Austro - Hungarian on the western side, including the republics or states of Slovenia, Croatia (and after 1878 Bosnia and Hercegovina), and also region of Vojvodina in Serbia and

The Ottoman Empire on the southeastern side that included the republics or states of Serbia, Macedonia,and Montenegro. The "imperial" or "royal" urban tradition also covers the city developments of the Kingdom of Montenegro and some developments of the Kingdom of the Serbs, Croats, and Slovenes, later renowned as the Kingdom of Yugoslavia.
The "imperial" urban structural units are recognized by the "classical"[2]
Sometimes this period is called the "Gründerzeit" – the emerging of the civil society and the reforms that triggered the building of the public city facilities form the "classical city", distinguished by three city elements: the urban block, the square, and the city street. It is presented in the "dense" urban block form and the "garden" regulated suburban villa urban typology.

The "socialist" urban structural unit

The "socialist" urban structural unit is distinctively recognized by the urban developments designed and build in the period from 1945 to roughly 1995. They are bound to the architectural global movement of modern architecture, specifically defined by the famous CIAM Athens Charter. The socialist urban developments were pursued especially in the field of residential and public buildings and covered a coherent architectural and urban planning movement in all of the state of socialist Yugoslavia. The vast city developments were first started in Belgrade by building the New Belgrade (Novi Beograd) old city counterpart that was almost immediately followed by all the other cities throughout the socialist state.

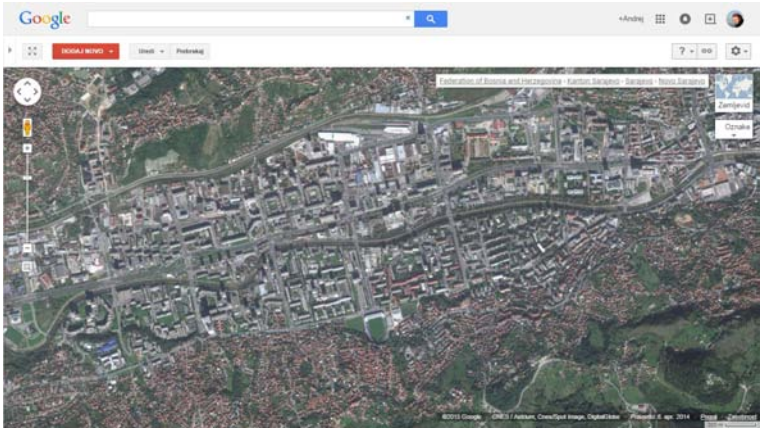

Figure 1: Sarajevo, socialist expansion and irregular/permissive outskirts residential structure on the slopes, Copyright Google Maps, ©2015Google, CNES/Astrium, Cnes/ Spot image, Digital Globe.

The conclusions that are triggered by the observation of the official, regular urban structures

The first distinctive attribute of a typical ex Yugoslav city is a clear respect of the historic urban fabric and the preservation of the readable historic layers. City developments are performed in a way that at least affects the existing recognizable structure and in a way performed similarly to the central European principles of city renewal and revitalization.
Following the historic layers means that the cities of former Yugoslavia have preserved an exquisite readability of the urban fabric.
The proof for the unity of the "preservation of historic layers principle" lies in the fact that it does not matter what the historic layers are – be the ancient Turkish structure of the Tophane city part of Priština or the central European city core of Maribor, the remains of the Roman Diocletian palace of Split or the Sarajevo's Baščaršija Turkish city business core with the mahala structures around it, be the Austrian "Gründerzeit" closed city blocks in Belgrade, Sarajevo or Maribor.
In this way, a sensible balance between old and new is achieved and it distinguishes the ex Yugoslav cities from most cities in the Eastern Europe neighborhood.
Perhaps it lies in the fact (or represents it) that the inhabitants of the former state never took any government or ideology for granted.
Apart from the glorious days of the urban modernist developments of the after 2ndWorld War urbanization, it is impossible to overlook the two principles of city understanding. As Miloš R. Perović confronts the two city principles, the "classical" city, and the "functional" city in a harsh critical way, the reality shows that the city development and renewal have been done simultaneously.
Almost all the city developments in the former state oscillate from "functionalist" to "classical" right one after another or even simultaneously. The important fact is not the nature of development, but the understanding of both principles at the same time: on one hand the "brave new functionalist city" in the sense of the Athens Charter was built and right across the river the old classical city core was renovated.

Such a cohabitation of two procedures in urban planning was not possible in Sofia or Kiev and on the other hand, large modernist urbanizations that created a duality between the new and the old city were out of the question in Graz, Vienna or Basel.

The ex-Yugoslav city - the other, unofficial history
"Takva ti je u nasgradnja"[3]

The sincerity of the users is best shown in the urban areas that have been growing since the functional city developments "in the shade" of the big functional city extensions. As the urban planners of the 20th century turned the blind eye to it, it grew to a status that was causing professional panic and was revealing the modus operandi of the planners on one and inhabitants on the other side.

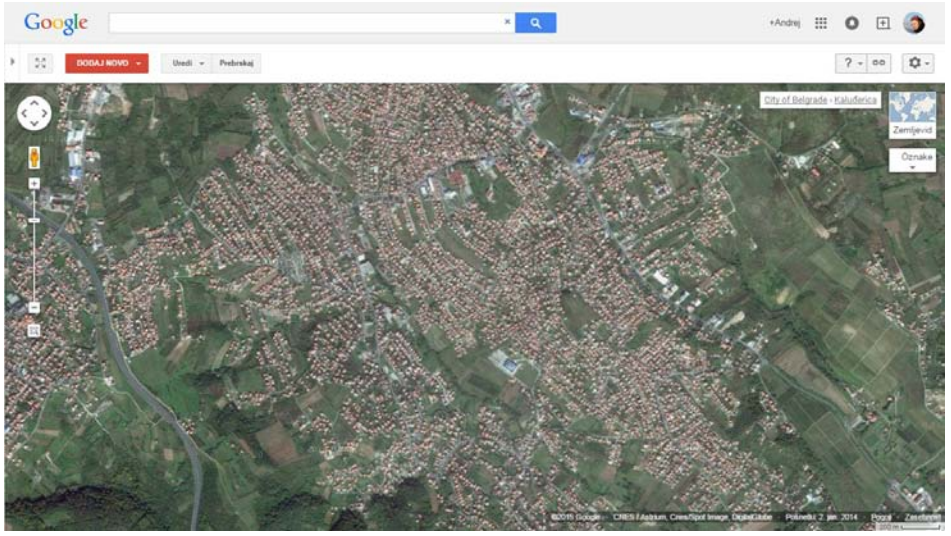

Figure 2: Kaluđerica, the irregular unplanned Belgrade quarter. Copyright Google Maps, ©2015Google, CNES/Astrium, Cnes/Spot image, Digital Globe.

The non-regulated urban developments are a fact that cannot be ignored: they show the other side of the social mechanisms, the built "dark side" of city planning and managing. It cannot be solved in the framework of the theoretic apparatus of the 20th century.
Apart from the shiny beautiful "official" city developments, every ex Yugoslav city has its irregular, spontaneous, unofficial city parts. They are well hidden from the glamour of the "official" city, but ever existing as "problematic" urban structures: they are connected to insufficient or inappropriate communal resources, do not have appropriate cultural, educational, social and health infrastructure and are "ugly by architectural design" since the urban design rules do not apply or are strictly not respected.

The appearance of vast irregular city parts reveal that the "self-made" residential buildings were in fact "turning the blind eye" political gestures that allowed the lower social classes or the third class citizens to easily acquire cheap land plots (mostly planned as agricultural areas) and build whatever they wanted in unplanned areas - mostly without obtaining building permits (and normally not even asking for them). The unplanned unofficial areas were mainly never admitted bastard children of the city governments - the political leaders either knew that there has to be some kind of quiet agreement in order to keep social peace of the most radical lower classes or showed that the urban planning issues are much less important than the issues of national security, national existence, national pride or national appearance.
The importance of city planning is also revealed as two-sided: on one hand the politics is keeping the setup of "official urban planning" in power through legislative mechanisms (laws, plans, rules, obligations, building permit mechanisms, urban planning practices and city/state urban planning apparatus) and on the other hand the politics of all the states that root in ex Yugoslavia grant the citizens so-called "legalizations" i.e. abolitions in an almost regular period of approximately every two decades: the irregular illegally built residential buildings can be "legalized" although build wrong and without respect of any urban planning document. It is very clear that these actions are not professional procedures triggered by the urban planners - the "legalizations" are actions taken by the governments, mostly to reach for new votes in the coming election[4].
Legalization is not an urban planning issue - it is clearly a political issue on the local and state government level. The bizarre fact is, that the legalization is the only connecting point of the "official" and the "unofficial" urban planning, although the "legalization" of the "unofficially" built structures does not make them "official". The buildings get building permits, but

that is the endpoint of the attention the unofficial city structures are getting from the governments[5]. It is like giving birth certificates to orphans but at the same time denying them the right to education.
The failure of the urban planning system and the urban management apparatus is the fact that the "legalization" does not improve the living standards of a neighborhood in any way. The unofficial irregular city parts remain the unplanned areas and the legalizations are pointless.
Lijepa sale lijepo gore - a ružna ostaju ružna čak i kad gore[6].

Conclusions: First phase conclusions

The urban planning in the states that followed the deconstruction of Yugoslavia left a legacy of five decades which shows undoubted ideological, aesthetic, functional and procedural similarities realized in common architectural and urban heritage, but faces the new states and cities with almost identical problems. The largest of them is the one that caught the city governments without experience: cities are being reorganized, redesigned, upgraded and renovated, but in most cases less and less inhabited: the demography shows that almost no new city extension is really justified since the population growth is very poor and other needs for the city reorganization almost fulfilled and completed in the last two decades of so-called transition.
City development was a first-class political promotion. The results of city development were filtered and carefully used. City life and hidden development have been much larger than the promoted development. Traditionally the Yugoslav cities emerged from two urban planning traditions: the Austrian and the Ottoman Empire un official reached their goals: they both changed the city images for an eternity.
The role of the architects has changed from 20th to the 21st century. The „planning"and „engineering"of the city development is no longer a creative activity. It is merely a service activity. City developments can be first class political promotions. The results of city developments can be filtered and carefully used. City life and hidden development are much larger than the promoted developments.

Conclusions: Second phase conclusions

Additional checkup:
For clearing the principle of city core development, additional cities were taken into consideration. The results of the additional city checkup show that there are two principles of "entering" the city structure by the new "socialist" developments.
There are two traditions of city building in the ex Yugoslav region. They are connected to two urban planning traditions of the two empires that were ruling the region around the year 1900. The socialist city extension developments treated the Austrian imperial structures differently as the Ottoman imperial developments.
Additional, more coherent conclusions were stated:
After an additional check up the similarities of the ex-Yugoslav cities can be derived to three observation levels and the next conclusions can be stated. The city development tradition in ex Yugoslav cities reveals: three development periods:
a- Core period;
b- Imperial period;
c- Socialist period.

Figure 3: Priština, city center, the modernist intrusion into an old ottoman organic structure, Copyright Google Maps, ©2017Google

Two city structural modes are revealed:
i- Regular city structure;
ii- Irregular city structure.
Two basic traditional intrusion mechanisms are pinpointed:
1- The intrusion of socialist developments into the Ottoman structure;
2- Addition of socialist developments to the imperial structure.

Conclusions: Tasks for future research

The 21st century offers multiple ways to access the solving of this popular, so contemporary, so infinitely appealing and politically rewarding phenomena. The 20th century qualified it as "illegal" homebuilding, but the altered position of the architect and urban planner in the society presents it as a new challenge - to research, analyze, decide and design to create dense, irregular, vivid built areas as separate parallel urban realities aside of the big city stories. Since urban planning lost its role and lacks the triggering power for new development periods, a new strategy of urban management will be invented.

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Notes

[1] *The most irregular are some cities in Macedonia since the ottoman urban planning principles were not recognised in the socialist period, but even whole cities like Subotica or vaste parts of Belgrade or Sarajevo reveal urban tissue that is completely irregular*

[2] *As understood and described by Perović (2008).*

[3] *Explanation, could be translated as "This is the way it is built in our neighbourhood" by Emir, the neighbour why the irregular urban structure inhabitants know everything about their neighbours, from the movie "Kod amidže Idriza", director Pjer Žalica, Bosna and Hercegovina, 2004, Academy award nominated in 2004*

[4] *The actual Slovenian government has inserted the "legalisation" into the urban planning law change in december 2017, the law is to be valid on 1.7.2018 and the parliamentary election is to be held between 31.5. and 17.7.2018. The last "legalisation" has taken place in 1993, in the spirit of the "fresh independence". Serbia, Croatia, Macedonia and Kosovo have also implemented "legalisation" procedures in everyday life since the last decade.*

[5] *The most sophisticated institution to help legalisations is invented by the Croatian government: the "Agency for legalising the illegally built buildings" (Agencija za ozakonjenje nezakonito izgradjenih zgrada) is a governmental agency, that helps the local governmental units to "legalise" buildings in an unified timespan throughout the state of Croatia. The agency is founded by the ministry of spatial planning of Republic of Croatia in order to finish the "legalisation" of 2013 in time. The Croatian legalisation law was passed in 2012 but the legalisation was not finished until 2017 so a new legalisation law was passed in 2017. In Serbia, a separate "Building object legalisation law" was last passed in 2017 allowing almost every residential building to be legalised. All the legalisation laws are presented by the Ministries of spatial planning.*

[6] *https://bs.wikiquote.org/wiki/Lijepa_sela_lijepo_gore, 11.2.2018*

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MANAGEMENT OF LAND INFORMATION IN ALBANIA

Gjergj Thomai, Endrit Tuzi, Iva Mëzezi

Abstract

This article discusses the context of management of land information in Albania. It describes the current state of the land information and evolution over the years.
After years '90-s the demand for land, especially served with the infrastructure increased tremendously as a result of economic and political changes in Albania, a combination of strategies, poor housing conditions, seeing both as a financial security of this investment, development of private industry and the rapid growth of urban population.
Widespread reforms were made to privatize the land and open the land market in Albania. However, after these years, the most common main problems facing the government and cities are: (i) Lack of land, especially land for urban service; (ii) Lack of planned interventions and norms and urban information system for development; (iii) Non coordination to finance the main infrastructure between its agencies and local authorities; (iv) Delay in returning land to former owners.
The information that our institutions have in our country is fragmented, so difficult to understand and harms resource management. This fragmented information has had negative effects on the management of investment funds.
The preparation of this material comes after a long research and experience and has also been supported by major studies by the World Bank, Eurialius in Albania, and other important international institutions related to land administration issues.
The main challenges are the analysis, assessment and consideration of existing problems affecting the land information, to assess the possible directions towards its institutionalization in a more formal framework and to improve government intervention in their performance.

Keywords: Land, information, management, market, administration

Introduction

In 1993, the United Nations Economic Commission for Europe (ECE) undertook an initiative to strengthen land management skills, mainly for the countries of Eastern and Central Europe. The main goal was to identify current needs and problems related to land administration in these countries and to give way to the establishment of the administration system and the land information system, based on the experience, methods, policies and procedures of land administration of developed countries.
For this reason, a guideline was prepared which defines land administration as a process through which land and land information can be effectively managed. The guideline is based on the assumptions that:

- Food and shelter are basic human needs;
- Property security is essential for an effective development policy;
- Safety in the legal status of rural land is essential for effective agricultural production;
- nvestors in a market economy require a formal structure of land and property rights;
- Sustainable development depends on the government that has a full responsibility for managing the property ownership, value and use of land;
- Both land and land information are resources that need to be managed well in order to achieve an economic growth.

Based on these assumptions, the definition of the Land Administration has been formulated, with which we understand the processes of defining, documentation and propaganda of information on the property, value and use of land during the implementation of its management policies.

Today's situation related to land administration

During this period, the registration system is consolidated, several legal packages were adopted on their functions but only that. Unfortunately, there was no further work on reforming urban and forest cadastre.
The process of restructuring and the establishment of an effective administration system has been slow for several reasons, which I will highlight:

- Myopia of decision makers (they have never understood what this system is and what benefits it brings);
- The structure of governments (I have always thought that governments have had a structure that serves political interests and solving the problems of moment. Managers of ministries have directed their institutions towards executive problems rather than policies);
- Institutional interests. (Managers of institutions have never accepted to issue competencies although with that form of organization they have not been able to accomplish them);
- Lack of funding and low efficiency in cases when they are insured. (Without knowing the problem it has not been attempted to find funding sources).

In order to realize the purpose of land administration, it is necessary to set up a land management information system also efficient and professional institutions.
The experiences in this regard are different. In many countries, administration institutions are divided according to the appropriateness of economic activities. Overall, this way of organization is in those countries where the main departments, apart from policies, perform executive functions. Eastern countries are typical in this matter which have made essential changes for the sake of truth.
In many other countries where the organization of the territory is not divided by economic activity but is considered as a whole there are established institutions with functions that administer the whole territory. Typical examples are Sweden, Germany and Italy and so on. The experience of developed countries, also reflected in the guidance, has shown that success in resource management has been achieved when they are considered as a whole (not just rural land, urban land, forests, etc.), so it is used the phrase administration and management of territory or resources.

How is the situation of institutions in our country

In each municipality there are registration property offices. These offices have information on any private property, land, buildings, pasture land, etc. This information is based in the form of registrations and maps (mortgages and topography).
In each municipality there are Administration Land Offices which according to law should have detailed information on other land attributes. The information they currently have is based on parcels rather than on private parcels. While multi-purpose information is not improved. In each municipality and district there are urban cadastres which treat only surfaces that are within boundary lines. Even in this cadastre the information is based on parcels in the geodetic sense and is not based on parcels private ownership.
There are forest and pasture cadastres in every department of forest in the districts. These cadastres keep the information only in the form of maps and other attributes of forests and pastures.
These institutions have the same principles but are depending on the different departments.
The information that our institutions have is fragmented, difficult to understand and it harms resource management. This information fragmentation has had negative direct effects on the management of investment funds.
Based on above mentioned issues, the information must be unified and multi-purposes.

Legislation

If we make a revision of current legislation on resource management (in land administration theory we mean the land in general and everything placed on it) we will notice gaps technically easy to repair but practically difficult as a result of those we have discussed above. Current legislation does not have a direction, e.g. in terms of decentralization. The registration office depends on the Ministry of Justice, Land Administration and Urban Planning Offices (where urban cadastre is included) are county and municipal structures, forest cadastre currently depends on the Ministry of Environment etc.

Albanian legislation has a conflict of competences and procedures and as a result of lack of information. Albanian legislation has a clash of definitions.
These and many other gaps are a result of non-coordination, non-functioning of the existing form of organization and the inefficiency of the current system of information lead to the application of the experience of many developed countries for the preparation of the "Land Code" (understands the all resources).

Land information system

The function of the land information system is to support land management. Availability of good information can prevent mismanagement and bad decision making. The action of a land information system summarizes the acquisition and collection of data; data processing, storage and maintenance; their correction, analysis and propaganda.
There are some different categories of information systems which can be classified. These include systems which provide:

- Environmental information,
- Infrastructure information,
- Cadastral information,
- Socio-economic information.

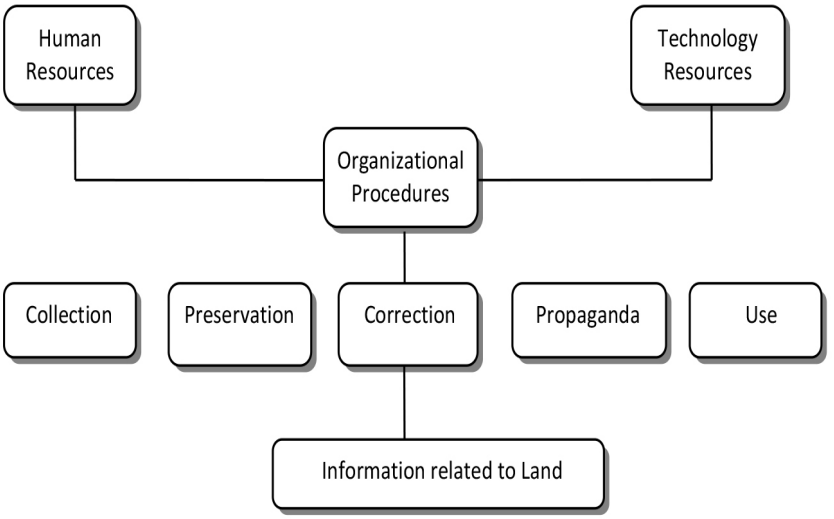

Figure 1. Systems of land information

Cadastre

The main function of a cadastre is supplying data on issues such as land ownership, value and use.
There are three cadastral categories commonly known: the legal cadastre, which serves as a legally recognized land tenure registration; fiscal cadastre, which is mainly developed for fiscal purposes; and as it is called a multi-purpose cadastre, which circles both. Multi-purpose cadastre is closer to the universal concept of land information system. Multi-purpose cadastre is also independent of the administrative structure. It can be centralized, decentralized, or both, and it can be implemented by one or more local, regional, and national level agencies.
In multi-purpose cadastre there are included some cadastres, urban cadastres, forest cadastres, or, in summary, cadastre of land attributes. This cadastre needs to adapt the information from the existing unit to private property parcels information, to any property. The multi-purpose cadastre should include all immovable properties such as agricultural land, urban land, forest, buildings etc. This cadastre should reflect multi-purpose information for a property that is partially existing but is distributed, and to improve it with other attributes. The attributes that will be reflected are technical and will reopen the range of information (e.g. land use, agro-productive land capacity, agro-pedological content, wealth value, age of forests, tree capacity, pasture capacity, endangered areas, etc.)

Creating such an institution will:

- Guarantee the right of ownership and security of property;
- Supports taxes on land and other immovable property;
- Provide loan guarantees;
- Develop and monitor the land and property market;
- Maintaining state lands;
- Reducing land-based conflicts;
- Facilitate land reform;
- Improve urban planning and infrastructure development;
- Supported environmental management;
- Provide statistical data.

Land information management

There are a number of recommendations regarding the presentation of data in the cadastral system related to land information management including:

- Obtaining data that is the most costly part of building cadastral information systems;
- Immovable property data has been used by many people and organizations;
- To ensure an optimal use of data it is necessary to define a minimum data core;
- To avoid duplicate recording of basic data, it is important to meet user requirements;
- When data collection starts, it is important that an update process be installed at the same time.

The information system is the basis for success in implementing management policies. Such organization of the institution will enable:

- The information will be detailed and unified, the information will go to the property unit;
- The information will be multi-purpose, written, in the form of maps, to reflect ownership, to reflect the origin of property, to reflect as many attributes of property (quality, value, use, environmental values, risks that are threatened etc.);
- Information will be open, meaning that every person will have access to information at the administration institution;
- Information will be easy to understand.

Legal aspect

The organization in the proposed form of the system will enable:

- Eliminating the defects of the current legislation described above;
- Unification of procedures and rules related to resource management;
- Improve legislation according to EU requirements;
- Raising the level of legislation up to the Code level;
- The establishment of such a system will have monetary benefits (goes to self-financing and contribution to the state budget) and other benefits that go beyond the first.

The benefits of the system derive from the application of its information to:

- Asset management;
- The transfer of ownership;
- Securing the lending;
- Demographic analysis;
- Development control;
- Assessment of the impact on the environment;
- Land market analysis;
- Ownership of land and property;

- Taxation of land and property;
- Monitoring of statistical data;
- Physical planning, etc.

Beneficiaries and users of such a management system are:

- Mostly governmental institutions that deal with policies such as Ministry of Agriculture, Urban Development, Environment Protection, Finance, Tourism, etc.
- Private Sector. Architects, banks, construction firms, economists, engineers, farmers and foresters, financial and insurance advisors, attorneys and notaries, marketing specialists, planners, valuers, managers, real estate agents etc.

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INFORMAL SETTLEMENTS AND PLANNING NEW URBAN BLOCKS

Kaltrina Elezi Kuliqi, Agron Kuliqi

Abstract

Informal settlements are a major problem in the urban life and urban planning in several countries in the Balkans. Poverty, poor planning policies, the disregard of the existing situation while planning, or planning from the office, are some of the reasons which have brought to the appearance of informal buildings and settlements in the past, and continue to appear every day.
In Macedonia, in the recent period (2011), the Parliament has come up with a law to legalize the informal buildings, be it residential, retail, office buildings etc. as a way to solve the formal problem of the buildings as a property. As a result, a big part of the informal building have been legalized, and there were made some announcements that there is going to be a second term for legalization, which will take part in the beginning of 2018. Meanwhile, no account has been taken on providing those settlements/ areas with infrastructure, recreational areas, social buildings etc.
However, even with the law of legalization, the trend of building illegally, even if has slowed down, it hasn't stopped. Which way should we act in order to stop this trend and stimulate people to build properly and legal wise?
This paper gives an insight of the legal matters of the legalization process, a statistical analysis of the trend of building legally/ illegally and the impact of legalization. A case study is taken in one of the largest cities in Macedonia, Kumanovo, where we have proposed planning a new residential block in an area surrounded by informal buildings, as a way to prevent future informal expansion.

Keywords: Informal settlements, legalization, planning, residential, building trend

Introduction

Informal settlements are a major problem in the urban life and urban planning all over the world. Poverty, poor planning policies, the disregard of the existing situation while planning, or planning from the office, building without following the legal procedures, are some of the reasons which have brought to the appearance of informal buildings and settlements in the past, and continue to appear every day. The same case is with several countries in Balkan.
When we speak about informal settlements, we refer to residential areas where:

- Inhabitants have no security of tenure vis-à-vis the land or dwellings they inhabit;
- The neighborhoods usually lack, or are cut off from basic services and city infrastructure;
- The housing may not comply with current planning and building regulations, and is often situated in geographically and environmentally hazardous areas.

Characteristics and causes

Informal settlements are characterized with poverty, lack of formal urban infrastructure, lack of public spaces and services, insecurity of ownership, risk of eviction, and often even violence and crime. In the case of Brazilian favelas, while 23- 24% of Rio's population lives in favelas, 37% of the favelas is controlled by drug traffickers (according to a study conducted by 2013).
People who live in informal settlements often face socio- spatial exclusion or marginalization because of the place they live in. That disadvantage comes as a result of not being able to use resources or establishments that help their wellbeing. Another characteristic is the environmental injustice towards the dwellers, who are exposed to pollution, poor

infrastructure, lack of formal roads and streets, drainage, sewage and water systems. The infrastructure is done with the communal investment of the residents, it is often provisory and does more damage to their ecosystem (ex. In the northern part of Kumanovo, the sewage system is connected directly from homes to the nearest river, thereby the once clear and swimmable river is polluted and dirty).
The settlements can be informal in different levels, such as:

- Being built on a land intended for another use;
- Not conforming to all the required standards laid down for that part of the city;
- Not applying for a building permit or building inspection;
- Being built on a land which is owned by other owners and not the occupier.

Informal settlements are caused by several factors starting from population growth, rural- urban migration, the lack of affordable housing for the poor, poor policy making by municipality offices, poor analysis of the city development trends and lack of interest to deal with the results, low economic development, low income, discrimination and marginalization, migration because of natural disasters etc.

Informal settlement in south-east European countries: socio-political context, natural and other factors

During a period of 10 years, (2000-2010) the percentage of people living in slums has decreased from 39% to 32% . While there is a significant improvement of the living conditions of people living in informal settlements, still, almost one fourth of urban population continues to live in poor neighborhoods. With the population increase, the number of people living in slums has grown immensely since 1990 (as a result of the global population growth). The same case is with most of South-East European- Balkan countries, which are a subject to this paper.

A stage of a post- communistic country: the case of Albania

In Albania wee meet the case of a post- communistic country, where during the regime, around 80% of the population used to live in rural areas. The country has undergone immense political, economic and social changes, since the fall of the regime in 1991. Here we meet an intensive flux of migration from the eastern to the western coastal side of the country. As a people who has "forgotten" the concept of ownership rights under the regime's ideology, and lack of land regulation plans, the migration rates are extremely high, at a rate of 20 dwellings (in an apartment blocks) being built daily in Tirana (1991-1997).
The second phase, consists of creating informal settlements in the suburbs of the city. Now Albania in experiencing the third phase, which involves the formalization of 350 000 buildings and improving the infrastructure.
The challenges that Albania has to meet are: lack of connection with basic formal infrastructure; public and social services; poor road conditions and urban transport; lack of property ownership documentation; illegal occupation of land.
The reaction of the government towards this problem has varied: from ignoring the problem to demolition, to finally legalization as the needed approach for economic development, social and environmental stability, and overall improved image of the country.

A post-war setting: the case of Kosovo

Informal settlements have been a widely spread phenomenon in Kosovo. In the Kosovo municipalities there are 174 identified informal settlements, or, 25 629 buildings, with 5.8 residents in one house. These settlements are of urban typology 44% and rural 56%.
They are mainly characterized with: informal and uncertain ownership of land; inadequate access to main sevices; lack of physical and social infrastructure; are often built by parcel owners. In other cases, the residents don't have a document of ownership. These settlements are mainly built in areas where there isn't any regulation plan.
The next factors are considered as the cause of appearance of informal settlements in Kosovo:
Quick urbanization- since 1970 there is a big economical expansion, which results in rural- urban migration (especially near factories, or within their territory), achieving such a high rate that the existing infrastructure has become insufficient.

- Lack of land management in due time- In the past, the municipality had the right of allocating construction land to people and firms, but most often to public employees. This left the poor without the chance to fulfill the right to build a proper house within the city.
- Lack of effective management of spatial planning and control over the developments of spatial and urban plans during 1990-2010.
- Lack of adequate housing policy- during the war of 1998/1999, 120 000 houses were fully or partially damaged (27% of the total housing in Kosovo at the time). By the end of 2002, 60 000 houses have been rebuilt by international donors, and a considerable number by self- financing. Left under self- mercy and without any social support, a part od the citizens had to build where it could, gaining land and residence in the informal market, mainly in unplanned locations, and sometimes in stranger or public land, which has resulted with further development of informal settlements.
- Lack of human, financial and technical resources, central and local

In Kosovo, there have been certain activities from different organizations, mainly UN Habitat, as: adjustment of some informal settlement neighborhoods, adjustment of infrastructure, compilation of strategy for infromal settlement managment, preparation of legalization law. While the first few acts are giving some good but slow results, the legalization law has already been proclaimed by the government as a failed process. This comes as a result of: complicated procedures, high cost, lack of ownership certificate (confiscated by the ex-regime during the war).

A touristic setting: the case of Greece

In the case of Greece, informal housing activity was associated with some significant rural- urban migration movements as well as the failure of the state to meet the extensive demand for shelter by the incoming population.
The low incomes of the newly arrived population prevented them from acquiring a proper shelter. With the urbanization, the property and urban land price has increased immensely, the government spatial planning policies and the private sector failed provide the poor with basic shelter. Therefore the result was the appearance of informal settlements and housing in distant areas far from the formal city and land- use plans. Here we meet three categories of informal buildings: 1) low- income households close to urban centers and ex- urban areas, 2) luxurious houses in coastal areas and distant areas, 3) illegal business buildings.
A legalization process has taken part from 1983 to 1995, when most of the buildings of the first informal phase were legalized (which were built immediately after the war- here emerges the typology of polykatoikia).
The second phase informal settlements comprises of middle class individual land owners, land investors, investors in tourism, middle and upper class owners of vacation houses, instead of poor people obtaining a shelter. The majority of these buildings are being developed in coastal zones, islands, areas with environmental value.
The characteristics of informal settlements in Greece are different from those of third world countries. Despite numerous legislative reforms, informal housing has continued to grow.

The post- socialistic state: the case of Serbia

In the case of Belgrade, in an area of previously socialist country which has been on recent civil wars, informal growth comes as a result of economic and planning conditions, the rise of migration from other areas of Serbia towards the capital. The informal settlements often occupy previously rural areas, and make 43% of total housing area in Belgrade.
The problem of illegal constructions in Serbia often complicates systematic registration procedures. Even if it doesn't endorse construction without an approval, the Real Estate Cadaster and Registration Project in Serbia in the last few years has been documenting and registering illegal construction. In this way it has a more complete record of the urban landscape.

Prone to natural disasters post- socialist state: the case of Macedonia

In Macedonia we see the case of a post-socialistic country which, even before being constituted as a state, has undergone

certain natural disasters. In 1962 there was a big flood of Vardar River, which affected several cities and villages, with 1050 houses ruined, 157 buildings flooded and 4445 citizens left under the open sky.
In 1963 a massive earthquake occurred in Skopje which destroyed 28 000 homes and 15 000 apartments, and left 200 000 people without homes. 80-85% of the residential area were destroyed.
The world arena intervened helping to rebuild the city and life in Skopje, starting to name it as the city of international solidarity. There was an international competition for a new urban plan for Skopje, which was commissioned to Japanese architect Kenzo Tange, and is only partially implemented. Due to international monetary and other form of help, new residential blocks were built, in the form of detached apartment buildings, residential towers, barracks etc.
Despite that, social housing was inefficient, and people started building houses on their own. By 1981 about 160 000 citizens lived in self- made houses, considered illegal, because of no ownership rights, or land-use rights .
With the lack of social stability, rapid rural- urban migration, poverty, lack of housing policy, unclear property rights the expansion of illegal development continued also in other main cities in Macedonia.

Legalization

In Macedonia, in the recent period (2011), the Parliament has come up with a law to legalize the informal buildings, as a way to solve the formal problem of the buildings as a property. As a result, a big part of the informal building have been legalized, and there were made announcements that there's going to be a second term for legalization, which will take part in the beginning of 2018. Meanwhile, no account has been taken on providing those areas with infrastructure, recreational areas, social buildings etc.

Legalization: Definitions

According to the Macedonian law on dealing with illegal constructed facilities, illegally constructed facilities represent buildings of local importance to the republic, buildings of local importance, and medical facilities for primary, secondary and tertiary medical protection facilities which are built without a building permit or contrary to the building permit, in and outside the planning range, also annexes and upgrades of the previously mentioned buildings.

Legalization: statistics

Table 1: Statistics on illegal constructions durin 2005-2016, author

YEAR	ILLEGAL OBJECTS (total)	BUILDINGS	RESIDENTIAL	MAINLY RESIDENTIAL
2005	2073	877	456	108
2006	2258	907	509	86
2007	2507	964	574	78
2008	1946	728	453	30
2009	1818	734	434	46
2010	1630	673	360	27
2011	1412	368	274	66
2012	1403	215	169	36
2013	1275	247	222	13
2014	1075	196	184	7
2015	1061	232	218	11
2016	1037	203	170	12

In the following Table 1 there are set the statistics of the trend of illegal buildings 2005-2016, taking as a factor:
- The total number of illegal buildings, which includes: buildings, annexes, garages, fences, terraces and stairs.
- The number of illegal buildings, which includes: strictly residential buildings, mainly residential buildings, only offices and recreational buildings.

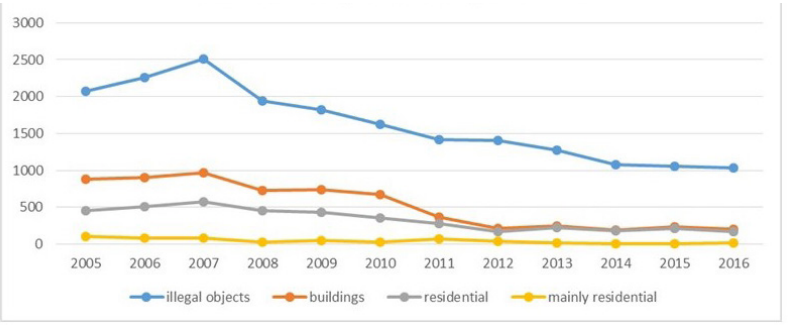


Figure 1: Diagram of informal building trend during 2005-2016, author

From the chart above we can notice a growth of illegal buildings by 2007, with a gradual decrease up to 2011, when we notice a drastic decrease, or a reduction to half (regarding buildings, residential buildings and mainly residential buildings). This leads us to think that, with the entry to power of the legalization law, there is a certain self-restraint of the citizens from building illegally. This most certainly because only the buildings which are finished by March 2011 could be a subject of the legalization procedure. Nonetheless, even with a gradual decrease, the trend of building without a building permit has continued until 2016, when the last statistic was generated.

Table 2: Statistics on approval of building permits in Macedonia in relation to illegal buildings yearly from 2008- 2016, author

YEAR	Approved permits for high buildings	Illegally built high buildings
2008	2817	728
2009	2441	734
2010	2170	673
2011	2007	368
2012	2054	215
2013	1751	247
2014	1830	196
2015	1938	232
2016	2076	203

In the table above there are represented the data of approved building permits in R.M. for high buildings, in relation to illegally built high buildings (without a building permit). The data are generated in the online database of the National Institute for Statistics of the Republic of Macedonia.
According to the chart below, we can notice that the ratio of illegal buildings towards approved building permits has been quite high in 2008 (1:4), but falls quite much after 2011 (1:10). We can observe that even while there is a constant trend of approval of building permits, in a gradual but slow rate the number of illegal high building decreases.

Possible approaches for solution

Upgrading through creating a common architectural language

By the term upgrading we refer to the measures to improve the quality of housing and providing the necessary services and infrastructure to the informal settlements.
The upgrading would involve physical improvements to the built environment, by providing infrastructure such as: water supply, electricity, sanitation, waste collection etc., which in most cases of informal settlements are not provided or are done provisionally.
Additionally, services as: retail, offices, recreational, educational could be provided, in order to improve and incorporate the residents to the normal cycle of city life.
In 2010- 2011, the Berlage Institute has done a

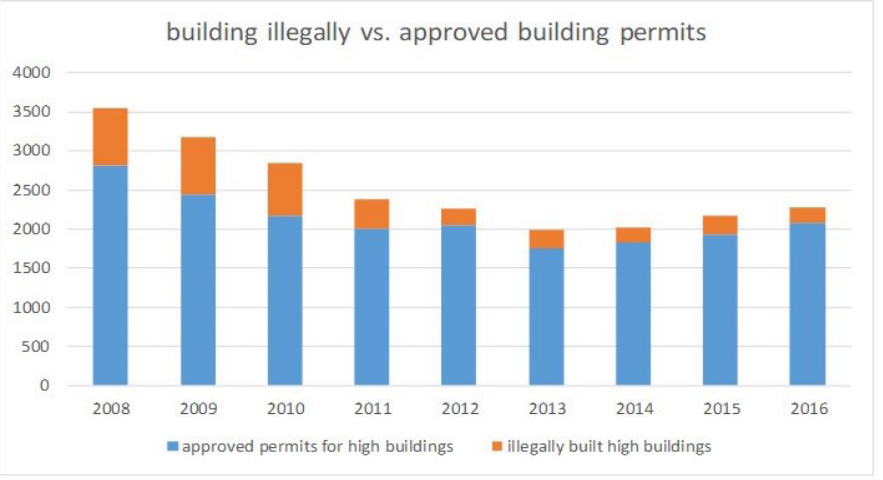


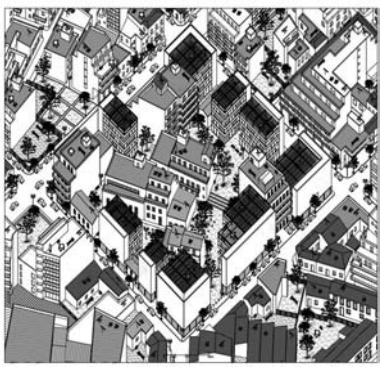
Figure 2: Diagram of building illegaly vs approved building permits, during 2008-2016, author

study of the built residential structures in Athens. Most of the residential fund of Athens is consisted from the archetype of polykatoikia, which is a multistory apartment building of the Athenian bourgeoisie, which combines advanced industrial solutions with low-skilled manual labour (like the domino) . The main goal of the study was to find architectural methods which would be applied, in order to create a new architectural language of the existing residential blocks.
We propose to apply the tactics suggested by Berlage institute, not just to create a new architectural language, but at the same time to provide the informal settlements with the infrastructure and services it lacks, as it follows:

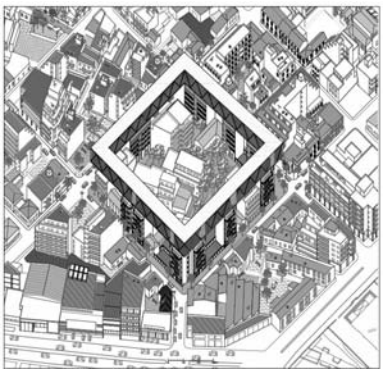
a. Wall- building walls in the empty spaces, thus enclosing the block, and creating a courtyard. The interior of the walls would have buildings, which would situate the necessary services, create a perimeter block and give the informal structure a formal appearance.

b. Entablature/ polykatoikia- adding an extra rooftop floor in the perimeter of the settlement, thus creating a readability as a block. The rooftop and the interpolated 'towers' would house the necessary services.

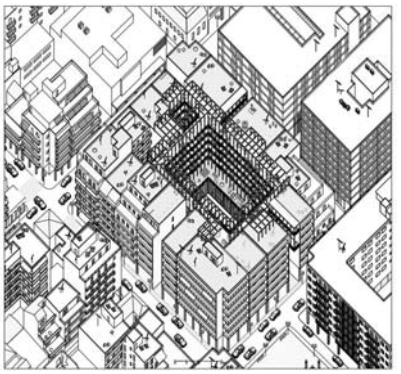
c. Cloister- adding shared balconies in the inner side of the buildings, thus creating a courtyard which would become a cloister, a collective space for the residents. The ground floor could be filled with services which the existing informal settlement lacks.



3. Figure 3: Wall



4. Figure 4: Entablature



5. Figure 5: Cloister

In this way the informal areas would be gradually improved, formalized and incorporated into the city.

Re-evaluation of existing urban plans

As a second measure, we propose that the government/ municipality authorities' re- evaluate the existing urban plans and adjust them to the trend of building, and the needs that have emerged with time. This could be done, if the authorities:

- Update more frequently the cadastral plans (through electronic GIS portals etc.), by adding also the illegally built structures/ informal buildings,
- Detect the legalized buildings, previously informal
- Detect the informal settlements and distinguish the ones that lack proper infrastructure,
- Make studies in order to follow the evolving of informal settlements, the trends and tendencies of building (type, function, floors, location, etc.)

These instructions could serve as a step by step strategy by authorities, in order to gain a clear view of the situation and knowledge of where the intervention is most necessary. At the same time, by detecting and distinguishing the different character of the problem, the necessary measures could be taken, as follows:

- Make the legalization law more appealing, in order to finally legalize all the buildings that fulfill the conditions for legalization
- Provide the legalized informal settlements with proper infrastructure and services/ or
- Demolish and relocate, if minimal standards cannot be fulfilled, (ex narrow streets, no possibility for pavements,

extremely big percentage of built area without possibility for insulation, unclear ownership rights etc.)

- Take into consideration all the above, and plan future city development in new blocks, in the direction where the residential development is evolving, be it formal/ informal, in order to stop further informal development and give the possibility for proper affordable shelter.

Planning new urban blocks in the direction of informal residential development

In the previous part we proposed to make studies in order to follow the evolving of informal settlements, the trends and tendencies of building. This could lead us to the conclusion of: 1) which areas could be a subject of informal settlement in the future, 2) what are the characteristics of the buildings that people tend to build informally. By having these two factors in mind, we could plan new affordable urban blocks which contain housing that derives from the models of informal settlements.

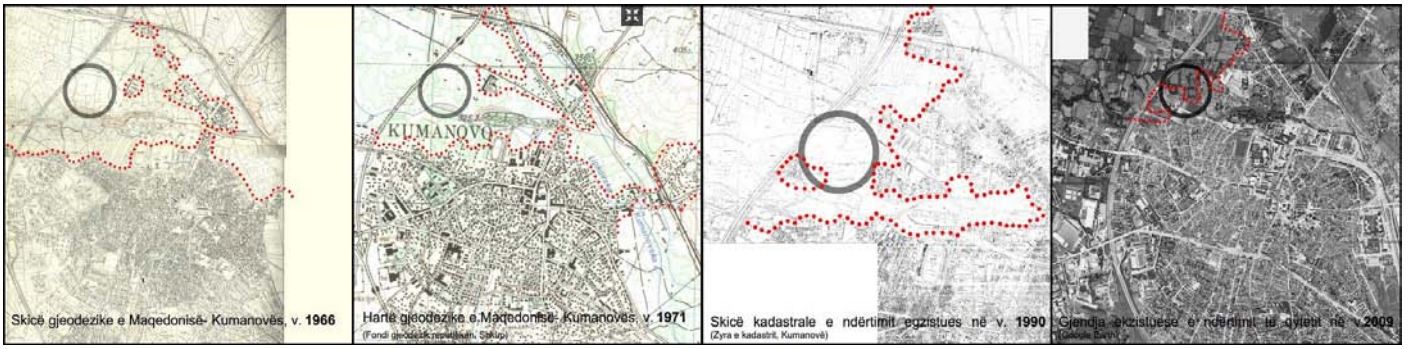


Figure 6: Residential development on the northern part of Kumanovo in 1966, 1971, 1990, 2009.

Such a project we have conducted as a diploma thesis in 2011, for the northern part of Kumanovo, which has been a location for several informal settlements' expansion in the last 50 years. The location is situated in the north-west of Kumanovo, on the west side boarding an informal settlement of 40 houses, and next the highway, in the east an informal settlement of 85 houses, in the south it the river, next to the football stadium. In the project we propose an urban block of low rise housing (max. Gf+1), which we connect to the context through existing traffic and bridges. The project evolves through two main points:

- The model of housing comes as a contemporary interpretation of the existing houses (from two of the nearest informal settlements);
- The block is also provided with several services, such as childcare facilities, retail, recreation, community center, park, which the area so much needs (in the stadium area), common street area (shared street concept).

a) b)

Figure 7: a) , b): Analysis of the proposed residential block

Conclusion

In most of the South-east European countries the problem of informal settlements is a continuing one, although it comes from different factors as: rural- urban migration, low economy, falling of long-term regimes, war, natural disaster etc. Many approaches of legalizing character are applied, and in the case of Macedonia, the analysis shows some results in slowing the illegal development, but not stopping it.

Therefore, a serious case by case analysis of the existing situation of cities must be done, in order to recognize the problematic areas in each city and potential areas for informal development. By doing this, the cities would be able to identify the nature of informality, the quality/ lack of quality of the residential buildings and amenities and provide a suitable response to each case separately.

The cities should: identify, analyze the environment and infrastructure of the informal settlements, and legalize them if substantial conditions for habitation are verified. Further, we propose the one or more of these methods to be applied, depending on the conditions of the settlement:

- Make the legalization law more simple and appealing for the residents, in order to have tenure security for them and cities without illegal buildings,
- Upgrade the informal housing by providing the necessary infrastructure and amenities, at the same time creating a common architectural language by previously mentioned methods (p. 8).
- Reevaluate and update urban plans according to the trends of city expansion, providing affordable land in residential zones, thus preventing further informal development.
- Plan new affordable residential blocks, which reflect the needs and modalities of life of middle and lower class of residents.

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28 APARTMENT TYPOLOGIES IN THE RESIDENTIAL BUILDINGS IN TIRANA DURING THE PERIOD 1929-1943

Oketa Hoxha, Florian Nepravishta

ABSTRACT

The evolution of housing structures from 1929 to 1943 is quite evident not only in shape but also in content. This study, in the beginning, provides the data of housing typologies in the years 1929 up to 1943. The typological classification of apartments is based on specific qualities by identifying their characteristics in order to establish the differences between them. The investigation of typological transformation and evolution of apartments in the selected case studies of multi-family houses in Tirana applies a multi-layered methodological approach. The study is conducted by graphic analyzing of different types of apartments in order to detect the evolutionary characteristics of each example during this period. The primary purpose of this paper is to identify the process of development in an apartment plan based on typologies, functionality, and occupancy. The increase in a number of apartments per building from two apartments in a detached house in 1929 to twenty-eight apartments in multifamily buildings, in the years 1939-1943. The transformation process of the plans analysed in this paper demonstrates that it is not merely the changing arrangement of rooms inside of each apartment but the interaction between the apartments and shared spaces that define the evolution of apartment plan. In conclusion, the study reveals the topological transformation of the apartment plan and the exact way in which architects designed the residential buildings in each period.

Keywords: apartment typology, residential buildings, occupancy Tirana, multifamily houses

INTRODUCTION

Housing transformations worldwide are the results of socio-political and socio-economic changes. Studies on domestic space, on the other hand, can be extended to several cultural studies through microscopic approaches. This is enabled by the fact that housing can be explained as a society's cultural phenomenon, which exposes the features and meanings of the time. In other words, housing is the product primarily of socio-cultural factors of the society (Rapoport, 2001).
Generally, the community itself and its particular environmental conditions are the producers of housing typologies. However, in those years in Albania (as a country not developed) the political strategy and decisions had a potent influence in the construction of the apartments.
Only after the industrial revolution, the vernacular bottom-up drivers of the general housing evolution were replaced entirely by an increasingly standardized construction industry which was coupled with the emergence of modern urban planning that began to implement clear and rigid housing policies (Hall 2002).
In Albania, the Regulator Plans have delayed because of the Ottoman invasion for 500 years and the announcement of independence only in 1912.
The years 1939-1943, even though included in the period of the Second World War, are full of important undertakings about projects and visions on an urban scale for Tirana. In April 1939, Italy invaded Albania (Vokshi, 2014).
The experience of early industrial cities during the nineteenth century has resulted in the emergence of the "Garden City" movement, which was initiated by Ebenezer Howard (Howard 1898). This concept was represented in Tirana from Italian architects during 1939-1943. One of the main requirements of the Regulatory Plan of 1942, that marked the redesign of the Old Tirana in metropolitan dimensions, was the uncial composition of the city garden. The idea of 'Citta Giardino' (city garden) was combined with the purpose to convert the urban chaos of a village in a western city. (Resuli, 2014).
In these years, the aim of the new apartment housing development in Tirana was to accommodate as many as possible families and to enhance the people's living. The top-down planning and administration of housing development enabled

the first mass housing schemes and more efficient housing supply.

METHODOLOGY

Traditional courtyard houses that represented the typical home life in Albania for decades were replaced by the apartment in collective buildings in the twentieth century. The reason was because of population growth. According to the surface morphology, those two are so different, and there seems to be no gradual process for the transformation. This study, however, reveals the characteristics and the evolution of the apartment houses from the beginning they were designed in Tirana until the end of Italian occupation in Albania. The "space-activity" interaction is the main idea that enables us to see what underlies the evolution process.
This study focuses on different types of apartments to understand the general lifestyles of Albania during the years 1929-1943. The initial intention was to investigate all the apartments designed in Tirana, the capital city of Albania since 1929 when the design and the construction of apartments started. This study includes only 21 cases of houses.
They are classified by analysing the unit apartment, interaction between units and their position in the entire building.
Typically, the components required to analyse the apartments and the differences between them are the surface, entrance, rooms, interrelation between dining and kitchen, hall and corridor.

MATERIALS

The period 1929-1943 was an essential part of history and architecture to be mentioned and treated in nowadays. The first collective residential buildings started to build in the main cities in these years. Austrian and Italian architects mostly designed them. They were amazed by the richness of vernacular architecture of the local traditional buildings, which tried to introduce it, in a stylized form, into their detail designs (Çapeli et al., 2016). It was their architecture, which sought a close dialogue between the identity of the place and modernity by pursuing an agreement with the system of urban connections of the avenues and internal gardens (Nepravishta, 2012).
The modern architecture influence and rationalism were evident in many projects executed in this period, and they were quite different from the socialist residential buildings designed after 1944 in Albania. Socialist architecture has produced for years a rigid and standardized typology, even randomly simple and primitive architectural prototypes, except for some objects of public importance (Ndrecka & Nepravishta, 2014). Albanian architects guided from the socialist realism ideology were very rigid in the development of modern ideas (Lulo, 2012).

Case analysis - Analysis of Site Plan

All the samples presented in the paper are designed to be built in Tirana, and some of them are standard cases so that they could be used in different places and urban situation. Some of them, especially the samples from Italian architects are particular houses because of their urban context and the people chosen from the Government to live in them. After the year 1939, the collective houses in Tirana were designed for officials, and they were placed not only in the center of the Capital city but also in the peripheral zones of Tirana.
Collective houses for officials were proposed at the area of 'New Tirana' in the southwest between the Fascio's offices and Lana River (Dhamo, 2016).
Regarding site planning, there are many small precincts with only one to two single buildings. Compared to one family houses, the most noteworthy characteristic of the apartment buildings is the organisation in groups. The residential buildings of these years, mostly, are arranged in square courtyards in a Regular Plan. The apartments of the period 1939-1943 are allocated in the neighbourhoods taking into consideration the Regulatory Plan of Tirana. This one shows a strong preference for a sustainable environment in Tirana because the total land planned to be used about 30 %.
Analysis of Block Plans
The apartment plans examined are classified into mainly four types: double apartment type (with outside stairs, and inside stairs), villa type (single house in entire building), and tower type (one apartment in each floor), and double-loaded corridor-type (Fig. 1).

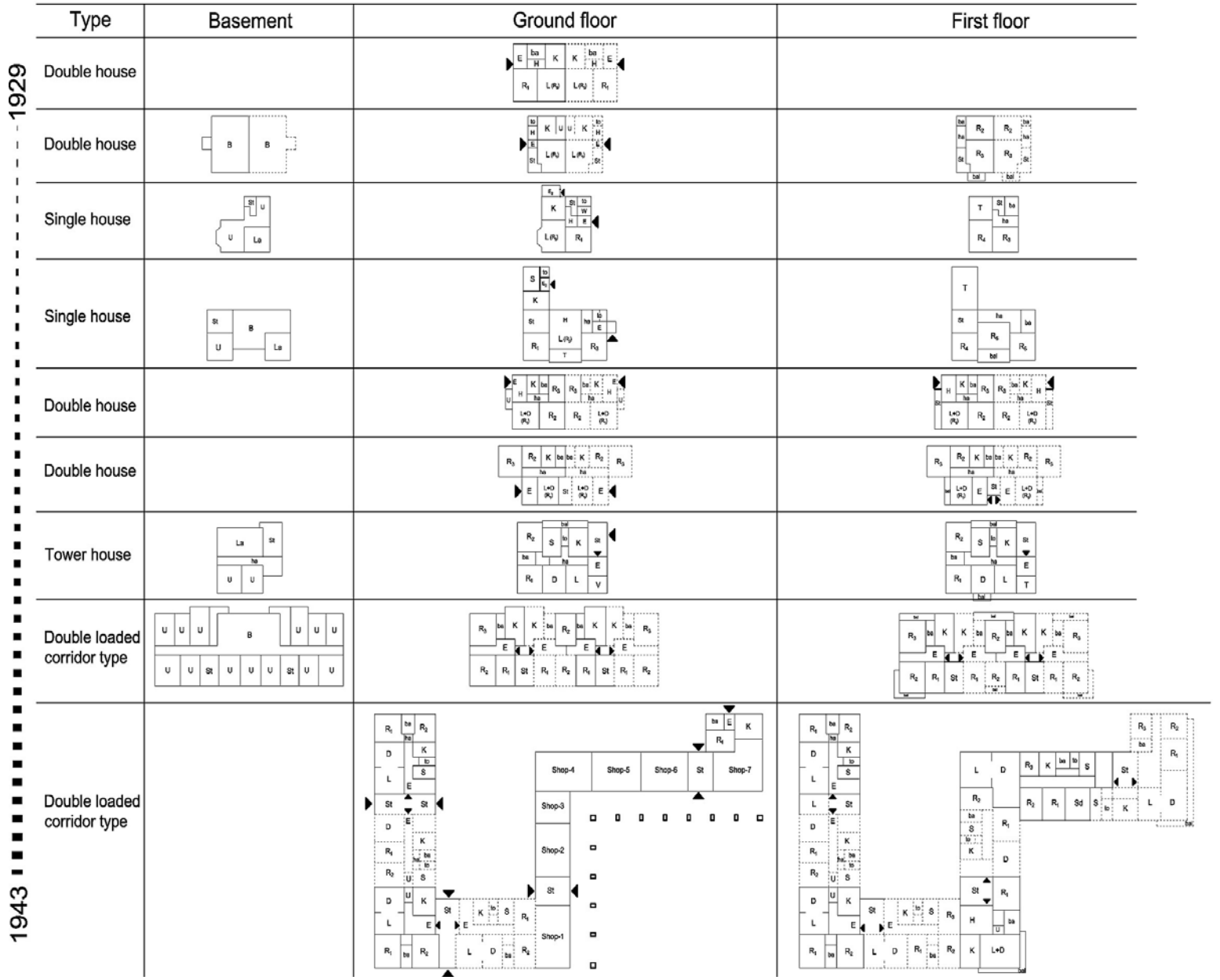

Figure 1: The schematic plans of nine from twenty-one case studies of housing in Tirana from 1929 to 1943. Source: Author
Legend: E: entrance, K: kitchen, D: dining room, H: central hall, L: living room, ba: bathroom, to: toilet, R : room 1, St: stairs, U: utility, T: terrace, W: wardrobe, B: basement, S: service room, bal: balcony, ha: hallway, La: laundry, V: veranda, Sd: studio

The total number of samples presented in this paper is twenty-one, but only nine of them are shown in figure 1, just to give an idea for each case. They are put in order chronologically from 1929 to 1943, from the first plans designed from Austrian architects to the residential buildings designed from Italian architects. Most of the samples, go up to two floors, and some of them have a basement. That is why the figure contains three floors, specifically, the basement, ground floor, and the first floor. The last cases have more than two floors, but they have the same type of plan as on the first floor for the entire building.

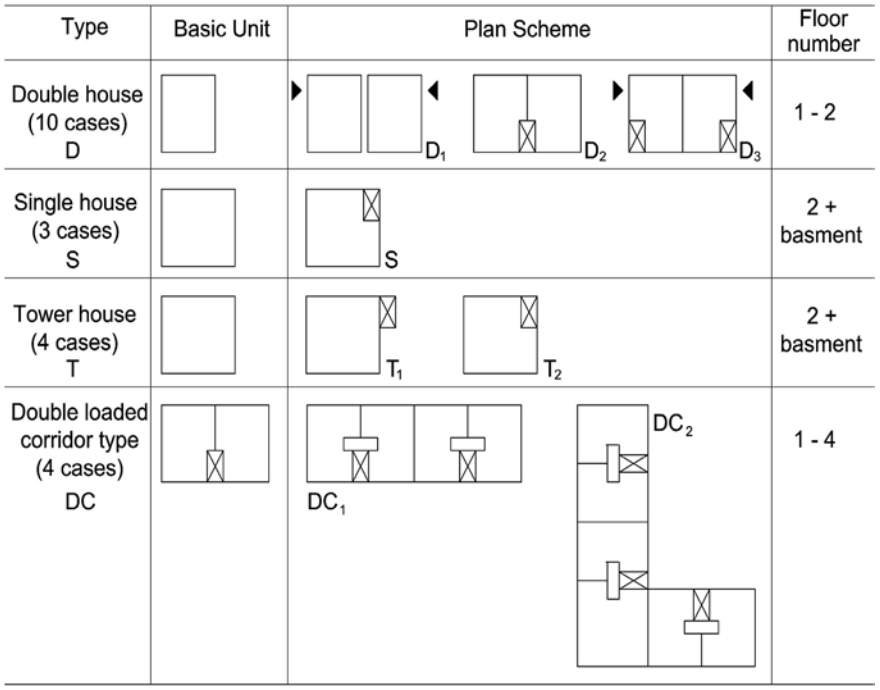

Figure 2: Typologies of Block Plans. Source: Author

Among the total 21 cases, the double apartment type (ten cases) is the most frequently found type, followed by the tower type and the double-loaded corridor-type (four cases each), and then the villas type (three cases) (Fig. 2).

The double apartment type constitutes a form where two units (apartments) are present in each plan of the building. In the case of D1, the apartments have access through outside stairs which lead to the ground and first floor. In other cases, D2 and D3 are given another solution because the stairs are inside the building. A common block of stairs for both apartments is shown in the scheme of the plan for D2. A similar case of the duplex is present in the case of D3 because the internal stairs connect two floors of the same apartment, which have access with outside through other small stairs, placed in the side of the building.

The villa type (single house) consists of a single apartment in the form of triplex because of the presence of the basement and two other floors on the ground. This building is designed for one family to live in. In all the samples presented in this paper from S-type, the stairs are inside the block of the building.

The tower type (T) represents the case of an apartment and a family on each floor. The four cases, T1 and T2 that are part of this study have two different concepts of the position of stairs, one inside and the other outside the volume of the building.

The double-loaded corridor-type constitutes a form where units (apartments) are arranged on both sides of a small corridor, placed forward stairs. Although this is disadvantageous for lighting and ventilation, there is the advantage that a relatively dense population can be accommodated. The DC1 case is the most present case in Tirana from double-loaded corridor type. There are four apartments in all for each floor and two blocks of vertical stairs. Each stair serves two units per floor. In the case of DC2, the new block unit is repeated many times to obtain different forms of plans in a building.

Analysis of Unit Plan

A house can be understood as a series of orderly relationships among spaces and people. Space organization in houses is, in fact, a more fundamental aspect of the designed environment than shape, material, and the like. Space organization is a useful tool for analysing housing design and uncovering the underlying compositional principles of unit plans.

The important factors in formulating the space organization of apartment units are unit sizes, number of rooms, number of bays, and entrances (Cho et al.'s 1987).

In this study, the classification of the spatial organization of units is based on the number of rooms. Consequently, the surface of the apartments with many rooms grows comparing to small apartments with only one room. The rapport between living, dining, and kitchen is a strong factor for the classification of apartments. When they work separately from each other, they have three different areas inside an apartment, growing in this way the number of rooms and the unit size. In the cases of villas type and tower type, the unit size and surface is bigger than in the other cases. After the year 1939 when the Italians have arrived in Albania, the Italian architects had the concept to fulfil all the necessary conditions for best living inside an apartment. That is why most of the units have all the internal areas separated according to their functionality.

CONCLUSIONS

This study examined the characteristics of apartments designed before 1943 in Albania through case studies analyzed in terms of site plans, block plans, and unit plans.
Based on the overall examined characteristics, Tirana was planned as a city that mainly consists of regular and simply apartment buildings.
The apartment typologies can be classified into four major types: double apartment type, villa type, tower type, and double-loaded corridor type. The most prevalent is the double apartment type because it was simple and designed from 1929 up to 1943.
There has been a good transformation process of the plans according to the increase in the number of units per building plan. This happened after 1939 because the architects tried to adapt the house in a real urban plan, giving so every family the possibility to live in better conditions and urbanized areas.
The characteristics of the unit plan are mostly based on unit size and the number of rooms.
This study could only examine some limited cases in Tirana. Therefore, it is difficult to find all the projects designed and realized before 1943 in Albania.

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Memory of places

Memory of places

29

USING, SAVING, LOSING THE MEMORY (IS CONSTRUCTING ANYWAY RE-CONSTRUCTING?)

Francesco Vallerio Colloti

Abstract

Could the memory be canceled? Somebody believes that erasing the symbols of the recent past history could be enough to inoculate the present, preventing the rebirth of bad periods.
Chiseling out from the buildings the stone symbols of the fascist period, smashing down the Lenin's statue, destroying the face of Saddam, taking it out on the monuments of the Civil War could be a temporary way to calm our thirst for vengeance, but memory denial – as the psychoanalysts could demonstrate – is the first step to a collective removing which blocks the drawing up process of the question. Memory, and sometimes the tradition itself, could be invented – or reinvented - for specific purposes. There are some cases where the challenge with the past is direct, obliged, site-specific based. For centuries, new buildings have been built on the ruins and foundations of previous works, using these materials in various ways. Is building not far from re-building? Anyway as architect, nor as historian nor as art critic who I am not, I suggest to consider that the presence of the past is project forming. Architecture is about carrying forward what has preceded us, providing a more advanced version of how we found it. As architect I suggest to consider that the presence of the past is project forming. Architecture is about carrying forward what has preceded us, providing a more advanced version of how we found it. We are not interested in embalming the past. We prefer to recognize its ability to accept the transformation without denying it. As personal experience I bring to IFAU17 the reconstruction of the Dom Römer quarter in Frankfurt. The case history is dedicated to the second reconstruction of the site, destroyed by bombs and by the first after war reconstruction.

Keywords: memory, tradition, constructing/reconstructing, identities

Introduction

It's a slippery slope, talking about memories and identities.
We live in a season in which monuments are bombed or erased.
This gesture is resounding.
The destruction is used for propaganda purposes.
Somebody believes that erasing the symbols of the recent past history could be enough to inoculate the present, preventing the rebirth of bad periods.
Chiseling out from the buildings the stone symbols of the fascist period, smashing down the Lenin's statue, destroying the face of Saddam, taking it out on the monuments of the Civil War could be a temporary way to calm our thirst for vengeance, but memory denial – as the psychoanalysts could demonstrate – is the first step to a collective removing which blocks the drawing up process of the question.

Canceling or reinventing memory?

Could the memory be canceled?

Twist of fate are always on hand. And the exit is often unexpected: sometimes the memory of the destroyed object makes stronger the object itself. Against the will of the evildoers.
The destruction reaches the opposite target, making eternal a memory which maybe wasn't worthy to be remembered for ever. Stronger than during its first life: no art critic celebrated as masterworks the carved into the side of a cliff Buddas

of Bamyan valley during their first long lasting life, but now they are anyway worldwide known and regretted, because of their destruction operated by Mullah Omar's troops (Settis, 2017). Memory, and sometimes the tradition itself, could be invented (Hobsbawm, 1983) – or reinvented - for specific purposes.
We can create a past we didn't lived, we can emphasize and reinforce a season or an era. Medina Lasanski researches about the reinvented Renaissance in Florence during the fascist period (Medina Lasansky, 2004).The author focuses on architecture and popular traditions as vehicles through which Mussolini's regime promoted and enforced the cult of a historical era that conveniently served Fascism's own political agenda and authoritarian goals. Lazanski studies how the fascists used the public spaces and the physical structures as background for spectacular stagings to build an identity politics promoting historical tourism and appropriation of the past. In her work on collective memory during the Fascist period in Italy, Lazanski studies the politicization of the past, the invention of tradition, and the globalization and commodification of tourism. In her contribution delineates how the practice of architecture practiced a selective use of the past. She exposes the urban-planning choices influenced by the cult of Renaissance in Tuscany under Mussolini and describes various Renaissance-inspired festivals demonstrating the modern process of cultural sentimentalization, and demonstrates the capacity of history to be packaged for mass consumption (Falasca-Zamponi, 2007).

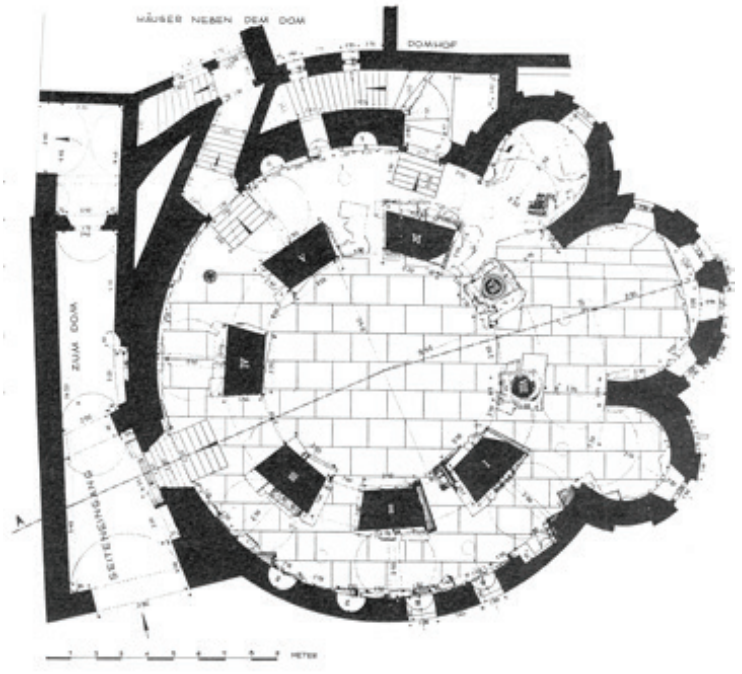

Figure 1: Survey of the Sveti Donat in Zadar (Hauser L., Bulic F.(1969). Die Donatus-Kirche in Zadar. Freiburg: Hammershmied)

The replicas are a particular aspect of memory deformation: they have the chance to recall past glories or successes. In the field of car's design this is really cool and trendy (the remake of Fiat 500, of VW Beetle or of Mini), even if side by side confrontation is merciless and we have no doubt, standing with the original one. In the architectural history the replicas had a certain success, evoking the issues related to the True, the False or the Fake. King Ludwig of Bayern reconstructs in Munich the Loggia dei Lanzi originally located just in front of the Piazza della Signoria in Florence, trying to recall – north of the Alps - the spirit of the Medici's dynasty. Not so far from the Bavarian replica of Palazzo Pitti. The Capitol in Washington imitates another successfully capital city and his main basilica (San Pietro in Rom). The Palladio's villas rebuilt in the British country are taking part to the neoclassical dream of the Aristocracy and suggesting the first step to an International Style.
There are some cases where the challenge with the past is direct, obliged, site-specific based. For centuries, new buildings have been built on the ruins and foundations of previous works, using these materials in various ways. Sometimes for so called spoliatio, redeploying trabeations and tombstones in the foundations of Byzantine or medieval walls. The ancient stones are used as building material or a ready made platforms.

All around the Mediterranean here is the experience of Naples, Arles, Nîmes, Milan, Ravenna, Split, Zadar, Thessalonica, Byzance/Constantinople/Istanbul, Amman, Aleppo, and Alessandria. We're interested in the deployment of these fragments or of these buildings as construction material for the architectural project. Sometimes reusing of old roman stones is considered or as ideological punishment against the Romans (as in Pisa) or as legitimization for new power using the fame of the Roman Empire (as in Venice). A typical example is the inclusion in new walls of upside-down-set roman stone inscriptions. Admiring them, and - at the same time - reusing them in a submitted way. Changing the sign, but exploiting the authority and the power of the monuments.
This practice is also typical for the popular cults and rituals practiced during the late Roman Empire, subsumed by the early period Christian Church, which tried to govern them, stated the inability to cancel them.

Is building not far from re-building?

Given the above, the question could be: is building not far from re-building? Buildings such as the Orsini Palace by architect Baldassarre Peruzzi, built in Rome on the Theater of Marcellus, or the Cathedral of Syracuse, in Sicily, where the church was built in the cell of the previous Doric Hellenistic temple, all these examples demonstrate the use of a building concept not far from rebuilding. These examples are an invitation to calmly consider the trauma or the events that over the centuries have altered the buildings.
The physical presence of the ruin inevitably affecting the work of architects. In the case of the Balkans (but we could speak in the same way about Italy, Greece, Turkey) we note an extraordinary ability to fertilize with the ancient architecture the world of forms for centuries long periods. Contaminated, processed, amplified, measured and reconstructed or re-used in a second life, the classical and late classical ruins are here the material on which the landscape and the town is built in the following centuries. In Ljubljana the work of architect Joze Plecnik is dedicated avoiding the lost of memory. Maybe Plecnik reinvented the ancient Emona. His work is engaged to let remember old traces, a window, a gate, a piece of a wall, a lost topography. Once again constructing is reconstructing.
Anyway as architect, nor as historian nor as art critic who I am not, I suggest to consider that the presence of the past is project forming. Architecture is about carrying forward what has proceeded us, providing a more advanced version of how we found it. Consider, for example, how extended is the ottoman heritage in the dwelling forms of a huge region from Beograd's to Lahore?
We must recognize that memory is quite different than remembering. Remembering could be a a personal or a private gesture. Memory make sense as collective attitude. And architecture, as the town indeed, is always a collective experience.
We usually work as architects, by hypothesizing, by showing similarities, sometimes by associations or even by placing - by choice - side by side other far away buildings. Linking them to each other - comparing them - is an attitude capable of producing meaning. Did the giving-shape–to-the-memory replace the classical architectural language (Semerani, 1993)?
Anyway as architect, nor as historian nor as art critic who I am not, I suggest to consider that the presence of the past is project forming. Architecture is about carrying forward what has proceeded us, providing a more advanced version of how we found it. In architecture, indeed, fast advances and antique gestures go hand in hand, the continuity is a condition, not a choice. We are not interested in embalming the past. We prefer to recognize its ability to accept the transformation without denying it.
What is the relationship between old and new, which continuity, at what distance?
These questions would be able to go beyond the absolute gap between restoration and anything-goes-project, in which the contemporary architectural debate seems to be confused.
On one side there are the supporters of total embalming implemented by mere restoration, and on the other we meet the prophets of that untidy and irresponsible design.
Is it still possible to think of a second life for old buildings?
How to use the old buildings or how to use the past to build new ones?
And where is the border between conservation and embalming?
In every project there is a necessary process of accumulation that our work from time to time composes and decomposes. As personal experience, the built one I mean, I bring to these paper the reconstruction of the Dom Römer quarter in Frankfurt.
The case history is dedicated to the second reconstruction of the Dom Römer quarter in Frankfurt am Main, Germany. The right bank of the River Main overlooks the hill where the Cathedral rises. An Outpost of Roman origin placed to protect the ford on the river. The most extraordinary Gothic quarters once standing at the foot of the cathedral recall the experience of the European city. Goethe describes it in his Faust: the tumult forced the bourgeois houses into the center of the metropolis, before the wide avenues and streets, here you have the narrow streets, the pointed gables, and a tight market of houses on all sides, and cabbage and onions and then the meat counters.
The city is built by types: two parallel walls distant the maximum of a timber beam, some passages that aren't even roads for wagons.
The Dom-Römer was shaven to the ground in 1944.

Figure 2: Building re-building at Dom Romer quarter in Frankfurt. The row houses of the side South (in the middle the wooden house by Francesko Colloti with Worzewski, Fantin, Acciai, Corrocher-picture Dettmar)

The fire after the bombing destroyed the wooden houses, but left the stone basements.
Immediately after the war, the remains and the rubble were cataloged and placed in a museum, as well as being sold by weight to private collectors. Now the City of Frankfurt has regained the old stones from collectors, finding many of the red weak sandstone house remains and some pieces of the basements in black hard basalt.
During the post-war period the area was cleaned up and the quarter was poorly reconstructed in the late Fifties with a large underground parking and public buildings.
Now, after a long debate, in the recent years the Municipality, who has the property of the lots, courageously decided to demolish again the post war buildings and organized an architectural competition, promoted by Dom Römer Gmbh, a company of public development.
The old quarter is being resurged due to a meticulous job done by the Municipality on the plans of the old registers and on the ancient surveys of the facades. Some houses were rebuilt as they once were, where they once were. Some other houses have been composed, or recomposed, by a constant comparison with the old, but without sacrificing the new (among others architects Hans Kollhoff, Tillmann Wagner, Morger + Dettli, Berndt Albers, Jordi & Keller, Dreibund Architekten, and Francesco Collotti who is reporting the experience here).
Building here is re-building without making a copy, but seeking out the old measure and the proportion of the Gothic town while looking for a new possibility of warm life between these walls. Just a few hundred meters from the European Central Bank tower.
Building here is re-building, giving to experience of the town a slower tempo.
The quarter is crossed by the ancient route where the emperor's crowing procession was performed, in direction of the cathedral. A small altitude gap, not far from an high step, still marking the topography in front of the Schirn Exhibition Centre, the civic hall for contemporary art. For this place, the old Krönungsweg, we propose a monumental pergola in full stone blocks, properly reinforced and tensioned, cut in the red veined sandstone from the Main valley and rooted to the ground by black basaltic lava blocks.
The ancient route once lost has been rediscovered, not by reconstructing the old facades, but recomposing the sequence as a backstage. Attempting to return its lost identity (both the projects, houses and pergola, with Anna Worzewski, Valentina Fantin, Ilaria Corrocher, and Serena Acciai).
The measurements, proportions and details of the pergola stem from our basic survey of the nearby cathedral. The ancient existing stone being the project construction material.

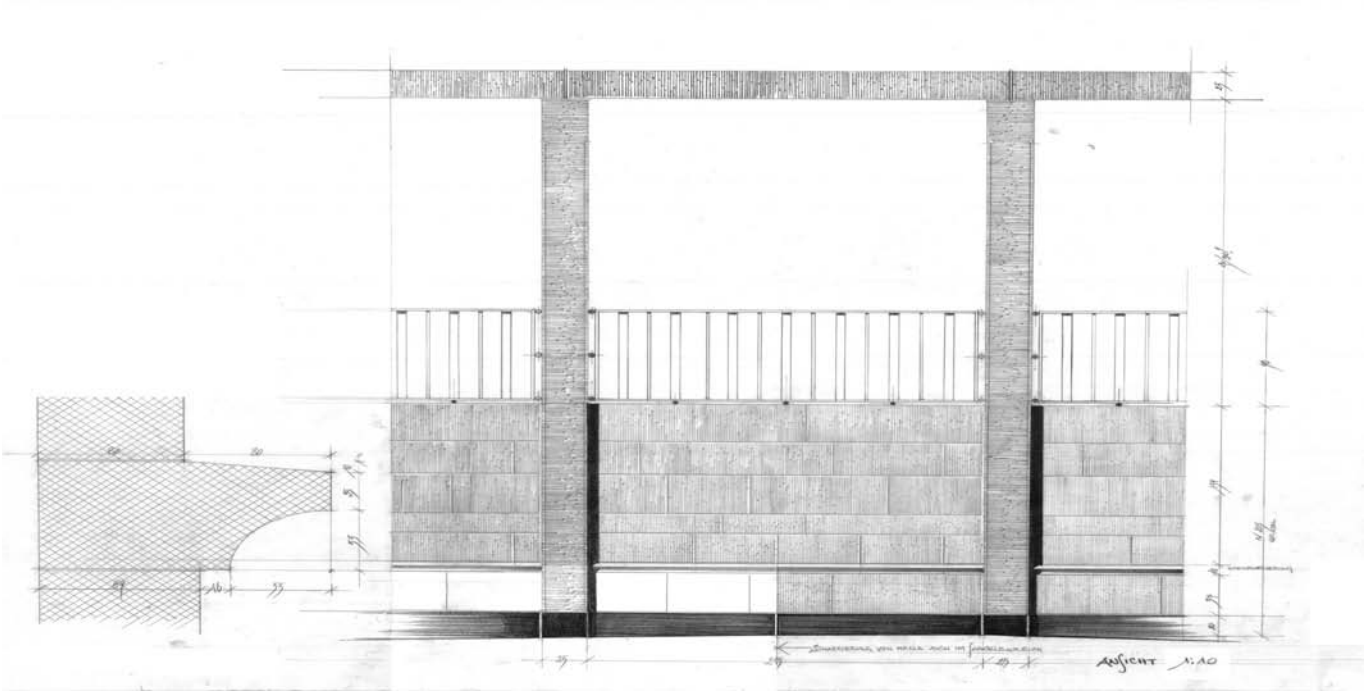

Figure 3: Recomposing the old Krönunungsweg. Sketches for the monumental pergola (Francesco Collotti with Worzewski, Corrocher).

Conclusions

Our attitude to re-read the urban phenomena and sort through the project is maybe forced to survive in fragments. For fragments of plans, of architecture, of ideas, lives the contemporary city. For fragments we can still evoke tasks often forgotten for this meter, obliging us to continue to build-up the city and landscape, relocating it with memory projection, as transfigured it may be.
The discussion is open.

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30 PERTURBING MONUMENTS, SLEEPING GIANTS, ABANDONED MACHINES. MEMORY AND RENEWAL OF INDUSTRIAL LANDSCAPES

Anna Bruna Menghini

Abstract

The brown-field industrial areas are a problematic heritage of 20th century development. Today we have to deal with them because of environmental, economic and social reasons. Industrial sites have transformed territories and built peculiar sites. Furthermore, the industrial architecture belongs to the history, culture, and memory of the entire community. It is also necessary to consider the "aesthetic" value of landscapes and industrial architectures related to the architectural culture of the twentieth century. Indeed, the industrial settlements and architectures were assumed by the Modern Movement as models for the rational city and as an expression of a renewed architectural conception. If reusing was a constantly present practice in architectural cultures, for industrial sites it is necessary to first recognize the value of "patrimony" of landscapes and of abandoned artefact's; the added value of the recovery operation from the economic, environmental, social and cultural point of view must be highlighted; we need to choose what to preserve, enhance and reuse. Albania is a very interesting case of study. This country has been heavily invested since the early twentieth century by the phenomenon of industrialization. A research held at the Polytechnic University of Bari has dealt with the theme of the recovery and re-utilization of the Albanian industrial heritage, choosing highly degraded but significant places for the Albanian industrialization (Kombinat of Tirana, Elbasan's Metallurgy, "Mao Zedong" Factory of Berat, "Gogo Nushi" Industry of Fier). These sites have been studied in relation to the contiguous urban areas and the nearby naturalistic, archaeological and historical sites, with the aim of making them become cultural, social and economic "attractors".

Keywords: Industrial heritage, industrial landscapes, industrial archaeology, environmental recovery, and regeneration, Albanian industrial sites

Introduction

The DICAR Department has been engaged in the study of Albanian architectural heritage for more than ten years and lately has focused on the theme of recovery and enhancement of the industrial architecture and landscape. Some degree laboratories have addressed the conceptual and practical problem of the transformation of "machine space and industry landscape" into "space for man and memory landscape".
If the transformation and reuse are practices usually applied in architecture, this is rather a problematic question for industrial sites. First of all, we must recognize the "value" of an abandoned industry, critically consider its material heritage (landscapes, buildings, structures, machinery) and its immaterial legacy (cultural, memorial and historical value, social function, technical know-how).
Often the cost of recovery is greater than demolition and reconstruction. Nevertheless the preservation brings economic benefits: for instance, no waste is generated, according to the policies of sustainability and recycling.
And then we need to consider the historical-documentary value, the civic and cultural significance for the collective memory (although often disturbing), the iconic and aesthetic value (metaphysical spaces, great giants in the landscape). The large and flexible artifacts, ascribable to a few recurring building and structural types, have a strong vocation to transform themselves into multi-functional cultural "containers" at the territorial scale.
In these polluted and degraded places, the environmental weaknesses can be transformed into a resource, for the new relationship that they can establish with the countryside and the natural landscape or for the regenerative process that they can activate in the territory. The link between architecture and nature is expressed in the power of these great signs of the landscape, in the great voids that bring into mutual tension the over-scale of those solitary volumes.

The research on Albanian industrial heritage

Albania is a very interesting case of study. The most flourishing years of industrialization were those marked by the alliance with the USSR, from 1949 to 1961, and those from 1965 to 1978, under Chinese influence. The change of the political and socioeconomic contingencies, along with the obsolescence of the structures and technologies and the environmental incompatibility with urban, natural and agricultural contexts, has produced the demise of most of this problematic heritage. Now that Albania is about to enter in Europe, this country is looking for effectual examples and good practices for the re-use of industrial heritage while maintaining its own specificity and enhancing its identity.
The research of PoliBa, still in progress, aims to connect these sites through a network of cultural and natural itineraries to develop sustainable tourism at the national and regional level. The settlements and industrial areas of Fier, Shkodra, Durrës, Tirana, Elbasan, Berat, Kucovë, could be included in the European Route of Industrial Heritage (ERIH). This strategy wants to support the enhancement, rehabilitation, and reconversion of abandoned areas and artifacts.
We have chosen the "Gogo Nushi" industry of Fier, the Elbasan's Metallurgy, the "Mao Zedong" textile factory of Berat, highly degraded but significant places for the Albanian industry. The topic has been treated with a multidisciplinary and inter-scalar approach. In fact, these laboratories have involved various disciplines, from architectural design and urban planning to environmental technical physics, to architectural restoration, to history, to sociology, to archeology, with the aim of highlighting the resources of these sites, at the territorial, urban and architectural scales.
These sites have been studied in relation to the contiguous urban areas and the nearby archaeological, historical and naturalistic sites, with the aim of making them become cultural, social and economic "attractors".
In particular, in the case of Fier and Elbasan, after analyzing the physical aspects, the naturalistic and anthropic components and the historical-cultural identity characterizing the territorial systems, the Laboratories have hypothesized a program of environmental recovery and some strategies of protection of cultural heritage, of architectural and landscape enhancement, to get to define cognitive paths and itineraries for tourist use of the two territories. These paths should involve environment and nature (development of "green way" reconnecting natural emergencies such as sea, lagoons, rivers, and parks), archaeological and ancient sites.
These areas have been converted into large parks dedicated to leisure, culture, production, training (agricultural parks, Eco-parks, technological park, and productive park).
The strategies adopted were:

- "Preserving" the landscapes and spaces of the industry by producing a self-representation;
- Transforming the original functions and spatiality;
- Regenerating, keep alive productive activities, and innovating them.

These are often coexisting strategies in these complexes at large-scale.

The "Gogo Nushi" industry in Fier

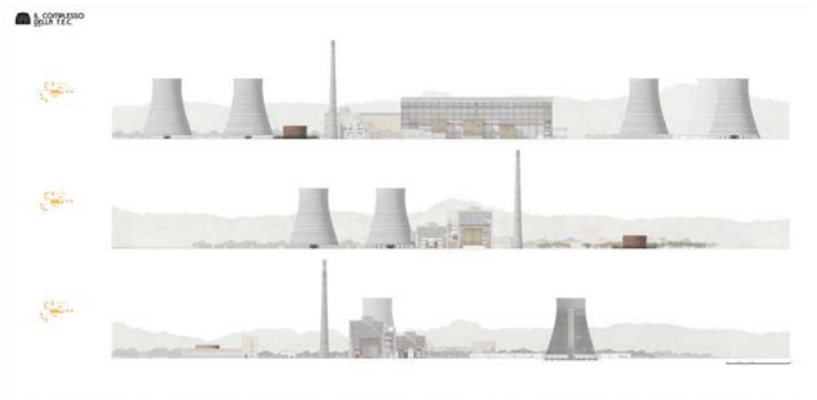

Figure 1: Facade of "Gogo Nushi" factory.

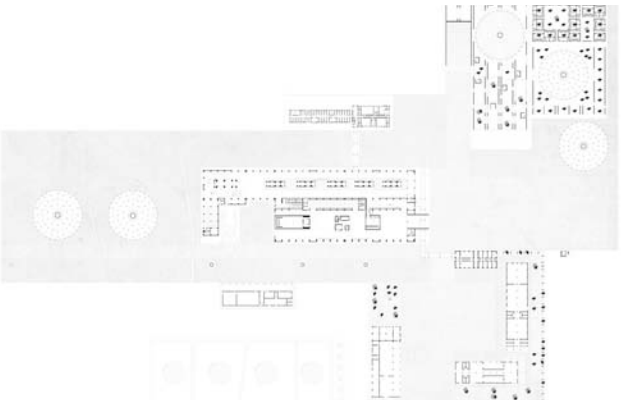

Figure 2: Plan of "Gogo Nushi" factory.

The industrial area of Fier is one of the largest production settlements created in the sixties in Albania, including a nitrogen factory and a thermoelectric plant, a site strong polluted and now almost completely abandoned.
We have interpreted this problematic area as a place rich in historical memory and specific features, with great potential for transformation and reuse. The goal of the Laboratory was that of assigning a new role to the city of Fier, which can represent an important reference point for the valorization and use of the middle-southern region of Albania. We identified this part of Albanian territory as a "large area" in which we recognized a network constituted by archaeological sites, industrial heritage, different kind of landscape, human settlements.
The "Gogo Nushi" factory assumed as a possible driving force for urban and social redevelopment and for environmental enhancement. The site has been attributed the value of new urban polarity, with places for culture, training, and leisure, connected through a large forum. We have also proposed to install production activities compatible with the environment: cultural and recreational activities for the city and the territory, facilities for research and training, housing functions, connected through a large agricultural and technological park. Beside this mix of functions, its original specificity of the national energy pole has also been maintained, addressing the issue of reconversion to renewable energies.
The TEC complex hosts a pole for research applied to the territory (experimental laboratories), for its dissemination (museum of the territory for educational purposes), for the promotion and use of the territory itself (receptive center, fulcrum of cultural and tourist information. In particular, we have studied a museum-laboratory of the territory inside a disused industrial building, reversing the concept of production industry in the creative industry. The "House of territory" hosts creative spaces and an interactive museum, divided into three sections (environmental context, historical-archaeological heritage, industrial landscapes). This system also includes an eco-park, a didactic garden that offers species of plants typical of Albanian landscapes.

The metallurgical industry in Elbasan

Figure 3: Site plan of Elbasan metallurgical factory

Figure 4: Visualization of Elbasan metallurgical factory

Nowadays the Elbasan metallurgical factory presents serious critical aspects, due to the original function of heavy industry, and increased by the recent partial abandonment. But it also has interesting potential for transformation and reuse.
The former factory can be taken both as opportunity to enhance the landscape and its environmental resources, now seriously compromised, and as a driving force for urban, architectural and social redevelopment, as a potential new "engine" of the local economy. We proposed to settle cultural and recreational activities for the city and the territory, together with research, production and business activities, connected through a large extra-urban park in continuity with the agricultural land. The Laboratory intends to verify, in particular, the hypothesis of developing a system linked to the recycling economy, transforming the cycles of reuse into structured modifications of a landscape capable of regenerating itself transforming itself during the time (Kombinat Park). At the territorial scale we have framed the industrial area of Elbasan in an articulated environmental system along the Shkumbini, a river that divides the north and south of Albania,

developing from the coast south of Durres to the lake of Pogradec. The problem of environmental remediation has been taken as an opportunity to reconfigure the landscape. Therefore a "representation" of the reclamation cycle is prefigured, assuming its spatial and temporal phases as a compositional theme. The original remains of the factory have in fact been converted into a woodland coppice's, with variable clearings over time, for the purpose of soil phytoremediation.
At the architectural scale, we decided to retain some artefact's by reconverting their use, leaving others as "monuments" and demolish the less interesting or particularly degraded ones. In particular, we have studied the possibility of reconverting a building to be used as a recycling museum, connected to experimental and creative laboratories. A new structure has been introduced (a spatial trellis) that envelops the building creating a complex spatiality, and that penetrates inside through some walkways, allowing the observer to view the artifact from unusual points of view and taking advantage of the original parts that are not habitable.
We tried to relate the individual artefact's by creating referrals at a distance and grouping them according to new functions, measuring and reconfiguring the space between the buildings and connecting them visually and physically through air routes, the memory of the network of structures that supported the canalization circuits of the installations.

The textile industry in Berat

The textile factory "Mao Zedong" of Berat is a manufacturing complex organized by the "Kombinat" model (an auto-sufficient productive cycle). It was built in the North of Berat nearby the road to Tirana and included six factories, the thread, the textile and the dying one, a formation school, the service buildings and the public spaces of social gathering. The complex is today partially used and represents a symbolic and historical value for the city and its people.
This intervention proposes the redevelopment of the factory while maintaining its original use, recognizing it as significant in the Albanian manufacturing tradition. We proposed a new role for the complex as research, production and formation center. The didactic function is particularly exalted in the project, through the creation of the Museum of weaving.
We studied the environmental impact with the introduction of green technology and smart factory. Project proposals for existing buildings are compatible with the features of the big factory spaces, with interventions that divide them through new interior furnishing elements.

Figure 5: Site plasn of textile factory "Mao Zedong".

Figure 6: Facade of of textile factory "Mao Zedong".

Conclusions

Based on the above examples, we can recognize some recurring settlements models:
Large complexes made of "isolated volumes" in the vacuum;
"Extended plates" placed side by side.
We can evaluate some interesting compositional themes:
- The relationship between natural/artificial forms;

- Generating structures of plants (regulating lines, generating axles, agricultural plots, margins);
- Character, articulation, and hierarchy of full and empty spaces, open and closed places, indoor/outdoor conditions;
- The compositional strategies can involve the mechanisms of "intensification" or "rarefaction".

The possible operations are:
- Free the spaces and "mend" with the green;
- Bring together the buildings in groups, creating relationships between the "islands";
- Physically gather the buildings with "fences";
- Fill the voids with "basements" that tie the buildings together;
- Joint the buildings with "paths" and overhead "walkways".

We can recognize some spatial-structural types (large containers or great sculptures) and their potentialities:
- Longitudinal space (the "basilica");
- Central space (the "central hall");
- Vertical space (the "tower");
- Space with iterated spans (the "hypo-style hall").
- The potential compositional strategies involve the "isolation" or "connection".
- The operations that can be carried out are: add, integrate, replace, free, stratify, hierarchize.

The interventions consist of:
- "Spaces inside spaces" (autonomous volumes or double orders),
- "Windings" (hollow walls ...),
- "Stratifications" (basements, suspended floors, overlapping volumes),
- "Casings" (light or heavy).

In all these projects are present the theme of the measurement and characterization of the empty spaces on which the various artifacts are disseminated, which are redesigned through green areas or public places of connection between the buildings. The great architectural artefact's almost always show themselves in their original essence, while the intervention is concentrated mostly in their attack on the ground to strengthen their grounding and to create mutual relationships. New interventions to the scale of interior architecture propose a reinterpretation of the large voids enclosed in the containers: secondary systems are introduced in the basically spaces at longitudinal development, in the central buildings with more or less vertical development, in spaces with iterated spans with horizontal development, for comment on existing structures and define new spatial hierarchies.

With our laboratories we have tried to propose strategies and scenarios, using architectural design as an instrument of knowledge, foreshadowing forms to make people understand the potential of these places, even if in reality, we know that it is necessary to proceed by steps, in a gradual way, triggering virtuous processes of an economic, social, cultural nature.

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Lab laurea Elbasan

31

RISK ASSESSMENT FOR THE CONSERVATION OF HISTORIC BUILDING: NEW STRATEGIES AND TOOLS

Elisabetta Rosina

Abstract

As recently stated by the Cultural Heritage (CH) Code, Conservation is a planned, long-lasting process, passing previous concepts of "restoration". It led to innovate the research of testing and studying CH, which where oriented to extensively limited, although in depth, analysis. Achieving a preventive conservation requires the application of good practices of maintenance necessary, supported by inspection/checking methods and structures to file the knowledge/assessment data. In the most numerous cases, conservation means also developing planned activities to prevent damage. The turn of perspective from the passive protection of Cultural Heritage to the preventive mitigation of the cause of damage requires also to assess the risk factors due to the environment, location, use of the building, with the support of a preliminary diagnostics.
In addition, the analysis of risk factors inside and outside the buildings (environment, use of heating plants, presence of visitors, etc.) has as a result the identification of specific micro-climatic conditions and thermo-hygrometrical behaviors which are critical for the conservation of materials.
Knowing such conditions, the further step of the plan of conservation is to draw the guide lines for the most effective removal of damage causes, without requiring a complete refurbishment or restoration of the building, control in time the results of preventive action, and to set the threshold values for the maintenance activities.
The new trend of this applied research in the field of diagnostics for Cultural Heritage is to make the use of instruments on-site reliable, feasible and affordable. The obtained information is crucial to evaluate the risks and to plan the necessary actions for preventing further damages and loss of materials, with the results to warrant the permanence of the original and authentic features of the historic buildings.

Keywords: Planned conservation, diagnostics, risk factor, imaging techniques, cultural heritage

The conservation is a process

The aim of the present code for protection of Cultural Heritage has been leading to innovate the research of testing and studying historic buildings and works of art. Although in the last decades, procedures to a preliminary knowledge for restoration were asked, at present the requirement is to face the knowledge management, and to reorganize the verified testing techniques and innovative ones as well, according to effective and convenient procedures for monitoring in the field. Requirements of early detection find a perfect match in the characteristics of such tests: taking images does not require contact with the surface, therefore it can be performed anytime without scaffoldings; it is fast and it delivers results in time real; a single shot can be repeated for further comparison and then controlled through time; also, scanning extensive surfaces does not take much time; images of an object, taken in different spectra, supply to many information, which can be collected in a unique informative system. Again, its limited costs allow repeating applications of these techniques in time to follow up the interventions and their possible consequences, and to keep under control a huge amount of historic buildings, the diffused historic fabric instead of only the monumental ones. Well timed early detection and its extended application are good guarantees for preserving the material authenticity of our built environment, including ancient buildings not yet specifically listed but that make local landmarks of a community.
Preliminary assessment is based on both visual analysis and tests, to set the triage for conservation of the building and deep analysis. Visual analysis allows to get to first level of information that will be confirmed by early diagnostic. Preliminary tests are a tool that work for analysis itself and they also are a mean to identify critical areas and knots, to define a plan

for diagnostics' next steps (as methods and instruments) to investigate in depth causes and damages. Results of historic/archive documentation, surveys (stratigraphy, damage assessment, etc.) and measured drawings supply preliminary diagnostic, as listed in paragraph 3. This preliminary use of diagnostic is the most profitable, because it allows addressing the project of new use towards sustainable use of the building, and therefore to optimize the residual performances of the building elements, and to identify the necessary additions or implementation of the existing structures.

Requirements of the diagnostics for the preservation plans

Preliminary tests lead to listing all of the possible damage causes in the building, and to consequently list suitable interventions; early detections support macro-maintenance programs and the evaluation of the range of their costs. Because of reduced time and economic support in preliminary phase, the devices have to fast deliver qualitative output, and to be feasible on wide surfaces. Otherwise, first diagnostic aims to address further tests: it works as knowledge supporting structure, allowing registering, connecting, and managing information's in all of preservation phases and future enhancement. Moreover, techniques with such fast and low costs guarantee best results also in emergency interventions [ref. 1-3] that are mainly linked to structural damages (collapse or breakage of structural elements) and moisture infiltration or consequently damages as rotten part, detachment of finishing, corrosion of metals, lost and collapse of elements.
In maintenance and monitoring phases, it is strictly necessary that techniques need low budgets, especially for time for inspection and data processing [4]. Fast scan working techniques on wide surfaces have a considering advantage rather than those techniques that give punctual data back, after a long processing data time. Collection of documentation about the building, damage location, its evolution in time, the use across years is mandatory to work out an effective diagnostic plan, especially for preliminary test. The first step of investigation is the assessment of surface conditions by means of multi spectral analysis performed by instruments those do not require contact with the detected surface. Previous research showed that periodic controls, multi spectral analysis aided, allow to early detecting initial damage due to non-homogeneity and vulnerability of structure at critical environmental conditions.
Information in the preliminary phase of project is crucial to define a compatible reuse of the building and to address designer to improve the residual performance of the building. The limited cost and invasivity of tests allow to apply them on the widespread built environment, and to support all the planned conservation activities. In such a way, diagnostics are successfully applied in the most of historic building of the urban historic fabric, where economic issue is a fundamental criterion for planning intervention and cares: the investigations allow to proceed to a further identification of those damaged areas and damage causes, to an increasing level of accuracy and effectiveness.

The contribution of the multispectral analysis

Multispectral analysis is performed in different spectral bands, and it allows adding and validating information regarding the presence of organic components on the investigated surface, detecting salt efflorescence and damaged materials, enhancing cracks, restoration materials. It consists of the integration among some specific image analysis [4]. Among the techniques for recapturing in visible and beyond it, thermal infrared scanning remains one of the most reliable. The techniques of imaging in the spectral bands of visible and infrared has been very useful to detect surface and subsurface anomalies. These thermal anomalies at critical microclimatic conditions are responsible for possible damage due to a differentiated thermo-hygrometrical behaviour [5]. Recaptures are shot by active and dynamic or passive approaches. In the first case, IRT permits to map the new patches when these materials have a different density, or surface finishing, than original fresco. Mapping surface temperature permits an early detection of risk areas in time, and it can be periodically repeated without any damage of investigated surfaces, time of survey is short and it can be applied on extensive areas. Moreover, active approach allows to detect, localize, analyse, even measure structural elements and texture masonry underneath the plaster, effectively supporting the structural evaluation and the choice of the further steps of the diagnostic process as shown in the study case of Malpaga (see paragraph 5.2).

Main applications

a) Structures detection: cracks, texture of masonry, hidden structural elements, opening infilling

Many diagnostics techniques allow to localize voids and different materials in the structures, and the scientific research has been doing several new step in these last years. Nevertheless, all these tests require that contact between the surface and application is along profiles or points, which have to be chosen very carefully, in order to get significant data.
On the contrary, multi spectral analysis leads to shooting images of the whole surface under investigation in a short period of time, still with the limitation to be applied only few cm underneath the surface. Particularly, IRT has numerous applications [6] which have the great advantages of being non-destructive and to be applied without any contact with the surface. Nevertheless, IRT requires an active approach to obtain any information regarding the layers of the structure underneath the plaster. That's means to stimulate the masonry with a heating flux, powerful enough to increase the surface temperature of 0,5-1°C. Often the environment supplies the necessary thermal stimulation, otherwise (in case of interior finishing, northern orientation of the elevation, or bad weather) it is required an artificial heating. The choice of the thermal stimulation is and crucial to obtain any result, therefore the calculation of the power, time, kind of heat transfer to produce are mandatory. Maths models and algorithm effectively support this choice, besides to the experience of the diagnostic designer.

b) Moisture Detection: Employed Techniques

Moisture detection consists in crossing the results of IRT with the data coming from low destructive techniques for measuring water content in selected samples (Olmi, 2008). Ambient conditions affect results; therefore, operators measure air T and RH during the scanning and in the 24 hours before the test. Low air temperature and high RH inhibit evaporation and consequently the thermal gradient between wet and dry surfaces is so reduced that it could become indicative of many other thermal processes occurring on the surfaces. A further integration with low destructive measurements of water content allows to quantitatively determine the amount of liquid water in the structure: few small samples of the surface material in the colder areas, and for comparison on the warmer ones, are taken for the gravimetric analysis (according to the current national rule UNI 11085), calcium carbide, and more innovative tests, as the Fixed Points Method (PPM) (Rosina, 2004) and Evanescent Dielectricity (EFD), Nuclear Magnetic Resonance (NMR) (Rosina, at al., 2004) will confirm and quantify the presence of water.

c) Monitoring ambient and surface conditions

Monitoring air Temperature, RH and surfaces Temperature, is performed by means of non-contact techniques such as probes, psychrometric tests (according to the national current recommendation UNI 10829) and IRT. Repeated psychrometric surveys allow to record variations of micro-climatic conditions; measurements are performed along a grid of measurement points, which cover the extension of the whole building. Data processing consists of plotting the results into thematic maps (each for any measured variable, RH, SH, T), which have the same metric reference of measured drawings of the building. Finally, the superimposition of thematic maps and building plants allow to connect variation of distribution of air T and humidity to building structure and morphology.
Integration between these data and thermal scanning of interior surfaces, at different ambient conditions, permits to find out most critical zones, in which operators will focus the further step of investigation. The detection of thermal unbalances, their connection with the use of the building and the effects of environmental affection on the building thermo-hygrometrical balance, are useful to define the corrective actions on the boundary conditions to erase or reduce unbalances (Rosina, at al., 2008). It is well known that variations of the thermo-hygrometrical balance between ambient and surfaces is the main condition leading to exchange water across the surface, and it causes damage to the surface during water change of states (liquid/vapor). Early detection of surface thermal gradients is an effective alert of incipient damage: if the surface does not already show decay, a rapid change of critical boundary conditions can prevent its manifestation. Nevertheless a timely intervention require to take in account the whole process of exchange between masonry, surface, micro-climate and exterior ambient and, above all, the criteria of preservation and use of the buildings under investigation.
While the application focus is to set the most reliable and feasible procedure in the field, in the laboratories of Polytech-

nic, National Research Council and State University of Milan a study is ongoing on new methods to characterize the thermo-hygrometrical behavior of surface under monitoring, in order to find out the parameter to keep under control for the early detection of damage and the risk assessment (Rosina & Sansonetti, 2011).

Study cases

The Lavello Convent

Planned preservation is a suitable philosophy for preventing damage causes on both monuments and diffused historic buildings. In the following, the examples refer the application of diagnostics in the conservation process on both the buildings: the first study case shows how diagnostics supplied the maintenance program, at the end of the restoration process; the latter case shows how diagnostics supported the decisions about the restoration of the frescoes. In both of the cases, diagnostics indicates the causes of risks for the conservation of the materials.

Lavello Convent is a complex of buildings (the church, the convents, the courtyards) that recently underwent restoration and at present hosts many useful functions for the local community and, on a larger scale, for the territory.

The Convent dates back to the beginning of 1500, when the church of the shrine, since considered place of miraculous events, became a place of worship and pilgrimage. The convent suffered many demolitions and transformation, restoration and remakes throughout the centuries, up to the complete restoration finished in 2002.

The building consists of three bodies connected to two internal cloisters. There were different interventions on frescoes, decorations, ornaments and on the pavement dating back to 1400-1500. A western loggia and altars in inlaid marble dates back to the eighteenth century. As documented, the structure had a remarkable evolution, well shown during the recovery of the external plaster.

Figure 1: Lavello Convent, Calolziocorte: Northern side. The square frames the areas of application of the biocides under test

Few years after the conclusion of the last restoration works, degradation phenomena appeared that highlighted critical points. In particular, the surveys revealed the poor durability of the plasters applied during the restoration, the damage caused by microorganisms and plants and the cycle of degradation phenomena due to the environment in which the technological elements are. The phase of assessment of the facades, performed through investigation and thermo graphic surveys, has provided information about the detected pathologies and their possible causes. The plaster finishing of the facades shows efflorescence, stains, superficial alteration and deposits, crusts, ex-foliations, erosion, disgregation, detachments and cracks: the damage mainly deals with the critical exposure to humidity. Therefore, the research focused on the adhesion problems of the finishing caused by water absorption. Aim of the research is to investigate the issue of plaster conservation and evaluate possible strategies of intervention to reduce the damage.

The first step was the study of the present conditions of the state of damage of the northern facade. The diagnostic survey aimed at the definition of the chemical and mineralogical composition, the strati-graphic sequence and the state of conservation of some coating materials of the walls, as well as the study of biological colonization present on the facades (Sansonetti, 2016).

The project generated an operational result with the data for the new plaster composition and a methodological innovation, the introduction of a long run conservation approach.

Referring to the first achievement it has been clear that comparing the behavior of deteriorated plasters with samples of different mixtures would have been the best condition in order to define the suitable intervention.
On the untreated plasters applied on site, the moisture ring test gave some input for the identification of the best mixture and supported the intervention (re-plastering the most damaged elevations).
The data processing phase is still ongoing as well as the on-site investigation: the periodical measurements and the natural aging of the applied products, together with the effects of the weathering are under study for the next five years.
Nevertheless, the investigations provided enough input data for supporting the choice of the best mixture to apply on the northern side. At the end of the building site, the performed tests and analysis implemented during the ongoing Conservation Plan in particular supported the decision process for defining the threshold between maintenance and acceptable damage, and, consequently setting the inspection procedures, cycles of maintenance of protective/biocide treatments, and the economic plan (Fiocca, Sabatini, 2013).

Castel Masegra, Sondrio

Monitoring the castle for planning the maintenance
The investigation on Masegra Castle is a part of the research CPRE (planning conservation in the common Rethic Alps region, Program of research funded by EU 2011-2013 for Switzerland/Italy). The developed knowledge on the entire castle were useful to set the plan of conservation for optimizing the available resources for the management at present and the future uses.
Within this scenario, it is mandatory monitoring the thermal-hygrometric behavior of the masonry and its micro-climatic exchanges, without artificial thermal solicitation due to the use of plant and visitor presence. On the basis of the variation of parameters that characterizing the behavior, is the definition of the threshold values, that are not to be trespassed for preventing any damage of the materials.
In the following, some results are reported, that served as bases for the development of the guideline for the conservation, especially for where the decoration and historic plaster. Thanks to the diagnostic and monitoring experienced for plans of conservation in previous years (Rosina, 2007), as first step was possible to state the criteria and procedures of the present application on Castle Masegra since the first years of monitoring. The location of the risk areas resulted at the first screening by IRT, because the location of thermal anomalies on surfaces guided the further steps of diagnostics in finding the anomalous water content, presence of early damages, salts, biological growth, inappropriate patches of plaster and materials for repairing previous damages, dangerous levels of air humidity, etc. (Sansonetti, Rosina, Ludwig, 2011) The procedure of rapid diagnostics applied on the castle in the spring 2014 had the advantages to be prolonged in the monitoring practices up to 2016, refining the selection of risk areas and integrating the diagnostics with specific and accurate additional techniques (as the measures of water content by gravimetric tests) with the aim to cross the data and the improve information flow.
A second aim of diagnostics has been the map of masonry textures of the all complex. IRT fully demonstrated its usefulness together with the historic and archive research, and many new information supported the evaluation of structural anomalies ad their vulnerability risks for the conservation of the masonry. Also for these analysis, the steady procedures for assessing the texture underneath the plasters led to obtain the best results in a short time, despite of the uneven condition of the surfaces, (damages, colors, decorations, etc.) that could prevent reliable results (Ludwig&Rosina, 2005; Grinzato et al.2009; Olmi, 2008).
See scientific literature and used standard references for obtaining the procedures (Bernardi et al., 2007; Della Torre et al., 2006).
The highest water contents resulted in the masonry of buildings 7 and 8, at underground level. IRT served to locate unfilled openings in buildings 1, 4 (Fig. 4), 7, the vaults texture resulted different in building 4 (fig. 5), at ground level, due to the reconstruction after a fire. The middle-long term projects of the new uses will have a phase of yard, a partial transformation of buildings and the installation of plant.
Due to the highly differentiated state of conservation of present finishing, the final result of the research is producing guidelines for reducing the risks, at present and for future transformation, with the indication of RH and T°C thresholds to avoid to trespass (NORMA UNI 10829:1999. Beni di interesse storico e artistico - Condizioni ambientali di conservazione - Misurazione ed analisi; Cacace, 2010; D'Agostino, D'Ambrosio, & Riccio, 2007).

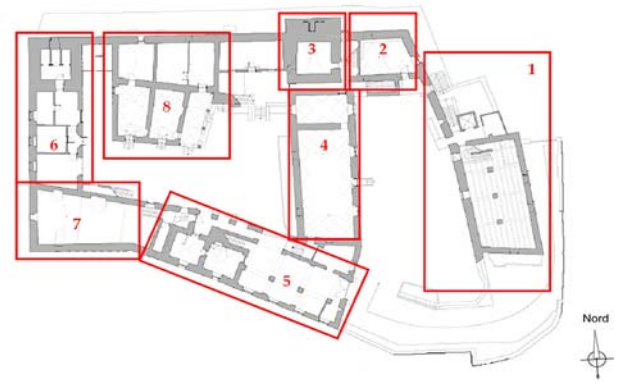

Figure 2: Castel Masegra complex, location of the buildings

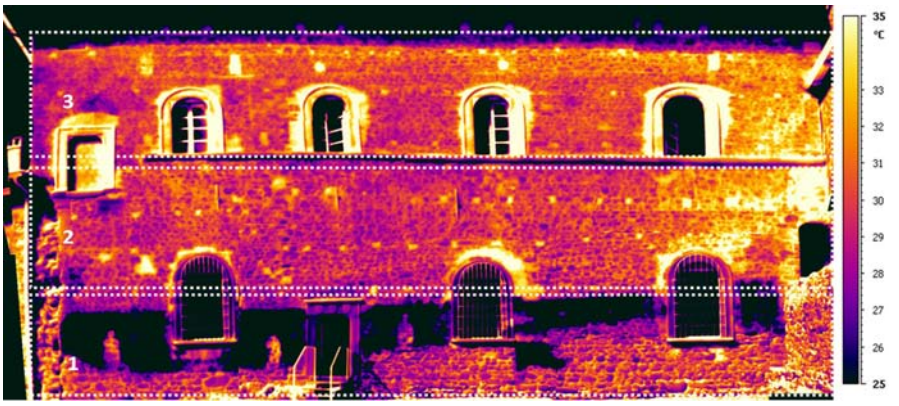

Figure 3: Building 4, Mosaic of thermograms, western elevation, after 2 hours of solar irradiation

*Figure 4: a),b): Building 4, hall at the ground level, photo(left) and IRT mosaic (right) of the northern side. Heating of 8*C in one hour. The picture shows an infilling brick wall in the middle of the structure(solid stone masonry)*

Conclusions

The installation of probes is a cheap investment, it has the advantage to define the parameters for the optimal conservation of the structures and finishing. Because of the necessity to record data for at least one year (to distinguish the natural/artificial variations of RH and air temperature due to the seasons and daily cycles and their affection on the micro-climate), the best time for starting the monitoring is always "early", at the beginning of the assessment. Monitoring time and the choice of devices and tools are important choices, nevertheless the priority is their location: it is mandatory to preliminary select the areas where the highest imbalance/variation occurs, with the aim to quantify the risk for the conservation of surfaces and structures and all their interaction with the environment. The conclusive discussion of the results include the repercussion in terms of visibility, valorisation and improved sense of belonging of the local community. The development of a network of stakeholders and supporters for the conservation of the present study cases and other historic buildings of the geographic area led also to the access to public funds for the knowledge, maintenance, restoration, new use of the buildings.

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32 CONTRIBUTION OF BIM TECHNOLOGY TO DOCUMENTING MEMORY OF PLACES

Mirjana Devetaković, Milan Radojević

Abstract

The central point of this study is the implementation of building information modeling (BIM) technology in the process of documenting heritage buildings. Being an emergent technology in the domain of AEC (Architecture, Engineering, and Construction), BIM is an approach to the design process in which a 3D geometry model serves as the main infrastructure for representing various another kind of information, available to all participants in the design/construction process. An important characteristic of BIM is its capacity to theoretically represent a designed building through its entire life-cycle, from its inception, through the design and construction processes, the operation during its usage, until its demolition. The purpose of the BIM model is often to describe all parts of the building that are going to be constructed, as well as all equipment, HVAC elements, furniture etc. Unlike the implementation in designing new objects, where the BIM technology is present from an early stage of design when it goes to heritage buildings the BIM model is based on documentation that is often not up to date and on the various building surveys including the 3D laser scanning. Using the methodology of content analysis, in this paper we review three examples of the so-called historic building information modeling (HBIM) from the international practice. The three examples (Harmondsworth Barn, Manchester Town Hall, and Sidney Opera House) have been completed within the research projects funded by their respective states and publicly reported. Finally, we present the experiment done with the master students at the University of Belgrade, modeling the historic Building of Technical Faculties. The paper concludes with a discussion of a various possible usage of HBIM models and their contribution to the memory of places.

Keywords: BIM, Building Information Modeling, documentation, heritage

Introduction

Contemporary society tends to develop on the principles of sustainability, one of which is a careful, protective relation to the cultural heritage. As the built heritage represents an important part of the cultural heritage, it is important to use all available knowledge and tools to contribute to protecting it and preserving for next generations. Significant efforts have been done internationally to examine a range of new technologies in the process of memorizing the places. In the focus of this study is the building information modeling, a technology that has relatively recently started to be applied in the domain of built heritage. The aim of this study is to find out how the BIM technology contributes to documenting built heritage, as well as which are specificities of the application of the technology that could be identified so far.
The methodology applied in this study is the content analysis and experimenting. The content that has been analyzed consists of research reports and media coverage's related to three selected international examples of BIM application in documenting historic buildings, while the experimental part of the study includes modeling of the Building of Technical Faculties in Belgrade.

Building Information Modelling (BIM)

Building Information Modeling (BIM) is a technological approach to supporting architecture, engineering, and construction (AEC) industry. Although based on a specific kind of software, BIM is rather related to processes that occur during a conception, design, documenting, construction, operation and demolition of an object (What are BIM? 2016).

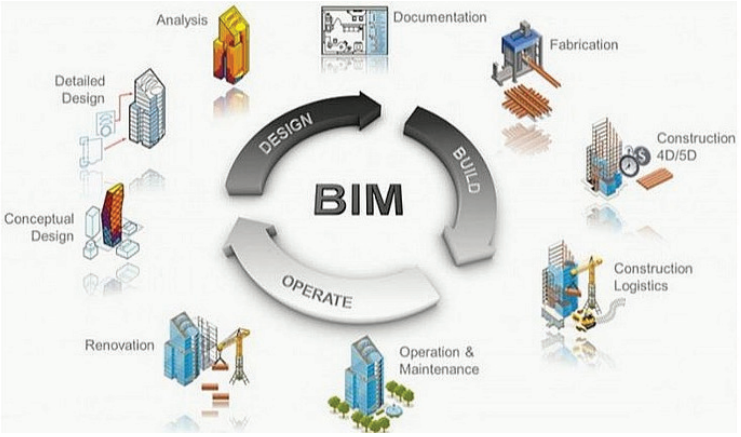

Figure 1: Implementation of BIM in a building lifecycle (source of illustration: The BIM Hub, https://thebimhub.com/)

Theoretically, BIM is relevant to all stages of the life cycle of a building (Fig. 1).
In the center of the BIM stands a 3D model, accessible to all participants in the design/ construction/operation processes. One of the main characteristics of such a model is that it consists of parametric, intelligent elements, representing physical parts of a building. Based on this model it is possible to automatically produce consistent, up-to-date project documentation, i.e. various plans, cross-sections, elevations, details, schedules etc. The model is a geometric representation of a building and serves as an infrastructure for linking all other non-geometric information. There are several critical aspects of BIM implementation such as integration and consistency of information, and interoperability (exchange of information among various software platforms and various disciplines).

BIM level of maturity

When discussing the application of a BIM system, it is useful to distinguish the recognized levels of maturity. According to PAS 1192-2:2013 there are four levels of BIM maturity (Fig. 2):

BIM Level 0 – On this level, participants in the design process, produce mainly 2D CAD documents that, although in an electronic form are not consistent, nor centralized in a common data environment. Very often such material is exchanged as paper documents.

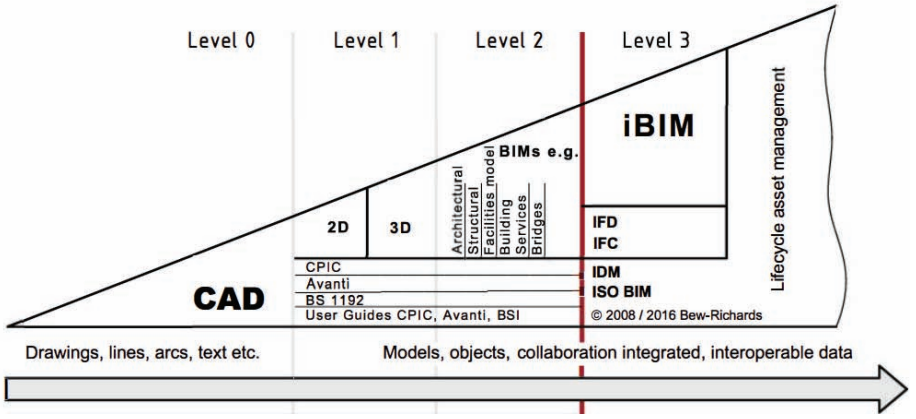

Figure 2: BIM maturity levels according to Bew and Richards, (PAS 1192-2:2013, pp. VII)

BIM Level 1 – Design documentation produced on this level is partly 2D and partly 3D, i.e. model-based. A common data environment has been created to support the design process. The documents are exchanged in an electronic form. A 3D model is created and used mainly for visualization purposes, often by only one participant in the design process.

BIM Level 2 – This level is based on 3D models created by all key disciplines. These models could be gathered ("federated", what is BIM… 2016) in one common model that could serve for the clash detection or similar purposes.

BIM Level 3 – The main characteristics of this level of BIM maturity is the existence of a central model, to which all disciplines contribute their specific information. It is the most difficult level to achieve because all participants should have a smooth access to the model, and ability to effectively participate in its creation.
On the Bew – Richards scheme (Fig. 2), the red vertical red line after the Level 2 represents the year 2016 in the United Kingdom when all government investments needed to be designed and submitted applying the BIM Level 2, in terms to

increase construction efficiency and reduce costs . Relying on the UK example, and having in mind that the maintenance of heritage buildings is often an interest of governments, the application of BIM technology in the domain of built heritage, called HBIM, is a logical advancement, after establishing the technology in the new-build sector.

Application of BIM on Historic Buildings and Sites - HBIM

The HBIM is a relatively new field of academic research. In general, the application of BIM in the heritage domain is less popular than in the newly built sector. When discussing the application of BIM in this domain, in literature it is referenced as Heritage BIM, Historic Building Information Modeling, HBIM, BIM for Heritage, BIM for Historic Buildings, Historic BIM... (Antonopoulou, 2017). In this study, we are using the acronym HBIM.
The HBIM requires new knowledge and skills from the stakeholders involved in the processes of maintaining build heritage. Unlike the BIM application in the newly built sector, where the building elements more or less exist on the market ready to use, the elements for heritage buildings need to be additionally parameterized and modeled. This makes HBIM significantly more demanding than the BIM applied in the newly built sector (Bianchini, 2017). There are also elements of heritage buildings that could not be accessed and the information on which are a matter of assumptions, which makes the process of modeling more challenging.

The three cases of implementing HBIM from international practice

In this section the following three examples from international practice have been analyzed and compared:
- Harmondsworth Barn Documenting

Manchester Town Hall Complex Restoration
- Sydney Opera House Documenting

The process of selection of the cases has been done by searching for diversities in the following aspects: size of the building, the importance of the building, chronological appearance, complexity, and different purposes of the BIM applied. The common point for all examples was the inclusion of in research projects of a wider importance, covered with the detailed research reports and media coverage.

Harmondsworth Barn - Harmondsworth Barn is one of the largest timber-framed buildings in England and an outstanding example of medieval carpentry. It was erected around 1426 in the village of Harmondsworth, today in the proximity of the Heathrow airport. It is categorized Grade 1 heritage object by English Heritage. The building is 58m long and 11.3m wide, with a footprint of 661m^2, consisting of 12 bays (Wikipedia, 2017). In 2016 a company called Ramboll has been commissioned to perform a range of research activities, through collecting existing information and acquiring new ones, systematizing available datasets, testing available software and creating new one, extensive modeling, comparing different 3D scanning technologies, etc. 12 software has been applied and tested, one of which produced in-house, and 8 models have been produced (Brookes, 2017). Majority of the information produced has been integrated and put in the cloud, so that it could be accessed using Web browser by various participants in the process of managing and maintaining the barn (Ibid., pp. 5). One of the important characteristics of the reported research on documenting the Harmondsworth Barn is examining four different levels of detail (LOD) in modeling the timber-framed structure. An important effort has been done in producing a LOD2 BIM model of two bays, consisting of (idealized) simplified intelligent objects. Each of the objects has been described by a considerable amount of well structured, non-geometric information. The methodology of lowering the level of detail (LOD) and increasing level of information (LOI) might be appropriate having in mind that in the case of heritage objects there are other methods of documenting, like photographing, video recording, etc., that could be linked with the simplified elements of a model. One of the most interesting results of documenting the Harmondsworth Barn is the conclusion that a mesh modeling according to a cloud of billions of points obtained from a 3D scan, might be too demanding in terms of modeling time and efforts. It is therefore proposed a technique of a so-called hybrid modeling in which selected intelligent objects have been added into a point-cloud representation of a complex structure. This technique is to be further examined and developed.

Manchester Town Hall Complex Restoration - The Manchester Central Library, a part of the Town House complex is a grade II listed buildings of UK national significance, designed in the 1930s by Emanuel Vincent Harris (Manchester Central Library, Wikipedia, 2018). It has been restored from 2010 to 2014 with a budget of £100m. In 2009 Ryder Architecture won the contract to redesign the Central library, and the City Council made a commitment to use BIM in all its projects. As reported by the Ryder Architects (Mallett, 2015), one of the main benefits of BIM application in this project, apart from conducting a coordinated design process involving all participants similarly as in new-built projects, was a possibility to simulate proposed building solutions through an integral model and communicate the proposed solutions to English Heritage professionals being responsible for final approvals.

Sidney Opera House - Sydney Opera House is one of the best known 20-century landmark objects in the world. It is designed by Danish architect Jørn Utzon and opened in 1973. The research related to BIM application has been done from 2005 to 2007 within the Sydney Opera House FM Exemplar Project funded by CRC (Cooperative Research Centre) for Construction Innovation and the Australian Government Facilities Management Action Agenda (CRC Construction Innovation, 2007). One of the main reasons for this activity was the fact that the Sydney Opera House documentation was digitized from paperwork but is not consistent, nor accurate. No integral digital model of the building existed. The focus of this research was on examining interoperability using the IFC (Industry Foundation Classes) standard for exchange of models among different software platforms. A perspective for the creation of an integral main model from the partial multidisciplinary models was foreseen as realistic and a set of internal standards has been developed in this regard. An important result from the Sydney Opera House research is the recommendation for a wider FM industry to adopt the IFC standard for exchanging information with BIM systems.

Modeling the building of technical faculties in Belgrade

The Building of Technical Faculties in Belgrade is designed by Serbian architects Nikola Nestorović and Branko Tanazević, in the style of academism. It was built from 1925 to 1931 and hosts three faculties of Belgrade University – Faculty of Electrical Engineering, Faculty of Civil Engineering and Faculty of Architecture. In the year 2007, the building has been inscribed in the List of cultural monuments of Serbia.

The modeling of the Building of Technical Faculties in Belgrade has been initiated within the elective course "Integrated Modeling of Architectural Objects – Revit". After introducing the Autodesk's main BIM software Revit, a group of 15 first year master students has been assigned a task to collaboratively model a fragment of the building. The fragment that has been selected as the second floor of the building, one that hosts the Faculty of Architecture. This was the part of the building that the students were the most familiar with. The following elements of the building have been differentiated: exterior walls, interior walls, external windows, internal windows, doors, floors, ceilings, lighting, piping and sewage, heating bodies, security cameras, furniture, side staircases, amphitheater, central staircase, and central hall pylons. Each of the students was assigned one of the listed elements and they were asked to work collaboratively on a common model that was updated once weekly, during the five weeks. After that, every student had to produce a poster, showcasing his/her particular modeling activity within the common model. As a reference, the students were given the CAD drawings of plans and sections that were updated a few years before.

This experiment confirmed some of the conclusions done in the research related to international examples analyzed in the previous section. In the case of the Building of Technical faculties, there's a lack of consistent, detailed, centralized documentation (the cases of Harmondsworth Barn and the Sydney Opera House). Some parts of the building could not be modeled based on the existing documentation, so a 3D scan needed to be produced (Figure 3). The BIM modeling based on the obtained point cloud was still very demanding in terms of computing resources and working time (similar to the case of Harmondsworth Barn). The experiment also correlates with the statements of (Bianchini, 2017) that HBIM requires significant additional parameterization and modeling of building components, and that some information required for the higher level of detail (LOD) could be only predicted but impossible to obtain without invasive methods.

Considering the specificities of conducting this experiment in an education context, it is important to stress that the modeling collaboration represented an important experience for both participating students performing the modeling, and the instructors acting HBIM coordinators/managers.

a) b)

Figure 3 a), b): Building of Technical Faculties in Belgrade – Decorative plastics and part of the 3D scan of the entry hall

Conclusions – Main contributions of HBIM to memorizing places

One of the main and most obvious contributions of HBIM technology is establishing an electronic environment that gathers all available information on a heritage building or site, which itself represents a re-fragmentation of the knowledge on it. A BIM model of a heritage building is a representation of the current state of the selected building in a form of an appropriate, up-to-date 3D model that well serves as the geometric infrastructure for connecting all other information (texts, drawings, photographs, video sequences, links…). The HBIM usually requires a certain amount of parameterization and modeling of epoch specific building components. For the complex historic objects, a careful precedent study of HBIM application and some local standardization might be needed, as well as an examination of interoperability issues. The HBIM often presumes integration of the cutting edge scanning technology in documenting heritage places and further elaborating related kinds of models (point cloud models). Some sources indicate a need to introduce and examine a new kind of combined parametric and point cloud contents into hybrid models.
The main challenge of HBIM application is ensuring accessibility and readability of this system to all members of multidisciplinary teams involved. It is the task of further studies to examine the issues like durability, effective use and updating of information in the next stages of the life of heritage buildings and places.

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FROM SOCIALIST CLASSICISM TO SOCIALIST MODERNISM. TRANSLATING IDEOLOGY INTO ARCHITECTURE IN COMMUNIST ALBANIA

Gjergji Islami, Denada Veizaj, Gjergj Thomai

Abstract

As the Western World followed modernism as its primary choice in art and architecture, the Eastern Bloc had to generate an alternative which would reflect the philosophical and political differences between the two entities. Starting with Socialist Realism, architecture in Albania followed step by step the political course of the country, by becoming an interpretation of the ideology in built form.
The paper focuses mainly in the period covering the first two decades after the end of WWII and attempts to discuss facts and features of Albanian Socialist Architecture, where more than everything, ideology is the guiding norm that shapes the built form. Referring to this period, the death of Joseph Stalin in 1953 and the breaking of the relations with the Soviet Union in 1961 are the key dates that mark the political history. These dates are used to understand the reflection of such events on the architectural ground. Somehow, architecture follows a parallel course to the one of the Eastern Bloc by passing from an eclectic and neoclassical architecture during the rule of Stalin in the Soviet Union, towards a more rational approach after his death, often referred as Socialist Modernism. In both cases architecture remains a medium for transmitting the proletarian and socialist ideas.
During such transition, it is noticeable a distortion of the creative individuality of the architect, who is transformed into an interpreter and translator of the ideology and dogmas into architectural form, by strictly following the pre-defined political line.

Keywords: socialist architecture, Albania, communism, ideology, politics

Introduction

The socialist history of Albania starts in November 1944, after the liberation of the country, when the Communist Party (in 1948 renamed as Party of Labour) would come in power and would rule for more than 45 years. As part of the Eastern Bloc, the entire social, economic, cultural and political context in Albania was oriented towards communism and guided by the Marxist-Leninist ideology. Within this social model, opposing the one of the western world, architecture had its own path going parallel to the political and ideological route of the country. Such path follows a series of political events that would profoundly alter the character of architecture (architects) as part of the official ideology, especially in the first two decades after the liberation.
The paper attempts to discuss facts and features of Albanian Socialist Architecture by focusing on the figure of the architect under pressure, as the professional that had to bridge architecture to politics and ideology.

Socialist Classicism In Albania

In the mid-40s, Albania inherited an architecture influenced both by Ottoman culture and western tendencies (mainly Italian and Austrian). Enver Faja is describing the atmosphere of the architectural ground as "private houses with one or two floors, covered by tiled roof, surrounded by courtyards, gardens and walls, and also a housing and monumental modern architecture" (Faja, 2010). Although the new buildings designed by Italian architects starting from the early '30s offered a new perspective, this was not destined to last for a long time.
The liberation, found the whole country in a very difficult economic situation. Given these circumstances, the first interventions were dedicated to healing the wounds of war (Miho, 1987). In the period 1945-1948, during the Yugoslav

political influence, architecture was not a focus issue. The building activity dealt mostly with the reconstruction of damaged buildings and with few new constructions, mainly of utilitarian nature, without facing the question of style. The few local architects designed several buildings which responded to their individual formation and approach.
Starting from 1948, following the Soviet-Yugoslav split, Albania will become a political satellite of the Soviet Union, status that will affect the whole social context as well as architecture.
The Soviet Union abandoned Constructivism in the mid '30s for adopting Socialist Realism as an official style in art and architecture. As described by Anders Åman, Socialist Realism was the opposing theory to western art. In principle it was a refusal to Modernism or a critical alternative to the western model (Åman, 1992). The new art/architecture had to express the new social ideas, democracy, freedom, and the power of the people. The slogan associated to such vision was "National in Form and Socialist in Content".
In regards to architecture, Socialist Realism sees the city as an artistic entity where public space, public buildings and working environments are highlighted. The socialist content is strictly related to the public dimension of the city where masses manifest their power. There is also a particular attention towards tradition, which is related to what is considered "National Form" in architecture.
From the stylistic features, Socialist Realism is associated to Neoclassicism, which will be the main aesthetical language used to decorate the public buildings and the socialist city. Such architecture that achieved its peak during the Stalinist regime is known also as Socialist Classicism, or Stalinist Architecture, or Stalin's Neo Renaissance.
Architecture in Albania was totally submitted to the method of Socialist Realism, borrowed from the Soviet Union. Such method has been guided by the Party of Labour that through its political assemblies, was elaborating, sanctioning and approving the thesis, codes and principles of soc-realist architecture and urbanism (Faja, 2010). Being faithful to Stalin meant not only obeying to the political line, but also implying the ideological system. Enver Hoxha, the Albanian communist leader, in his speech in front of professionals in February 1948 states that "… architects should follow the popular style. They should try to create a style that is adapting to the characteristics of our country" (Hoxha, 1948). Looking for a national style, a particular architecture that would be popular (socialist in content) and Albanian (national in form), Hoxha officialises Socialist Realism in architecture, an ideology that would keep guiding the local architecture for more than four decades.
In the early 50s several architects that studied in the Soviet Union returned in Albania and started to implement the principles of Socialist Realism or as Petraq Kolevica remarks, they "officialised the decorative Soviet architecture that was spread in all Eastern Europe by creating ugly monstrous buildings" (Kolevica, 1997). The most important buildings at the time were constructed referring to the neoclassical aesthetics, which was not only an ideological must but also an easily comprehensible and conventional image for the masses.

Towards a socialist modernism (?)

Stalin's death in 1953 gave way to a series of political transformations in the Soviet Union that would soon affect the whole Eastern Block. The following regime of Nikita Khrushchev would bring significant changes in architecture. Khrushchev severely criticized the approach on architecture followed by Stalin. Decorations were considered excessive and expensive while architecture had to be oriented towards advanced industrialization and standardization as the most efficient way to build (Molnár, 2013). In August 1955 the Soviet Academy of Architecture was abolished and replaced by the Academy of Construction and Architecture with the focus to develop standardization and research in the problems of construction (Eady, 2013).
In this period Albania was strictly following the Soviet political line. On the other hand, being a poor country, implied a need for an economical, rational, simple and functional architecture. In such conditions, the new changes were welcomed and imported in a short time. Faja (2010) is defining the new architecture as the architecture of democracy and not the one of luxury and decorations, the architecture responding to the needs for all the urban population.
The developments in the Soviet Union, were absorbed as a new experience, while the practice of the period 1945-1955 has been criticized. The critics were focused principally in the excessive and meaningless decoration without touching the essence, the ideology that generated the socialist architecture (Bego, 2009). As a consequence, the first examples of a new, rational and pure architecture started to appear in the late 50s. The same architects had to adapt stylistically to a new approach that was neither Socialist Classicism nor Modernism.

The changes in the Soviet architecture were part of the De-Stalinization process, a movement that would definitely influence the relations with Albania in the end of the '50s. In the political plan Albania would disapprove the Khrushchevian route and his break from Stalinism. This brought the rupture of the diplomatic relations with the Soviet Union in 1961. While the political ways had split, architecture could not step back to the neoclassical design principles used during Socialist Classicism. While ideologically maintaining the principles of Socialist Realism, Albanian architecture continued its way towards economization, simplicity and rationalism.

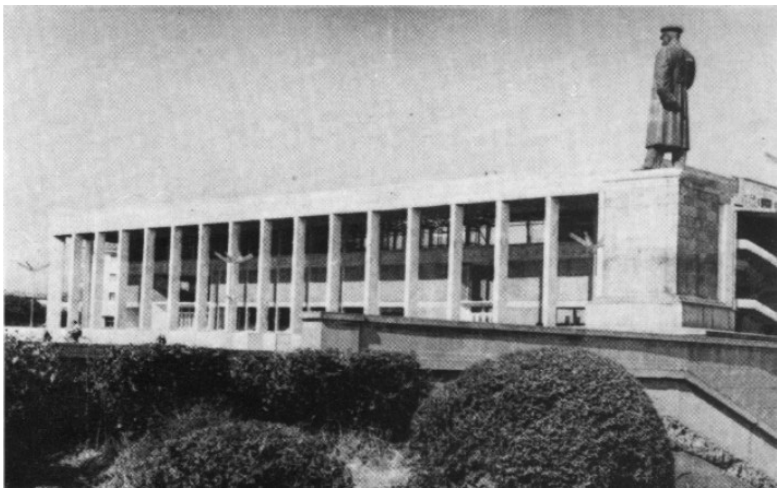

Figure 1: The Palace of Culture under construction and the monument of Stalin in the central square of Tirana

The first important building marking the change in Albanian architecture was the Palace of Culture in Tirana, a gift of the Soviet Union (Figure 1). Nikita Khrushchev symbolically placed the first stone during his visit in 1959. In May 1960 the project prepared by V. A. Butuzov of the Mosproject took is final shape and the construction of the palace started. Following the breakage of the relations between the two countries in 1961, the supply of design and materials from the Soviet Union stopped. In such conditions Albanian specialists completed the missing part of the design and carried on the work by completing it in 1963 (Zëri i Popullit, 1961). The palace of culture became somehow a triumph of Albanian architects and engineers that could complete independently the construction of a complex and very particular monumental building. Such triumph at the same time confirmed the image of the new rational architecture to be cultivated in the following years.
The new architecture had a modern image and was inspired by the few and well selected magazines entering the country from Romania, Czechoslovakia, Bulgaria etc. (Kolevica, 1997). While the Eastern Bloc was consolidating what later has been called Socialist Modernism, Albania was unprepared to articulate a clear statement in architecture. Still attached to the socialist content, the new architecture had resemblances of modern aesthetics but was lacking a modern content. While the country was totally detached and isolated from the rest of the world, in the state university (the only university) modernism remained a taboo till the late '80s. According to Petraq Kolevica, the lack of deep theoretical understanding of the profession from the architects was the main problem architecture was facing (Kolevica, 1971). Although the '60s apparently resulted to be relatively liberal in architecture, Albanian architects flirted in distance with the modern aesthetics by admiring only its superficial appearance.

Translating ideology into built form

The shift from Socialist Classicism to Socialist Modernism was a responsibility of the local architects that had to understand and apply correctly the new architecture and its principles. Certainly for most of them, especially the ones educated in the Soviet Union, this was an unnatural shift, but the choices weren't many. The job description of the architect related him professionally to the translation and interpretation of the official ideology and dogmas into built form; simultaneously a political, social and architectural mission.
Three case studies have been chosen to illustrate the architectural shift that occurred in the end of the 50s by focusing on the architect as a professional that had to adapt to the pre-defined political line by distorting his creative personality. The first case refers to Koço Miho, an architect educated in Moscow, who becomes one of the most influential figures of Albanian architecture during communism. Two different designs are illustrated in Figure 2, where a significant change in the stylistic approach can be noticed. The Higher Economic Institute in Tirana, designed in the years 1954-1955, is a scholar interpretation of Socialist Classicism. The same author, two decades later will design the new Railway Station in Durrës which is one of the most distinguished examples of a rational architecture where the relationship between form, space

and structure create an elegant building by avoiding the decorative elements (Veizaj, Islami, Thomai, 2016).
The second case, similarly to the first, represents two designs by architect Skënder Luarasi, educated in Austria, who is also one of the distinguished figures of Albanian architecture in socialism. The two designs represent two hospital buildings, designed respectively in 1957 and 1971. Both buildings are part of the "Nënë Tereza" hospital complex in Tirana and are built in a distance of less than 100 m from each other. Also in this case, the façade treatment respond to the specific ideological period (Figure 3) (Islami, Thomai, Tuxhari, 2015).
The third case chosen to illustrate the ideological-architectural shift, relates to the architect Adem Stërmasi. In Figure 4, two designs for the same building are presented. Stërmasi designed the first proposal for the Neuropsychiatric Hospital in Elbasan in 1958. The building is designed respecting the neoclassical approach with a monumental entrance and decorative articulations on the facade. Apparently the debate about the ideological inconsistence of the design has begun before the start of the construction work, and Stërmasi has been constricted to review his proposal. Two years later, in 1960, Stërmasi signs the second proposal for the same building on the same site, with no noticeable program changes. The new proposal consists of a reviewed facade where all the excessive decorations are removed by simplifying the design (Islami, Thomai, Tuxhari, 2015).
The three cases studies represent an overview of the shift from neoclassical architecture to plain, rational and unornamented design. While the phenomenon is easily understandable, what seems to be also clear is that regardless the individual formation or approach, architects had to obey mechanically to the ideological line. Any form of individuality, disobedience or wrong interpretation would be intolerable and punishable. Although skillful architects managed to adapt their selves and produce interesting projects, many others had to lose their creative freedom by getting transformed into political engineers.

Conclusions

While architecture and ideology have always been associated together, the figure that enables such a relationship has often been out of the focus. The architect, a professional able to materialize ideas into built form, able to propose living models, had to become one of the very powerful tools of the communist regime in Albania. In charge of understanding the ideological context and at the same time responsible about transmitting it to others through design, the figure of the architect played a major role in the

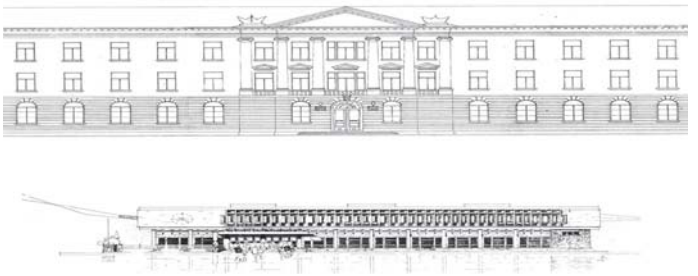

Figure 2: Two designs from architect Koço Miho: above, 195401955 design for the Higher Economic Institute in Tirana; below 197801980 design for the new Railway Station in Durrës (Source AQTN)

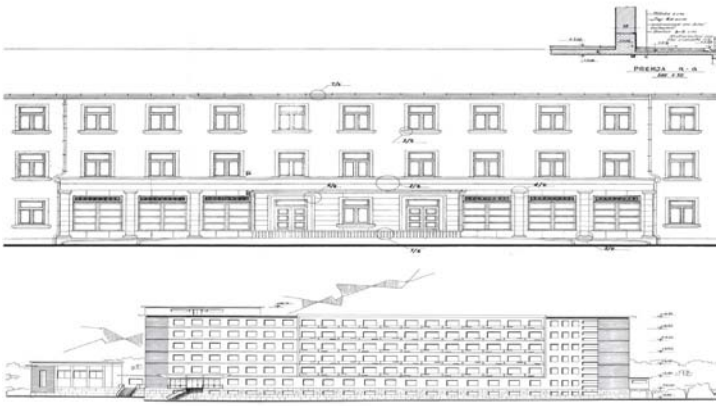

Figure 3: Two designs from architect Skënder Luarasi: above, 1957 design for the Infective Hospital in Tirana; below 1969-1971 design for the Pathologic Hospital in Tirana (source AQTN)

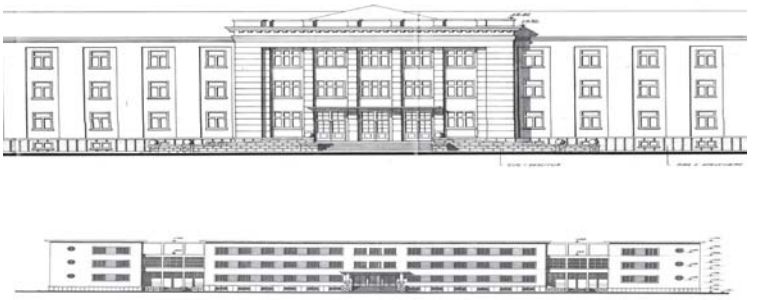

Figure 4: Two designs from architect Adem Stërmasi: above, 1958 design for Neuropsychiatric Hospital in Elbasan(first proposal); below, 1960 design for Neuropsychiatric Hospital in Elbasan(final proposal)(source AQTN)

proclamation of the regime's social ideas and in the manifestation of power. In contrary to their formation, architects in Albania had to be flexible and adaptable to any political signal. They had to give up from their creative and curious personality for responding to the particular political and ideological concerns.
The shift from Socialist Classicism to Socialist Modernism in the late '50s, is a crucial point in defining the public and professional status of the socialist architect in Albania, certainly different from its western world homologue.

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34

NEURO-ARCHITECTURE AND PLACEMAKING: THE RELATIONSHIP BETWEEN THE BUILT ENVIRONMENT AND BRAIN

Nada Ibrahimi, Ani Çuedari, Florian Nepravishta

Abstract

Currently, there is an approach toward modern understanding or designing of the cities in general, including orientation to neuro-architecture principles. Taking into account the principle of the intelligent and sustainable city in general and especially the logic of creating space for the individual as a human being, the aim of the study is to analyze the relationship between the trinomial such as mental wellbeing, brain and built environment in terms of memory. Familiarizing with the theoretical basis that guides principles inspired by neuro-architecture towards the ideologies of placemaking, the study will focus on the historical center of Tirana. The used methodology will first consist of detecting the connection between well-being, the memory of places and brain and then on the identification of elements that shaped during years the corresponding area. So initially, after analyzing general issues of neuro-architecture and placemaking, local context will be considered and eventually a possible solution in terms of making places to create a more spontaneous connection between design, the perception of space and the welfare.
In conclusion, the main outcome would be the creation of human places by preserving from the past valuable concepts of space developments in traditional neighborhoods of Tirana, such as the preservation of neighbors' rituals and mentality.

Keywords: neuro-architecture, placemaking, brain, mental wellbeing, built environment

Introduction

There is a clear connection between the two components that will be a key part of this study, memories, and placemaking, especially in terms of the dual relationship that individual creates with the place, the spiritual and the physical one. Starting from the space as a geographical notion and seeing it beyond its physical sense (identified in coordinates), it is noticed another dimension of it after the relationship with the individual. Thus, assessing human contribution as a definition of the concept of space, Cresswell (2004) treats the place as a space that the individual makes meaningful.
In Figure 1, is configured the study reasoning, using the concept of space as the beginning and at the end at the same time. So, starting from "space" as a physical notion, it is described the way how the concept of "placemaking" is further developed. Based on the following scheme, the perceived space of the brain area activates memories, which regarding this, are as good as the environment experienced is. This is also the moment in which the principles of neuro-architecture, which ANFA's (Academy for Architecture and Neuroscience) attitudes also see closely linked to the mental health of the individual, will be faced, studying the relationship between the brain processes and the environment to aim the creation of characteristic spaces.

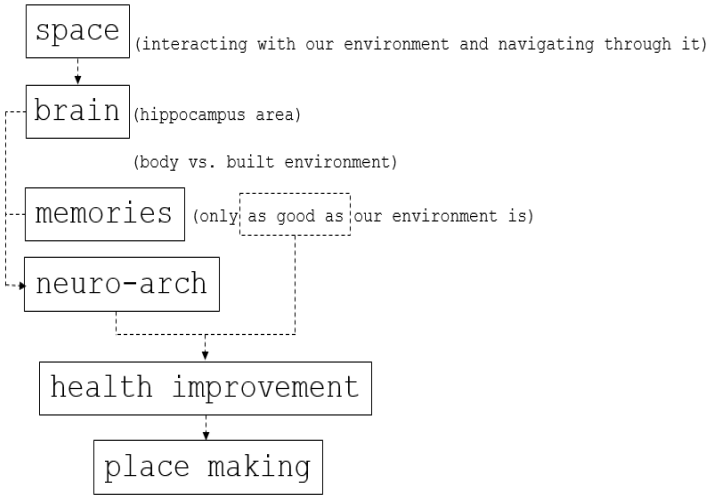

Figure 1: The conceptual map which explains the logic of the study

In more detailed terms, the basic concepts discussed in this research will be addressed in the following passages.
Thus, the first part makes a general description of the context by highlighting all the historical data that confirm the identity of the area and the way it affects the current study.
In the second part, is identified the relationship individual - space and the processes that define its form. Recognizing the contribution that the cerebral states have on the "from space to place" perceptual path is recognized the close connection created between environment and memories of the individual. The third part analyses the local problem which addresses the risk of "the loss of identity", further causing the possibility of "the loss of sense of place". In the fourth part, beginning from the "sense of place" the aim is making places, but responding to the spiritual demands of the area. In the fifth part focusing on the contributions that the relevant study provides' are listed the conclusions.

Context

Figure 2: The location of the area taken into consideration.

The area into consideration is located in the North West side of the Historical Centre of Tirana, considered as one of the oldest parts of the city. One of the main characteristics of this area is the presence of such significant buildings such as vernacular buildings (19th century), master buildings (beginning of 20th century) and architect buildings (after the 20th century). With years, the constructions in this area have been developed slowly to reach today's situation. Even mainly can be found buildings constructed during the socialist period (linear buildings of 4-5 floors), as well as buildings constructed after 90's, in the area till exist some of the above-mentioned styles. The high buildings (9 floors built after communism), has negatively affected the area tradition as well as the further development of the urban infrastructure in the area. A big issue last years is not only the height or even the language used on their construction but also other local interventions as illegally added floors, constructions on public areas with or without a construction permit, etc. Taking all the above into consideration, the area under study nowadays is really suffering a lack of identity, which is built on years as a combination of important architectural and urban elements, for example, small villas with a red roof, green gardens, and small roads sometimes even ended used for pedestrians or not.

How does the context affect the proposal?

Regarding the degradation in the area, the problems are widespread. In terms of urban identity, the issues are linked to unplanned illegal intrigues or even legitimate ones. Thus, analyzing the attitude of Tay & Goh (2003) and Chang (2005), it can be noticed that they consider interventions in concrete situations in Asia as unimaginable in terms of inheritance, memory or identity. Concretely, they say:
"Why is it that many planners in Asia still look to the West for ideas and standard in urban design, planning, and architecture while they speak of an Asian identity, Asian democracy, and Asian way?"
In this regard, despite the fact that the situation appears different from the Asian reality, the same problem arises in the Albanian developments in general and in the concrete situation in particular. So, we often face the unexpected dilemma of striving to develop our country not only by risking the erasure of our past memory (inheritance) but at the same time losing national identity.
Returning on the study question, the area has new, often even qualitative developments, which unfortunately appear unrealized in terms of the above-mentioned approach. The study area, part of the Historical Centre of Tirana, is known for it's strong physical and mental elements, which despite being reduced in relation to its origin, gave the area a rather strong character. The analysis related to the assessment of physical development over time is not the purpose of this

Figure 3: Photos of the area taken into consideration.

study, while in terms of spiritual elements the area is part of some significant attitudes that are listed below.

By tradition, Tirana autochthonous inhabitants are known as calm and lovely people who are used to live in big communities. The stools outside the main doors where the habitats (especially women) sit to talk and spend their free time, the public places as building corners or tree shadows where children are gathered to play or man to talk are their main elements, the existence of narrow roads sometimes even ended, of wooden doors lied on them, the existence of public green squares, surrounded by small buildings with private or common gardens full of trees and flowers, the existence of red roofs gives to the area a special feeling. All the above are strong traditional elements and not only, which give to the residents a very pleasant neighborhood that continues to be developed as per tradition and gives to them a feeling of wellness and intimacy.

From space to place

Nuala (2004), identifying the relationship between time, representation and social memory highlights:

"The transmission and translation of meaning across time and space are central both to the rituals of everyday life and to the exceptional moments of remembrance associated with birth, death and other key events in personal and collective histories. Memory as recollection, remembering, and representation is crucial in the mapping of significant historical moments and in the articulation of personal identity."

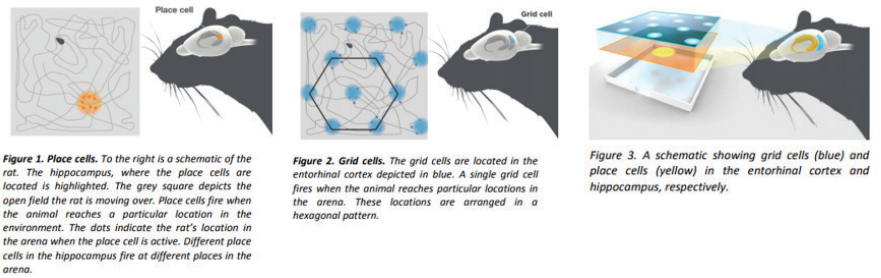

Figure 1. Place cells. To the right is a schematic of the rat. The hippocampus, where the place cells are located is highlighted. The grey square depicts the open field the rat is moving over. Place cells fire when the animal reaches a particular location in the environment. The dots indicate the rat's location in the arena when the place cell is active. Different place cells in the hippocampus fire at different places in the arena.

Figure 2. Grid cells. The grid cells are located in the entorhinal cortex depicted in blue. A single grid cell fires when the animal reaches particular locations in the arena. These locations are arranged in a hexagonal pattern.

Figure 3. A schematic showing grid cells (blue) and place cells (yellow) in the entorhinal cortex and hippocampus, respectively.

Figure 4: The logic of the experiment about the place and grid cells. Source: The Nobel Prize website of the Nobel Foundation.

It is noticed a close relationship between the individual and the place, and as a product of this familiarity with space, the notion of a sense of place is justified. Thus, the philosopher Edward S. Casey (2000) based on the notions "place" and "site" confirms that there is a process that affects the form of space under the pressure of individual or collective memory.

Concerning this concept, it is worth considering the principle of Norberg Shulz (1980) who treats the space in these two ways, suggesting finally the use of a single concept such as "lived space", states:

"Space denotes the three-dimensional organization of the elements which make up a place, character denotes the general atmosphere which is the most comprehensive property of any place"

Therefore, recognizing that memory as an element that concretizes the space, we can accept that many of us relate memory and capacity to remember only to brain functions but in fact, it is also a product of our body's experience of physical space.

Thus, based on the structures of neuroscience, one can further address the relationship that the individual forms with space, analyzing exactly how we interact with our environment and how we navigate through it. In 2014, O'Keefe and the Mosers won the Nobel Prize for exactly the concept of "brain as an inner GPS", which, using the logic of Grid and Place Cells, clarifies the path from brain to a sense of place. Figure 4 explains in more details the logic of the experiment, which further confirms the relationship created between individual and space.

The risk of placelessness

Analyzing the context of the study based on how we perceive the space makes possible the clear identification of the problem. The area is unique to its identity data, full of identifying elements of unusual physical and spiritual character, which need to be managed further. Therefore, despite the difficulties associated with the creation of a characteristic space in terms of inheritance, nowadays the area into consideration is characterized by a lack of identity, caused by the inconsistent concepts of planning and development. Otherwise, this unjust approach has jeopardized the possibility of losing any emotional feelings of attachment or any physical urgency to take care of a place. As Relph (1976) asserts, the loss of identity also means a loss of sense of place which is recently being gradually overshadowed by a less authentic attitude that he called placelessness: "the casual eradication of distinctive places and the making of standardized landscapes that results from an insensitivity to the significance of place ".

Using sense of place for making places

The intended intervention uses the space characteristics to create further, as noted above, some "lived spaces". To develop the strategy of "using the sense of place for making places", the analysis of the study area went through several stages. Initially, there were evidenced objects constructed according to three categories: objects with historical value that should be preserved, objects that used to have historical value, but with time this value is destroyed and high rise objects for which the best solution is not demolishing them.
Further, based on historical facts and from an analytical point of view, in the area were highlighted architectural developments which influencing the inhabitants' way of life confirmed its identity. In these terms were noted the elements mentioned above (paragraph 1.3: How does the context affect the proposal) such as: the stools outside the main doors, the public places as building corners or tree shadows, the narrow roads sometimes even ended, the wooden doors, the public green squares, the red roofs etc.
In the end, the strategy of intervention was discussed in detail, seen as a possible solution, considering the preservation or restoration of all the elements that contributed to the formation of an identity area with typical characteristics.

The proposed intervention strategy

The proposal provides developing the area by respecting tradition, history, people mentality as well as their needs by not destroying the architectonic and historical values of Tirana but developing it.
The proposed intervention strategy is based on:

I. Analyzing the typology of the existing objects by differentiating them in:
- Objects with historical value that should be preserved such as vernacular buildings, master and architect ones. The study offers the preservation of a minimum one of each type, in order the area still to show and save its creation tracks.
- Objects that used to have historical value, but with time this value is destroyed. In such objects, the historical value elements still exist but they are destroyed from the lack of maintenance, losing their identity. The proposal suggests their replacement with new buildings, with a few floors according to the existing conditions.
- High Objects for which the best solution is not demolishing them. These buildings do not offer anything, not any volumetric solution, not any technology improvement, but they are a reality that should be accepted somehow. The recommendation is to preserve them by re-dimensioning the spaces around them in order to decrease their effect on the area concept.

II. Supposing that the proposed intervention consists overall on analyzing common public spaces, squares, and streets. An important part of such analysis is the creation of narrow streets for pedestrians or not. Also of the same importance is the creation of square areas to be used as public plazas at the end of each narrow street for facilitating the local people life and their free activities. Interesting is also the link between of such public plazas with pedestrians and

vehicles movements as well as with the building's entrance. Such plazas are of two types. The first is a square created within the proposed new and old buildings and the second is a square created at the end of the narrow streets.

III. Analyzing housing coverings. Another traditional characteristic of Tirana city used to be the used of red roofs on the buildings. In the proposal, although it is proposed the construction of new structures, the same characteristic is used by creating so the same ratio between the red roof buildings and terrace buildings.

So to anticipate the conclusions it is worth mention area development by preserving urban tissue. According to this analysis, such preserving is possible to be achieved by using the new buildings whenever possible. Such buildings should be constructed based on the Tirana mentality and way of living, but at the same time taking into consideration the nowadays living conditions, projecting and construction technology. The intervention does not affect the historical part of the area, because of the preservation of some historical buildings. Such includes different buildings constructed in different periods, which will leave tracks of history in the area starting from the buildings constructed up to '37, then the ones of the communist period ending with the ones after the '90s.
The re-dimensioning according to this proposal preserves some special characteristics of the area by giving importance to:

- Public plazas for people gathering rich in green areas and creative elements;
- Narrow traditional Tirana streets for pedestrians or not, which ends on public plazas;
- Entrance orientation mainly toward such narrow streets;
- Low rise buildings;
- Green gardens around such buildings;
- Ratio roof-terrace.

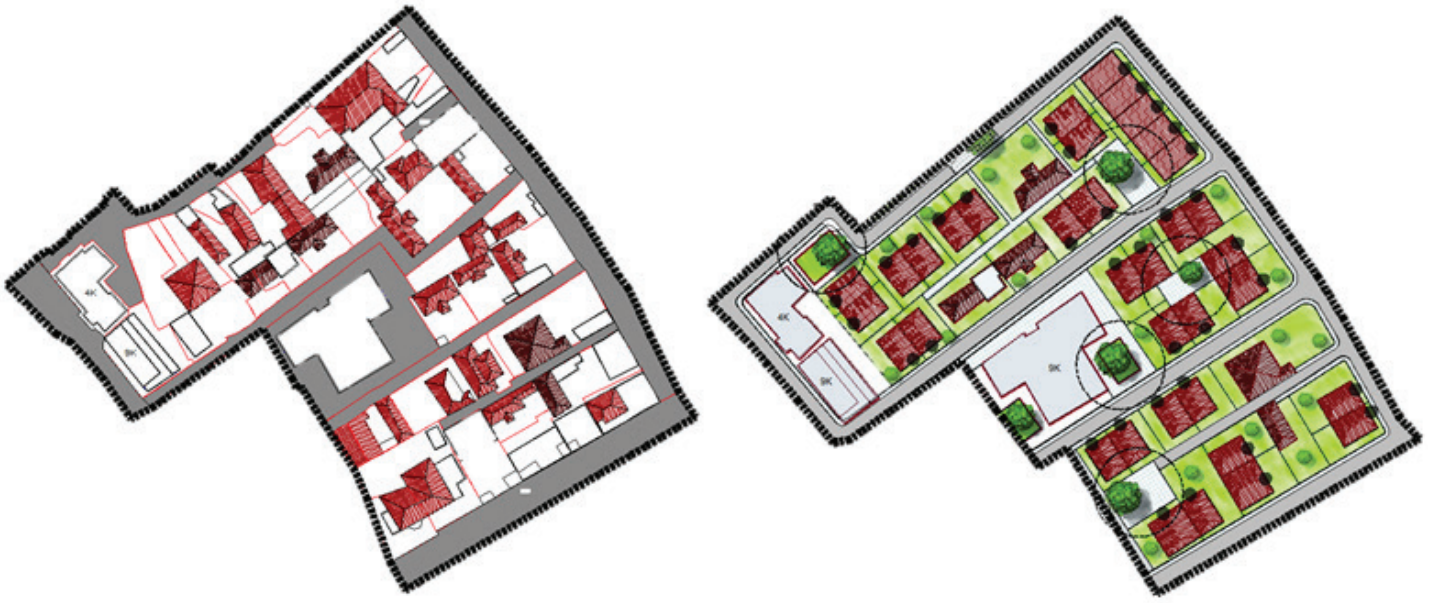

Figure 5: Dealing with two situations, the existing one and the proposed one. Despite the fact that the solution suggests the construction of new low buildings, attention has been paid to the preservation of urban spiritual identity, preserving and reviving the past of traditional Tirana neighborhoods

Conclusions

As a conclusion, the intervention proposed consists of new building constructions in most of the area under study, by preserving from the past valuable concepts of the building developments and traditional Tirana neighborhoods. It is given more importance to preserve the psychology and mentality of people living there, then the physical aspect of the buildings.
However, at the end of the proposal can be decoded:

- A possible solution in terms of placemaking to create a more spontaneous connection between design, the perception of space and welfare;
- Making human places by preserving from the past valuable concepts of space developments in traditional neighborhoods of Tirana's, such as the preservation of neighbors' rituals and mentality.

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SKOPJE AND THE FORTRESS OF KALE IN MACEDONIA. SURVEYS AND COMPARATIVE REPRESENTATIONS

Enrico Mirra

Abstract

The synergy between territory and fortified structures, such as castles, towers and walls, is of fundamental importance for capturing specific historical and architectural aspects of European and extra-European cities, regions and nations. The research proposes the peculiarities of a city tragically 'marked' by History but also 'designed' several times by man in its urban structures: Skopje. The capital of Macedonia and the city of a thousand statues, the observer surprises with the colossal sculptures that characterize his urban fabric, from the abnormal and unusual dimensions, located along the streets of the center and on the various bridges that cross the River Vardar. In the central square of the city dominates the most famous statue of Alexander the Great, placed at the top of the column of a fountain and depicting the leader on his horse Bucephalus with raised front legs, then caught in the typical pose of the equestrian statue to represent the idea of his invincibility. In the old part of the city of Skopje, just above the Old Bazaar, stands the Byzantine Fortress (6th century AD), which has dominated the city for centuries. Its strategic position has led to numerous destructions to a recent restructuring following the extensive damage of the earthquake of 1963 (the urban plan of the entire city, devastated by the earthquake, was entrusted as is known to architect Kenzo Tange). Consisting of a main tower and walls more than 100 meters long, built with stone blocks taken from the ancient Roman city Skopje, the Fortress is nowadays often used for cultural and folklorist events. The research exposes the ongoing results of measurements and surveys - through the Ryobi laser instrument - of the main structures that make up the Fortress in order to illustrate its architectural characteristics and grasp its relationship with the city.

Keywords: fortified architecture, survey, landscape, Macedonia

Introduction

The research offers a path of knowledge, analysis and representation of one of the most ancient and impressive Balkan fortifications, located in modern Skopje. The entire study offers to analyze the stronghold through a territorial framework, its nefarious history and architectural relief by proposing a methodological approach of particular interest for the representation of fortified structures. The representation activity was set up by providing, in an initial phase, the execution of a basic survey in order to define its geometric model; subsequently, measurements of architectural details were made in order to configure an in-depth knowledge activity. The photographic aspect, besides offering us notions useful for the survey, allows to superimpose this figurative datum with informatics elements. For the activities of knowledge of the Site, we took into account the laser instrumentation Ryobi applied on portable computer support, both tablet and smart-phone, which allows an immediate view of the relevant data on the photographic image, transforming it into a digital data. The use of this photographic technology becomes a fundamental tool for the survey as it contains both the measurement data and the geographical coordinates connected to the device used.

Figure 1: Skopje- Skopje's historical images.

Figure 2:Kale Fortress- View of the fortress from Central Square

Knowledge of the territory of Macedonia

The territory of Macedonia encompasses both the natural history that has shaped and shaped both the events and the culture of the peoples who have populated it. The relationship between the natural, architectural and human elements that make up a territory is dynamic: both influence each other and contribute to telling the events written in the memory of the places. The relationship between environment and architecture, between natural landscape and anthropic landscape is therefore evident, the comparison of which is the result of a long process that can be repeated in parallel with the evolution of the idea of place in the variation of civilization. For some time we have become accustomed to considering places forgotten by cities, whether they are degraded spaces in historic centers or atopic places in the suburbs, like urban areas lost to any social use. But cities have never been, nor will they ever be, conglomerates of structures designed for exclusive utilitarian use. A city communicates, because it is always configured as an urban body able to "speak" at least as it is able to produce or distribute in wealth. The knowledge of the context in question, in functional, symbolic and emotional terms of the places, is a fundamental role in supporting the identity of the places. Knowing the Macedonian landscape means

reading and understanding the aspects that contribute to determine the territorial form understood as the origin of immaterial values, linked to the history, culture and social traditions that have transmitted their signs to the environment over the centuries. It appears, therefore, interesting for the analysis aimed at the knowledge and enhancement of fortified architectures in Macedonian territory to investigate the geographical structures that determine factors such as location, shape and construction types. The territory, which coincides with the high basin of Vardar (Axiós), is predominantly mountainous, formed by elevations that in the West link up with the Albanian chains, to the east to that of the Rodope, to the south to the mountains of Greece; different peaks exceed 2500 m, especially along the border with Albania. The few flat areas are located along the Vardar valley floor, formed by a series of sinkholes, the largest of which is that of Skopje. Other basins are located at the south-western end, and are occupied by the lakes of Ohrid and Prespa. Skopje, the capital of Macedonia and located in the northern part of the country, devastated and repeatedly rebuilt through its memory in an architectural-landscape enclave of great interest and environmental suggestion. Skopje is perhaps one of the most indicative examples of a city's ability to exercise memory. A city that speaks in its places where the signs of its reconstruction are more concentrated, but speaks equally intensely in places where silence makes its voice louder: the sculptures, the churches, the mosques, the squares and the parks preserved at the riot of traffic and returned to the role of monuments

Figure 3: Framing - Geographic framework of the Macedonia

Research tools and methods

The course of study, focused on the study of defensive structures, exposes the structural beauty of architecture through an activity of reading the identity issues of the drawing where the relationships between representation and measurement of the graphic aspects and the structural values are identified. Of fortifications, understood as traces of the past to be compared to the circumstances of the present. In this case the design and the relative relief and graphic documentation of the structures is proposed as a universal language suitable for unveiling the hidden meanings belonging to both the architectural body and the territorial body, thus constituting the revealing and planning tool for the representation of the real state of the structures. Together with writing, drawing is one of the few languages capable of making time visible. A time which, unlike what we tend to believe, is not something that flows smoothly along a linear trajectory. Only one of its representations allows, through memory, that the mental spaces that it produces are configured as an incessant and stratified narration. Together with writing, the drawing transcribes time in its opposite, transforming it into a stillness that thinks, desires, remembers. The architectural survey is a field of application of the descriptive geometry, it is the set of practices and methods that allow to report the fundamental characteristics of a building or urban object in a system of representations (mainly two-dimensional). The graphs obtained are the basis for the operations of documentation, study, conservation of the building and for the intervention on it. It is therefore the instrument which, using conventional representational and graphical techniques, makes explicit the materialization of the idea, its comprehension, and communication necessary for the purpose of the realization or commemoration of the work. With the relief the three-dimensional space of the architecture is reduced in two-dimensional form. Therefore, the ability to reconstruct the fragments of Skopje's history is

entrusted to the drawing, bringing them to a new light in an appearance of totality as a whole. The representation plays a fundamental role in telling the expressive language of the detail: it follows a precise geometric rhythm, in some way it allows to make matter the memory.

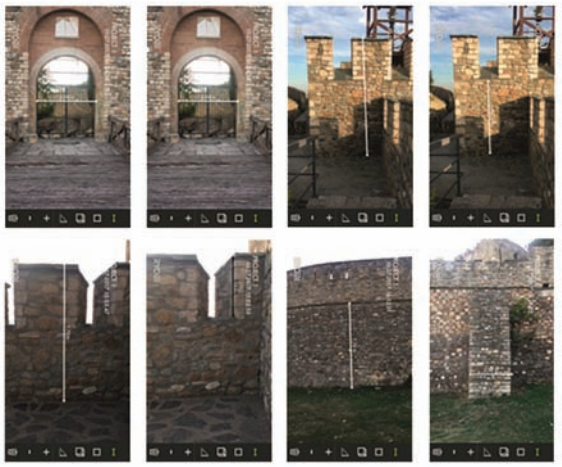

Figure 4: Roby's survey- Some images obtained through the innovative digital survey method.+

Figure 5: Framing-Reconstruction of the fortress and its surrounding areas

Figure 6: Photoplan-Photographic reconstruction of the west face of the fortress

Figure 7: Photoplan- Potogrammetric survey of the west face of the fortress

Figure 8: Photoplan- Photographic reconstruction of the south face of the fortress

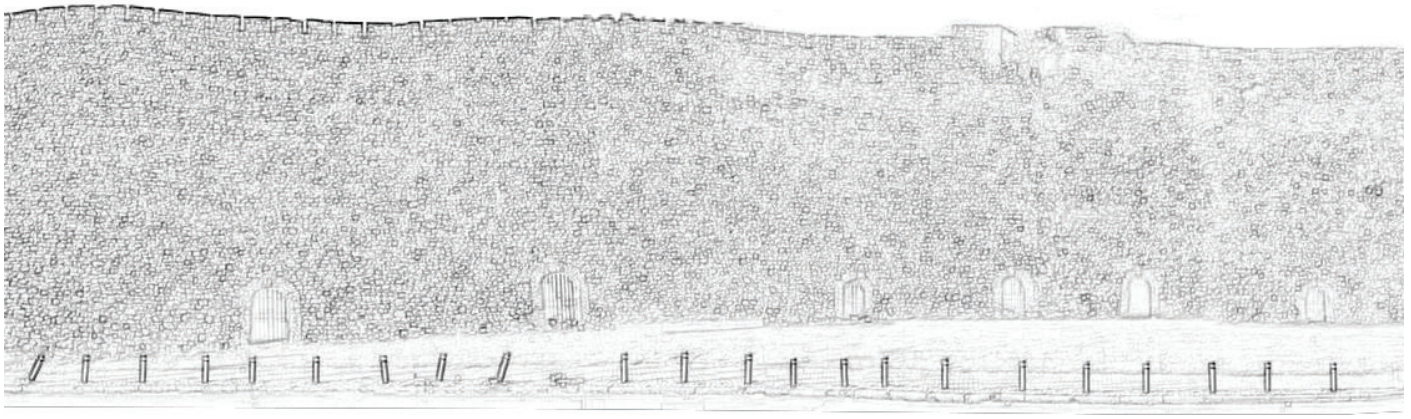

Figure 9: Photoplan- Photogrammetric Survey of the south face of the fortress

Figure 10: Photo-plan Photographic and Photographic survey of the particular of the fortress

Conclusions

The theme of the architecture of evocative places and places linked to memory has always accompanied man in his history. From the rubble, the rebirth. The per-earthquake Skopje can now only be seen in the yellowed images of that period, to celebrate its memory and the memory of a place that is now unmade but slowly brought back to life. These places, however, have a common feature, they are full of meaning. They are material or ideal units that the will of men and the passage of time have turned into symbolic places. These places prevent to forget architectural situations or temporal events. They bear witness to historical events, therefore they represent precious sources of research.

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36 NEW SCHOOLS, OLD DESIGNS: A COMPARISON ON THE ARCHITECTURE OF EDUCATIONAL BUILDINGS IN TIRANA, ALBANIA

Ledita Mezini, Elton Hala

Abstract

Many changes have happened in the sector of education during the last three decades, in Albania and mostly in the capital city, Tirana. This evolution in the sector came naturally with the ongoing drastic changes in the country during the last decades. A significant number of new schools are being constructed and are planned to be built in the future, trying to fulfill the necessity for new classrooms and better spaces for the children. These new structures which are mostly established in ruins and the lands of the old institutions, appear to resemble and restore the old schemes of organizations, morphology and space distributions without considering the drastic changes occurred in this sector, society, education, architecture, construction and furthermore.
This paper tries to explore the changes that have occurred in the educational buildings in Tirana, passing through the stages of history to discover the built environment. It focuses on the comparison of the architecture of two main periods: the imposed and standardized schools of the communist period and the new buildings emerged during the transformations in the post-communist period (1990-present). This analysis is followed by a discussion of the architecture's development, the typology, morphology, space distributions, organizations, structures and shapes of this category of buildings, trying to fill the gap of history and knowledge for this vital group of edifices.

Keywords: schools' architecture, typologies, standardized structures, comparison, schemes

Introduction

Education is always in the process of continuous reforms, while in Albania the school buildings have been designed and remain largely in the same form.
The city of Tirana, capital of Albania, experienced a drastic transformation during the end of the last century. The end of the communist police state in 1990 and the establishment of a new democratically elected government led to drastic economic, social, and physical transformations[1]. The metropolitan area comprises almost one million inhabitants[2]. The urbanized area grew from 12 sq. km in 1990 to 56 sq. km in 2002. The exceptional growth and the complete transformation of the capital city touched the education sector and the structures they are hosted with physical and social challenges.

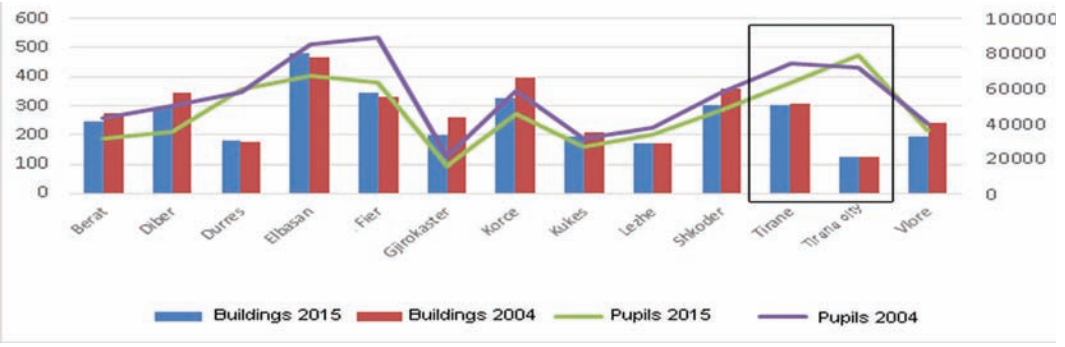


Figure 1: Distributions of scholar buildings and pupils in the regions of Albania in 2004/2015– Statistics from Ministry of Education (2016).

This article seeks to illustrate the issues and explore the changes occurred within educational buildings in Tirana and to compare the typologies of the existing school building as well as the design of the new learning environment. It discusses the architecture of school's design in Tirana in two stages of history, during the communist period and on the end of the last century, as the period when drastic transformations happened in the schools' architecture. The dramatic changes that affected the city of Tirana had an enormous impact on the schools' design. The critical analysis is made using visual sources like pictures, photos, plans of buildings as also a body of literature of publications, books, and magazines. More than 150 plans of school types are drawn, and surfaces are measured in a manner to comprehend the morphological developments, standards, normative, and surfaces. The author understands the limitations of the study because not all the built infrastructure is analyzed and there are also some good examples of innovative architecture, but in general, the morphological plan repeats old school structures. Schools and especially the classroom continue to be as institutions. As CABE agree "currently, school environments are not very different from what they were a hundred years ago."[3] "This kind of thinking ignores the complexity and research about the human brain and human experience, resulting in the design of static spaces that inhibit learning[4]."

Schools' architecture during communism

The period 1945-1990 was the phase when the Albanian schools got full physiognomy with the beginning of standardization and mass typologies.[5] After the establishment of a communist regime in November 1944, Albania was significantly underdeveloped in many areas, especially in education, where a large number of villages did not have schools, while secondary schools were built only in six cities. Over 80% of the Albanian population was illiterate, and the decision of dictator Hoxha to build schools in every corner of Albania was one of the most important historical events that strongly influenced the education sector, and also the buildings.[6]

a)

b)

Figure 2 a), b): Photos of schools built in Tirana during 1963-1975. (Central Technical Construction Archives, 2015).

During the communist period, the education sector grew in a very vigorous quantitative way, and this is proven by the big number of buildings constructed mostly in every part of Albania. The architecture of 1963-1975 period was characterized by 'Type'- Tip[7], (a unique and typical architecture), the same all over the country with derivatives of the same typology having great deficiencies in originality and creativity, constricted by the limited amount of funds and construction costs. "The educational system and architectural trend, in general, included the factory's tendency, based on the fast and low-cost construction of schools without regard to uniqueness, and adaptation to the learning process… Thanks to the lack of budget for school building, the interest and focus on school infrastructure, was scarce in regards to pedagogy, social organization, interior space, and other physical elements."[8]

The slogan that inspired the country's economy and especially the construction: "Saving, saving and just saving, everywhere and anywhere, so often repeated with rampant screams" also influenced education by giving its morphology to the educational building's[9]. The schools' architecture in Albania were produced by the State Institute of Design and were known for the standardization, their uniformity, and the minimal cost. The typology mostly used was the compact-block structures, which in the linear-block variant resulted in lower in the budget. "The choice of this typology was primarily driven by the minimization of construction costs."[10]
The communist government adopted a standardized aesthetic of multi-section low-rise school buildings (1-3 stories). The political and economic isolation of Albania, the difficult economic situation, along with the slogans for saving and the fight against foreign influences, led to the total simplification from the architectural elements. The number of floors and classes was increased to maximize savings, windows and doors were reduced and inside and outside spaces that were thought to be "luxury" were minimized forcing the creation of monotonous and uniform schools throughout the country.

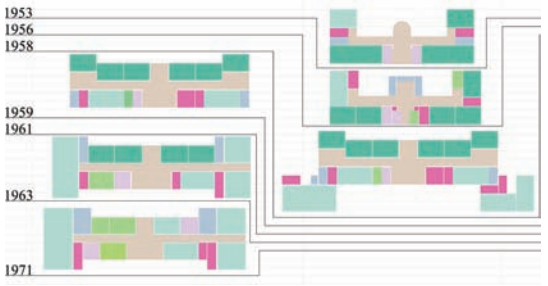


Figure 3: High School typologies and year of project. Linear block variant with symmetrical distribution.

This large simplified school's design used widely began to transform the educational building resembling warehouses, storerooms, barns, light or industry facilities, and did not show anything unique and characteristic in architecture, morphology or volume.

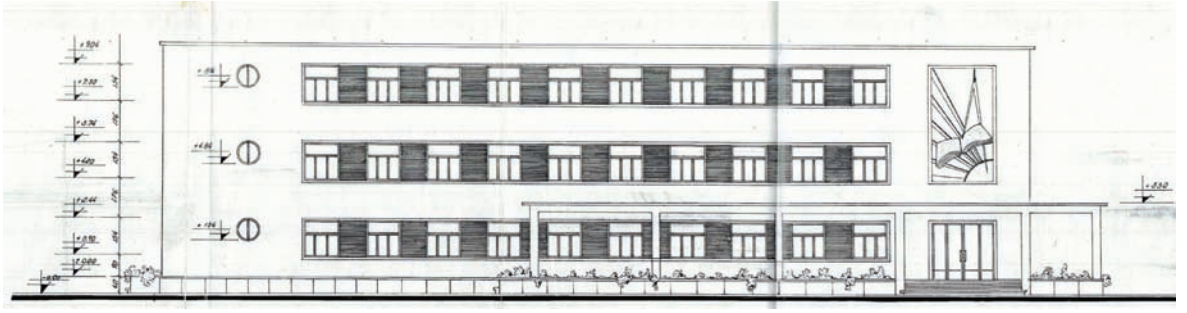


Figure 4: Project of Facade "Type for 7 year asymmetric school, year 1967", Ministry of Construction, State Design Institute, and Civil Engineering Design Directorate.

Even though the Albanian school buildings do not represent a great variety regarding morphological spatial development, they may be divided into two main groups: Frontal Schools (Symmetrical) and Non-Frontal (Asymmetric) Schools. The division is clear and carried out in the plan and on the facade. School symmetry starts from the placement of the main lobby and of the staircase in the center of the entrance or positioned at the corner of the building.
Architect Kostaq Sahaticiu in 1964 states: "The schools have longitudinal stretches with corridors built in the middle, the classrooms on one side and laboratories and cabinets on the other. The stairs are placed midway or at the side, defining the symmetric or asymmetric type, but in fact, the volumes do not have any differences. The symmetric type can easily turn into an asymmetric type and vice versa since each one is not inherently connected to its solution."[11]
In addition to symmetrical and asymmetrical shapes according to the morphological forms, two are the most commonly

used variants: the "Compact-block" variant and the "Yard" variant. The linear-block school is probably the most widespread variation of schools due to the small size of footprint and block variants are always cheaper in terms of cost, since the corridor saves much space per square meter as it functions for distribution, recreation, gathering, etc., as a space with multiple functions rather than just crossing.

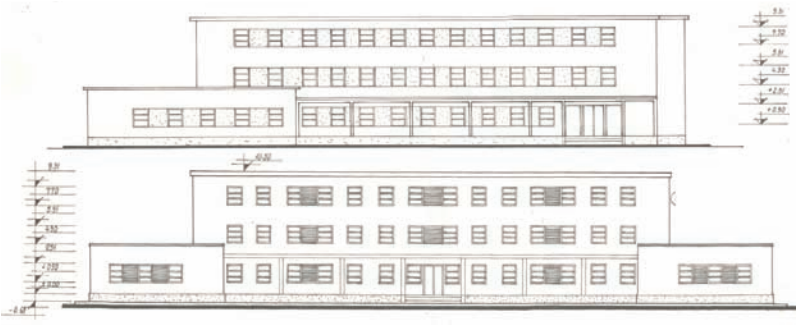


Figure 5: Project of Facade "Type for 12 year asymmetric and symmetrical school, year 1971", Ministry of Construction, State Design Institute, and Civil Engineering Design Directorate.

Transformations, extensions and new schools

"Albania in 1990 was poorer than the country after the Second World War in 1945".[12] Education, found between the great economic shortage and the totalitarian isolation that was passing the country, was greatly disturbed by the events of 1990-1991 where the transition, the clashes, affected the schools, buildings, and institutions. In education, this situation was reflected by mass school abandonment, destruction of buildings, robbery of classroom materials, banks, laboratories, etc. According to Sofokli Meksi, "People began to destroy everything old that represented the tyranny, and this led to the destruction of objects and values."[13]

"The state of educational buildings was wretched, and the Ministry of Education mostly worked to rehabilitate mainly those structures which were at risk of collapse, which constituted over 60% of the schools."[14] The 1990s were a time of decline and reflection for schools in Albania, as districts saw enrollments go down, while urban schools were working in two shifts with 50 or 60 students in 30 or 40-meter square classrooms. Investment in school facilities drops drastically, and many contents themselves with smaller renovation projects to keep aging facilities up to basic standards of functionality. Later during 1997-1998, the Ministry of Educations in collaboration with some organizations[15] and funds took several renovations, and reconstructions to bring school facilities in the normal state.

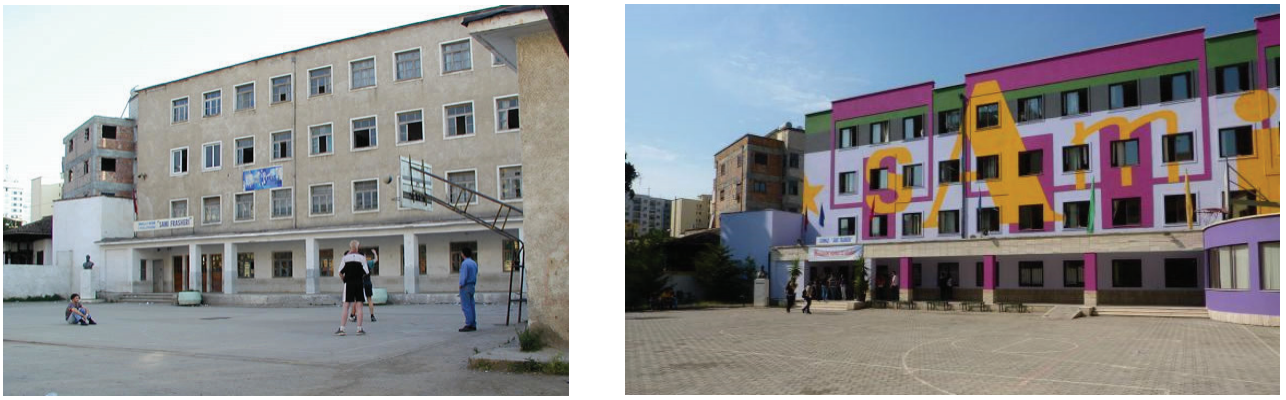


Figure 6 a), b): Sami Frasheri School, before and after renovation.The renovations consisted more in new colors and some extensions.

For almost 20 years there were no school built at all and the current typology suffered overcrowded spaces in the urban cities and abandonment in the rural areas, the reduction of the existing structures and the degradation due to the non-maintained buildings, discrepancy between the new pedagogies and the old curricula based on the ideological system and the evolutions in the other sectors.
The government and mainly the municipality of Tirana found it necessary to construct new schools as the existing ones could not afford the capacity of the city's pupils, despite the additions, various reconstructions, carried out from time to time.

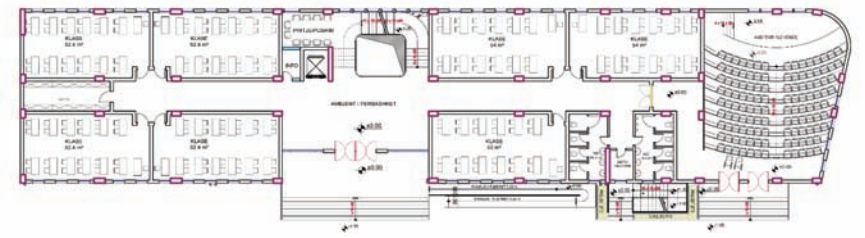


Figure 7: "Kosova"- primary School , Ground floor plan, year of construction 2017-2018, Municipality of Tirana

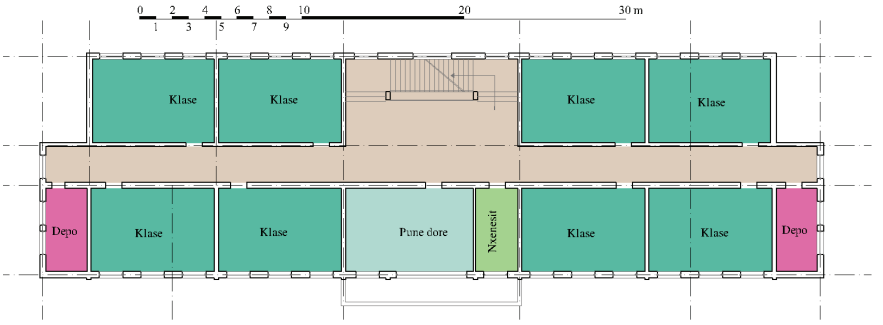


Figure 8: Type-'64, Symmetrical primary school, year 1964, arch. Valentina Pistoli

From the analyses made on the distribution plan of several school buildings constructed in Tirana, it appears that the newly designed schools are a mere recurrence of the old schemes. Resembles with the old designs are reflected in plan and also in façade where Compact Block types with its variants as a linear block are present in the scholastic architecture of the last decades. Even though some small changes and elements appear in the facade, the distribution plan, as well as the morphological expansion, reflect the old standardized structure produced by the Institute of Design.

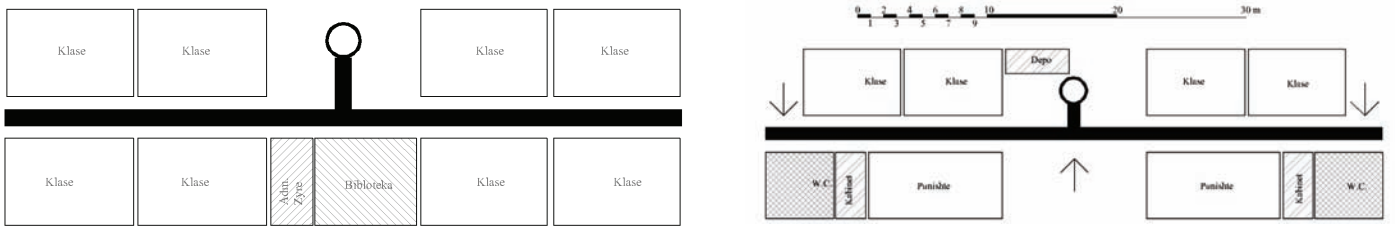
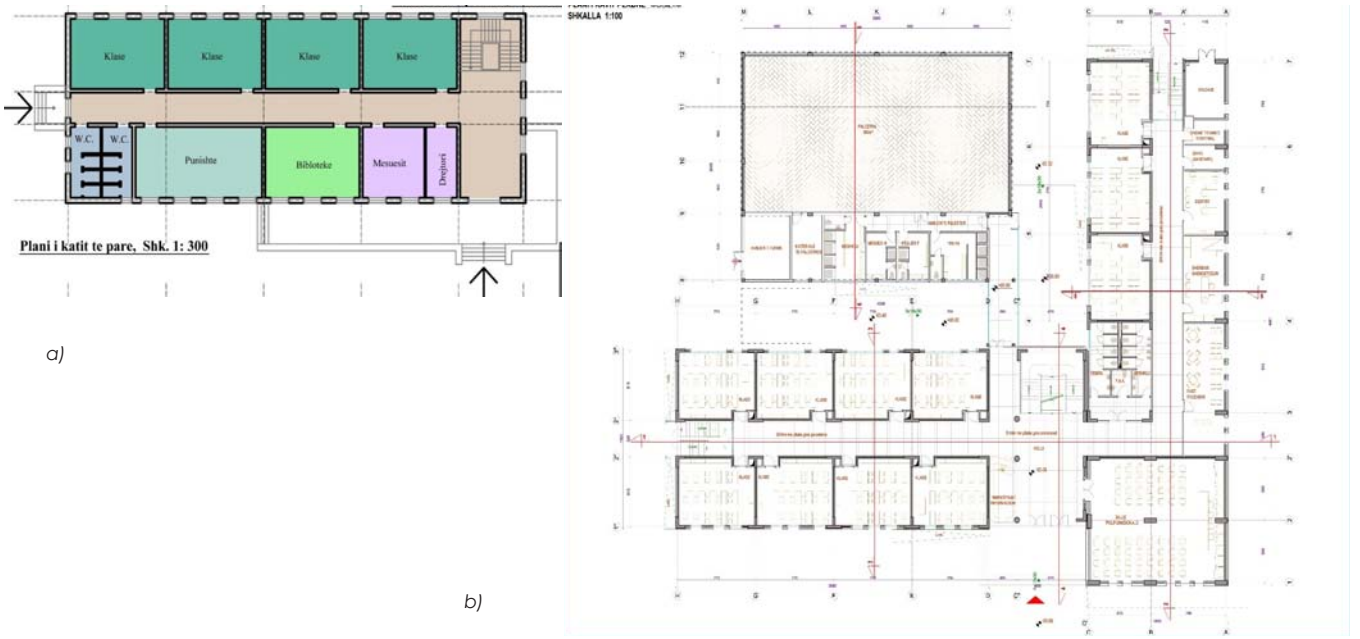


Figure 9 : a) - Left: Type-'77, Symmetrical primary school, the year 1977, arch. Ibrahim Prushi, b- Right- Type-'64, Symmetrical primary school, the year 1964, arch. Valentina Pistoli

Plans in both variants are represented by a single and linear corridor that serves more as a passing space than a social environment where the stair is positioned mostly in front of the main entrance, reminding the symmetrical type variants.



a)

b)

Figure 10: a) Above: Scheme of Type '61, asymmetrical primary school, the year 1961, arch, Valentina Pistoli, b) Below: School Ahmet Gashi, 2012, Ground floor plan.

a)

b)

Figure 11: a) Type'59- Ground floor plan of high school type of 1959, b) "Hasan Tahsim school"- 2017, First floor plan, architects Klodioda ltd.

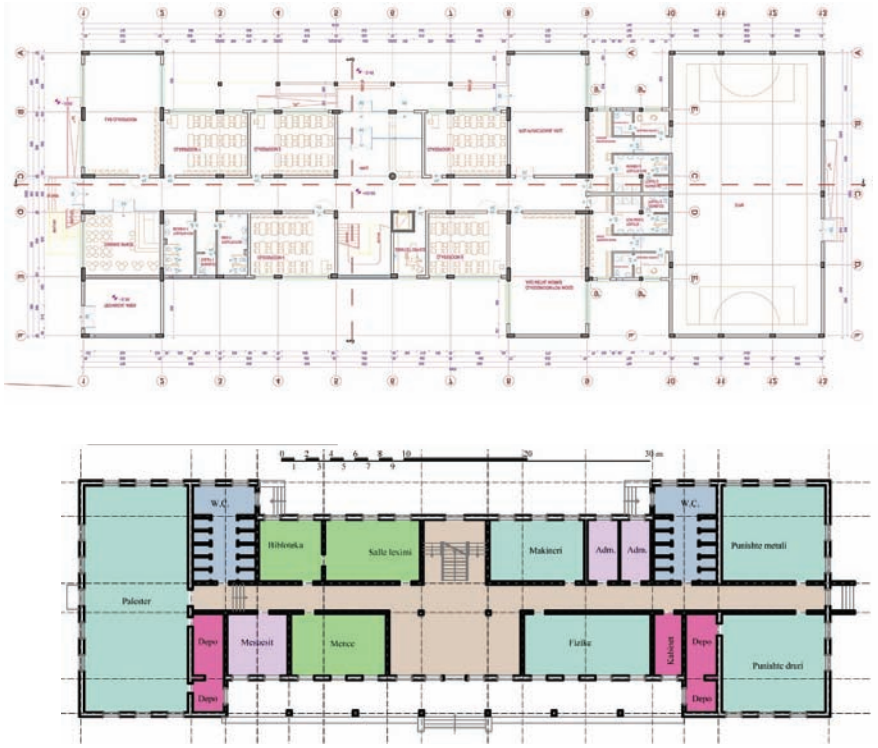


Figure 12: a) Above-Primary school "Ardian Klosi"- 2017, Klodioda ltd, b) Ground floor of high school of 1971 type.

Conclusions

The study tried to compare the scholastic architecture built in Albania during communism and some of the new structures constructed in Tirana.
In Albania, the communist regime imposed the same typology and a standardized school with a singular design solution for widespread implementation, the principal benefits of which were time- and cost-savings. Regardless the project site, the school was a repetition of the same project without considering culture, geographic, social and ideological aspects giving priority to the interest of standardization and unification as the only way for cheaper buildings. During the last decades, even though some new schools are built, especially in Tirana, the new structures repeat some old schemes. Through various examples, the study tried to compare two periods of history and to emphasize the scholastic architecture in both of them.
Compact Block types with its variants as a linear block are present in the scholastic architecture of Albania for decades. Even though some small changes and elements appear in the facade, the distribution plan as well as the morphological expansion, reflect the old standardized structure produced by the Institute of Design. The school buildings have been designed and remain mainly in the same form. Because it is widely known that the built environment contributes to teaching and learning outcomes (CABE, 2004) and education is always in the process of continuous reforms: the study suggests that the school architecture of nowadays should not be a recurrence of the old one.

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Notes

[1] *Gedeshi and Gjokuta, 2008*
[2] *The population of Tirana registered In 1 January 2017, was 862,361 inhabitant (http://www.instat.gov.al/al/temat/treguesit-demografik%C3%AB-dhe-social%C3%AB/popullsia/#tab2)*
[3] *CABE, 2004*
[4] *Prakash Nair, Randall Fielding*
[5] *Koliqi, 2002, p. 440*
[6] *Hoxha, E. 1968*
[7] *The State Design Institute part of the Civic Construction Design Directory was responsable for projecting prototype educational structures refereed by names: Type-1, 2, etc., and the year of design.*
[8] *Pasalar, 2003*
[9] *Kolevica, 2004, p. 154*
[10] *Kolevica, 1997*
[11] *Sahatciu, documents in Central Technical Construction Archives, 2015*
[12] *Erebara, 2012*
[13] *Meksi, 2008, f. 7*
[14] *Tani, 2014*
[15] *In 1998, SOROS foundation spent 880,000,000 ALL for building secondary schools while the State's budget for primary, elementary and secondary school was 810.000.000 ALL. (MAS, 2014)*

37 KNOWING TO ENHANCE: ALTO CASERTANO TERRITORY (CAMPANIA, ITALY) IN THE MIDDLE AGES

Assunta Campi

Abstract

The transition from Late Antiquity to the Middle Ages is characterized by the spread of new types of settlements that thoroughly modified the landscape. The main change was the progressive abandonment of the valley floor and the construction of defensive structures and towers aiming at the control of the territory. The area located in the north of Campania region (southern Italy), included in Caserta province and known as Alto Casertano, appears to be of particular interest. The territory is characterized by numerous defensive structures and fortified settlements whose city grid is distinguished by notable peculiarities. Such is the case of the settlement of Pietramelara located in a strategic area: the small town controls the valley and the important road which connects the Lazio region with Campania inland. Mentioned for the first time in the 10th century, the town acquired more importance since the Norman age. The peculiarity of Pietramelara lies in its urban layout: it has a radio-centric shape with streets that converge to the highest point of the hill occupied by the tower; moreover, the settlement is surrounded by walls marked by the presence of 15 semicircular towers. Thanks to its particular conformation Pietramelara represents an outstanding example of accurate urban planning mainly aimed at the defensive organization of the surrounding territory, despite the numerous restoration works caused by the continuity of inhabitance of the old town through the centuries. The comparison with other similar settlements and a scientific study of its historical stratifications can be the starting point to increase the knowledge, the preservation and enhancement activities of this medieval fortified settlement which is undoubtedly unrecognized still today.

Keywords: Middle Ages, fortified sites, medieval archaeology

Introduction

The transition from Late Antiquity to the Middle Ages is characterized by the diffusion of new settlement types that modified the previous territorial organization. In this period a gradual abandonment of the valley floor, the construction of defensive structures and subsequently of fortified settlements destined to control the territory happened.
These settlement dynamics occurs throughout the Italian Peninsula: the spread of towers (the so-called donjon) with both residential and defensive purposes is widely documented in Campania as evidenced by the numerous archaeological researches conducted in the last decades in Avellino, Caserta, and Benevento provinces.
Located in Volturno central valley and bordered to the south by Trebulani mountains and to the north by Matese Massif, the Alto Casertano is an area of fundamental importance for the development of numerous settlements thanks to the favorable climatic conditions and the presence of numerous rivers (Fig.1a).
The territory was inhabited since prehistoric times as evidenced by the abundant archaeological finds; in Roman times this area was crossed by the Latina way and, starting from the second half of the second century BC, there was the formation of rural settlements consisting of villas and small farms.
The abandonment of the valley floor occurs between the sixth and seventh centuries; in this period during there was a decline of living conditions due to political, social and economic unrests and also to numerous natural disasters.
Between the seventh and eighth centuries AD, there was the development of new rural settlements often located on the hills; the desertion of the valley floor in this territory was not an extended and generalized phenomenon due to the presence, since the eighth century, of *casae*, *casalia*, and *curtes*.
Significant changes occur from the second half of the eleventh century with the construction or re-fortification of fortified settlements.

Fortified Sites

The choice of this particular territory is due to the strong potential of the sites described in this paper. This study also offers interesting insights on a very representative context characterized by various geographical, morphological and geological conditions.
These territories are very interesting for their particular characteristics and also provide information about the territorial shape and the historical and building events that distinguished this Alto Casertano part in Post-classical period.
At present these settlements appear as "abandoned towns," sometimes in a significant state of decay: there are numerous causes that led to such abandonment. From a chronological point of view, most of these abandonments occurred during the twentieth century, but there are examples of depopulation occurred in earlier times. The main causes of depopulation are of anthropic and naturalistic origin.
In such contexts, the use of limestone (in some cases) alternated with volcanic turf is well documented in the masonry of the buildings. In most cases, the structures used as a foundation the outcropping rock bank which is often shaped to create underground rooms. The masonry is mainly of the rough type, made of stones of various size often with the use of flakes of the same material and clay-bricks; abundant lime mortar is used, and the external walls are plastered.
Some dwellings, usually manor houses, present a more accurate masonry in which stones are cut to uniform size and shape.
The Alto Casertano landscape is therefore characterized by significant fortified settlements: there are numerous remains of castles, donjons, and watchtowers. The settlements examined fall within the current districts of the municipalities of Vairano Patenora, Caianello, Riardo, Roccaromana, Pietravairano and Pietramelara. Remains of castles can be found in Vairano Patenora, Pietravairano, and Riardo.
Vairano Patenora preserves traces of two fortified sites, one of which, located on the mountain overlooking the current town, falls in the hamlet of Marzanello. The castle, although in a state of ruin, preserves well its structure characterized by the quadrangular shape and by four crenelated towers in the corners, the highest of which constitutes the keep. The current structure of the castle is the result of a fifteenth-century reconstruction: the Aragonese castle is recognized by the presence of towers and batter walls. The city walls, in the state of decay, consisted of 16 cylindrical turrets and three access doors: "Porta Oliva" on the western side, "Porta di Mezzo" to the south and "Porta Castello" (also known "Porta S. Andrea") to the east. Inside the village, there are also various religious buildings.
Types of similar castles are documented in the municipalities of Pietravairano and Riardo. As regards instead Pietravairano, the settlement is located on the highest part of the municipal territory, developing according to the site's orography with a fan-shaped pattern that degrades from the fortified center to the valley floor. The inhabited area presents concentric main roads connected by secondary branches. The castle was built between the Angevin and the Aragonese period near the Donjon which was erected in the twelfth century. The walls were characterized by the presence of access doors to the village, the oldest of which is called "delle Grotte"; subsequently a postern called "Portella" and "porta della Vigna" gate on the eastern front were built. During the Angevin period, there was a second phase of expansion due to the strong demographic increase: a second city wall was built with other towers and gates; for example, there was a gate called "del Cauto". The cylindrical watchtower with a battered base and the small church of "S. Croce" were built in the thirteenth century.
The case of the hamlet of S. Felice is different. Located on a hilltop in the middle of a large valley formed by the Monte Maggiore massif and Caièvola mount (on which stands Pietravairano), the settlement is in serious degradation. The town has an ovoid shape and preserves part of the walls built in limestone blocks in which the access door opens. There are still visible residential buildings and streets that converge towards the main area bordered by the perimeter walls of the castle, the remains of little dwellings and the ruins of a church that preserves interesting frescoes.
The castle of Riardo (figure 1b) is placed on a hill of the Monte Maggiore massif which controlled the valley of the Savone river and the road that put in communication the Campana plain with the low area of Lazio region and with Rome. The first notice of the fortified structure dates back to the Norman age: the date 1122 is engraved on the keystone of the castle gate. The building, which has undergone numerous renovations over the centuries, is characterized by a quadrangular shape with four cylindrical towers with a battered base (one of which is the Norman Donjon); in the west side of the castle, there is a square shape tower built on older structures.

The settlements of Roccaromana and Pietramelara are also characterized by the presence of fortified structures with donjons of the Norman age.
The village of Roccaromana, located on the top of Castello mount, was mentioned for the first time in a document of Richard II dating back to year 1101. The researches carried out in Roccaromana made it possible to highlight better the building structure, the remains of a church and some sections of the two town walls that enclosed the fortified settlement. The archaeological excavation conducted inside the tower has highlighted the remains of the cistern, placed in the lower part of the building, and some architectural elements on the upper floors. The tower of Roccaromana reflects a fairly widespread architectural model in southern Italy, especially in the provinces of Benevento and Avellino where such structures are frequent in fortified settlements.
Completely different from the examples mentioned above is the urban structure of the fortified settlement of Pietramelara, a town located in an isolated and dominant position on the valley floor (Figure 1c).
The first known mention of the toponym "Petra Mellaria" comes from a praeceptum oblations dated to 928, in which Landolfo I and Atenolfo II grant to the abbey of Montecassino, the aldiones (free men) of the curtis of Pietramelara already donated by the princes of Capua to the Benedictine monastery.
This document is of fundamental importance because it provides interesting data on Alto Casertano in the Lombard age: in this territory there were significant state property, as well as an agricultural company (curtis), a chestnut and a "gualdo" (land of state property consisting of woods, cultivated or uncultivated lands, grazing lands). Traces of the Lombard presence can also be seen in the toponym "sala" that identifies the south-east portion of Pietramelara territory.

Figure 1: a. Alto Castertano territory, b. Riardo's castle, c. Pietramelara's fortified site.

The settlement has a radio-centric urban structure whose axis is represented by the tower (donjon) and whose perimeter coincides with the mighty city walls distinguished by 15 semicircular towers still visible. The tower has a square plan with sides of 9 meters and a masonry thickness of 2.20 meters. Currently, the tower is 15.40 meters high because in the middle of the last century, due to the strong static risk, the higher floors were demolished. The urban structure of Pietramelara town is the result of careful urban planning that led to the formation of a fortified settlement placed in a strategic position for the defense and control of the territory and of the roads that crossed this Alto Casertano area. A careful analysis of the structures of the town allows us to recognize two city walls. The original nucleus dated back to the Early Middle Ages and consisted of a fortified tower (castrum) with a first wall in which there were the square and the dwellings. In the Norman period, the current urban layout is to be found; the town grid is halfway between the enveloping focused scheme with apex tower and the radio centric scheme characterized by two main ring roads and concentric and a secondary radial road system with a city wall interspersed with 15 circular towers. In this period the urban structure, that still distinguishes Pietramelara is formed. The current configuration of Pietramelara is the result of uninterrupted maintenance and reorganization activities due to the continuity of life of the settlement.

The construction of donjons in the twelfth century is well documented in Campania as evidenced by the structures built in the settlements of Cerreto Sannita, in the province of Benevento, and of S. Angelo dei Lombardi, Torella dei Lombardi, Rocca S. Felice, and Montella in the province of Avellino. These donjons, except for that of S. Angelo dei Lombardi, have a circular shape.
The archaeological investigations conducted in Montella are of fundamental importance to understand how these towers appeared: the tower of Montella, which is located at the highest point of the settlement, is in excellent conservation condition. The removal of the collapsed layers inside highlighted all those elements (washbasin, bathroom, fireplace, oven) which distinguished these residential and fortified buildings.

Conclusions

Although some of the fortified sites mentioned above have been affected by restoration and consolidation activities, there is still much to be done to enhance them and make them fully usable. At present some of these sites (for example the hamlet of S. Felice) are abandoned and in a state of degradation. The precarious conditions of the structures and the negligence deprive the local communities, little by little, of the elements that constitute their own cultural identity.
The future transmission of this cultural heritage cannot simply be carried out through an uncritical operation of functionalization or the restoration of its architectural elements.
The enhancement and safeguard project, to be drafted with urgency, should also be aimed at involving the citizens who represent the true guardians of such cultural heritage.

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38 CONSTRUCTING AND LIVING IN ANCIENT LAND. SECURITY AND IDENTITY

Gabriele Ajo'

Abstract

Italy is an "ancient land". It is a territory rich in history, tradition and heritage yet at the same time a land very often abandoned to its own devices, damaged and lacking upkeep. Its antiquity represents two sides of the same coin: while its locations do have a great sense of identity, there is an urgent need to act on what already exists. Both the territory and the building work of the past are greatly exposed to risk - both hydro-geological and seismic.
The orography of the area and the features of historical construction, usually organized in the form of neighboring units (aggregates), influence seismic resistance. In fact, the general reaction is strictly linked to the layout of the urban areas with respect to the orographic conformation and hillsides. In particular, the way the aggregates are turned downhill, be it with a concave or convex shape, or be it with a perpendicular or parallel organization in relation to contour, determines their ability to trigger spontaneous resistance mechanisms on an urban scale. These are effective in resisting a downward force which often has devastating consequences. This aspect, when considering vulnerability to earthquake, has never been taken into consideration since generally the issue is dealt with only within the scope of a single building, but a local analysis really needs to be made in a wider context.
On the basis of these premises we shall provide elements to enable consideration and interpretation of the general behavior of aggregate constructions and we wish to draw up models and guidelines which take into account interaction between the various parts, meaning between individual building units within the aggregate, between aggregates within the entire urban fabric and between the town and its geological substrate, all with the aim of increasing overall resistance to an earthquake in the historical center.

Keywords: heritage, identity memory, seismic risk, preservation

Introduction and research framework

This introduction is devoted to explaining the context within which our research has been carried out, that is, as the title of the paper suggests, the ancient land which is Italy, where there is a strong dualism between the necessity to safeguard the identifying features of its sites and the need to take action in response to people's demands for safety in a fragile territory exposed to seismic and hydro-geological risk. In particular, our area of research interest concerns the minor historical centers. The system of historical agglomerates represents the physical infrastructure of Italy and constitutes the proper operational area for reclaiming and defending its landscape both natural and urban, a landscape too frequently abandoned and little cared for.
The work needed to secure the urban fabric can neither be separated from a full knowledge of what this represents nor from a reasoned analysis of the town's identifying features and its historical area. We are dealing here with those forms which are consolidated, shared and significant for the community, permanent in time because of their very suitability – landscape, urban, architectural and structural forms lying unchanged and invariant despite any transformations. It is therefore fundamental in framing our research to sketch out the state of the art of studies on historical centers; reference will be made to the various schools of thought which have devoted themselves to urban studies and to the analysis of the morphological-settlement categories, among whose promoters we may cite Saverio Muratori and Aldo Rossi, as well as those who refined a method of typological and processed-based investigation of historical building, recalling among many others Gianfranco Caniggia and Paolo Vaccaro. In addition, we cannot avoid mentioning those who inherited that legacy and outlined trends of synthesis in their work on historical centers, such as Paolo Marconi and Antonino Giuffrè

(respectively in the fields of restoration and structural intervention).
In this context of territorial fragility, although at the same time of great historical and cultural wealth, we can outline our research objectives: the securing and enhancing of identity. We must intervene before the natural catastrophe takes place and not when identifying forms and features are already damaged and undermined. It is imperative to be ready for a seismic event through planning and prior action. The aim of this research is to give direction to planning through a development of working guidelines tied to a knowledge of the historical center, avoiding in this way building work quite out of keeping with a city's architecture. In particular, and as will be explained in later chapters, safety models have been drawn up on an urban scale, using mechanisms able to resist because of their form; we have not examined single building units but rather we have provided "common-sense" indications based on the founding principle of cohesion between neighboring building units. The courses of action all aim to reinforce the mutual cooperation between the parts, between adjoining units and neighboring aggregates.

Reducing seismic risk and safety measures: necessary points of reference

The high seismicity of the Italian territory represents one of the main factor of the country's fragility. An analysis of the mapping produced by the National Institute of Geophysics and Vulcanology (INGV) allows us to examine the national seismic risk thoroughly and draw some general conclusions. The inland areas of Italy's territory are those with the highest level of seismic danger. In fact, the Map of Seismic Risk (MPS04) and the Database of Individual Seismologic Sources localize the tectonic fragilities of greatest import in this area. The most destructive earthquakes, how is apparent from consulting the Parametric Catalogue of Italian Earthquakes (CPTI15), have been concentrated historically in this part of the national territory with a specific return time for each seismic event (Fig. 1).

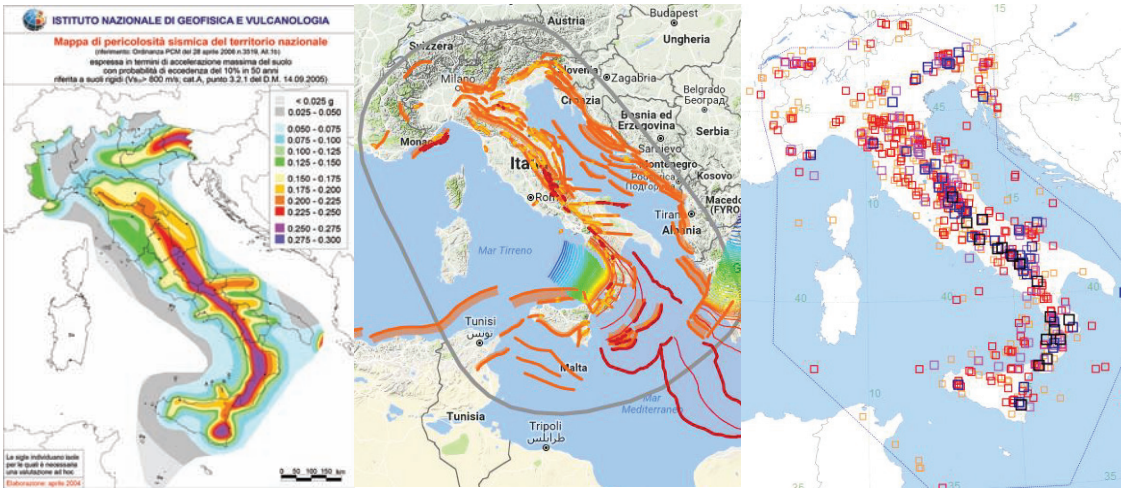


Figure 1: a) The Map of Seismic Risk; b) The Database of Individual Seismologic Sources; c) The Parametric Catalogue of Italian Earthquakes. The maps are produced by the INGV.

Seismic danger is a component of seismic risk. The other component is seismic vulnerability and depends on the constructional and mechanical characteristics of historical construction. It is possible therefore that, with equal seismic danger within the same given geographical area, two historical centers may have a different degree of seismic risk, due to the contrasting construction techniques and maintenance strategies employed. Hence it is within the remit of reducing seismic risk that this research attempts to act; starting from the basic immutable truth of the danger inherent in the area, we wish to proceed by suggesting improvements to the seismic reactions of historical construction.
From the Italian legal framework we extrapolate the principles and features thought to be relevant to a justification of the methods of intervention proposed in the research. The reference basis put forward in the planning of safety measures is

composed of "elementary morphological units», falling between the building and the city. It is the technical regulation itself on buildings (NTC 2008; Circular n. 617/2009) which states an aggregate system should be a priority in the model of calculation; we see as obsolete the structural-analysis model of construction linked solely to a single building, considered as a multi-connected, independent, box-like structure. Rather, we adopt a vision more allied to historical construction, with building compartments/aggregates composed of adjoining units interacting with one another. The aggregate makes up a complex of parts resulting from a genesis which is uneven and non-unitary (sequences of construction, changes in materials, altered demands and changes in ownership) and in planning we need to bear in mind beneficial structural adjacency but also critical areas of discontinuity.

The geographical area involved: the inland areas of south-central italy

The National Strategy for Inland Areas (SNAI) promoted by the Italian Government aims to protect, recover and revitalize the inland areas of the national land mass. In particular, our work will focus on the south-central Apennines area, comprising the great mountain chain of the Central and Southern Apennines and the mountainous areas of lower elevation lying parallel to the principal chain (Sub-Apennines and Anti-Apennines). The inland areas are those portions of land characterized by lying at a great distance from urban centers, lacking provision of services and with no features to attract people, covering a vast part of the country (around 60% of national area and 53% of Italian municipalities) (Fig. 2).

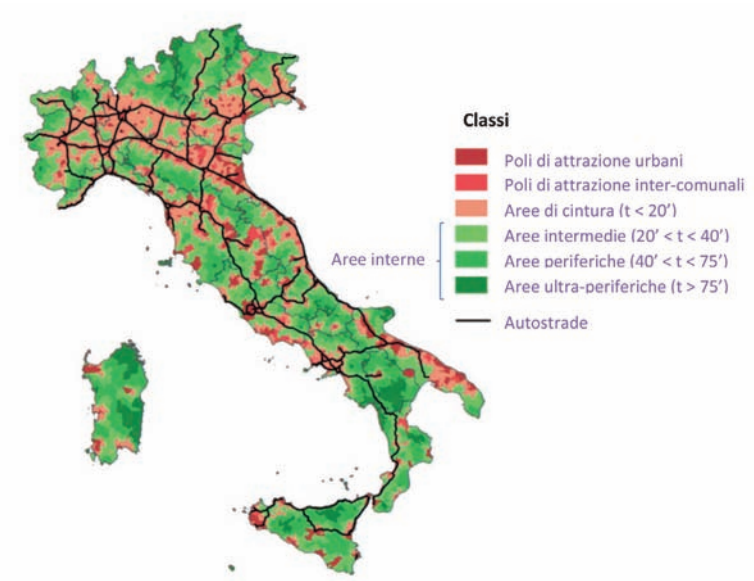


Figure 2: Map of Italy. In green the Inland Areas of the country, in red the big urban centers.

They are defined by their innumerable little towns and villages (polycentrism) and by extensive rural areas. The majority of these districts are not flat but have a busy orography and feature harsh relief, hilly promontories and deep valleys, where in the last decade there has been a drastic reduction in the quality and quantity of basic services provided.

The inland areas are not exclusively a synonym of weakness. While on the one hand being distant from large urban centers means poor provision of services to inhabitants in the fields of education, health and mobility, with a consequent reduction in the wellbeing of the population, on the other these districts possess a rich heritage in terms of land area, nature and cultural resources, which is unused but nonetheless strategic in reviving this economic-productive system. These all represent the unexpressed potential of a widely diversified territory, the outcome of dynamics involving differentiated natural systems and of the particular processes of settlement and anthropic transformation dating back centuries.

These areas bear great potential and their numerous resources are for the most part abandoned, actors in a long and progressive migration towards the urban areas, where the accessibility of basic goods and services is unquestionably easier. Emigration has left behind many abandoned landscapes. Many historical centers, through a lack of upkeep, have undergone a process of decay and collapse, not to mention cases of complete degradation and depopulation. The historical, architectural and cultural heritage of these areas is at great risk and if this tendency were not to be reversed, this slow decline will continue, accentuated by frequent seismic events and inappropriate anthropic action.

Stemming the territory's decline and the deterioration of its architectural legacy is a prime objective of the National Strategy for Inland Areas and the intention of our research is to contribute to the creation of an action protocol for the recovery and security of historic construction currently endangered by the lack of active maintenance.

Factors in seismic resistance on an urban scale and models of prevention

The overall seismic response of an urban settlement is obviously conditioned by certain factors of resistance belonging to the building structure. Therefore, in the organization of guidelines for prevention and models of intervention on an urban scale, and not only on the scale of a single dwelling, we have to consider these important aspects:

- The relationships between the form of the settlement and the orographic features of the land.
- The relationships between the form of the aggregate structure and the orographic features of the land.
- The conformation of the land strongly influences the settlement type of urban structure. Following a study of the Apennines city, the following forms of settlement have been categorized in accordance with the orography of the territory and with the relationship between building and land configuration: ridge settlement; summit settlement; spur settlement; hillside settlement; valley floor settlement (Fig. 3). In each settlement category there emerged a prevalent layout of the aggregate with respect to the land configuration, with an organization parallel to the contours or else orthogonal to them.

This simple distinction already draws out criticality and strengths in the built area. The adjacent buildings, set on terraces placed one over the other and layered according to the natural slope (a layout orthogonal to the contours) constitute on their own a resistant form – a single structural body where each cell tends to support the one above, discharging at the base the stresses transmitted by the constructions above. However, the free-standing walls erected leaning towards the slope are points of weakness as they are subject to collapse when out of plane; there is also weakness in the lower foundation involved in the discharge of stress from the other adjacent units.

The aggregates parallel to the contours, subject to vertical loading and horizontal stresses, such as those of an earthquake, respond differently according to whether they are on the flat or on a slope. In the first case the distribution of shearing stresses is uniform at the foundations, and therefore the criticality are to be found "only" in the ground conditions and the aggregate form of the units making up the block. In the second case, there are additional issues involving lower frontage of greater height, increasing the risk that the facade might collapse and/or of a shift of the base of the foundation (Fig. 4).

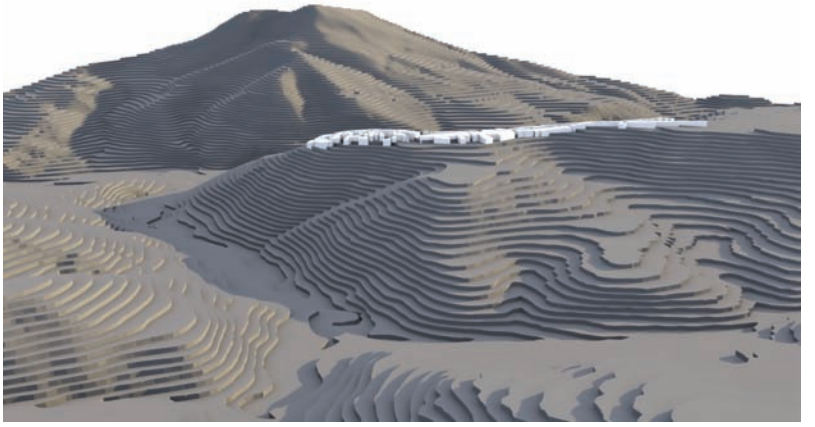
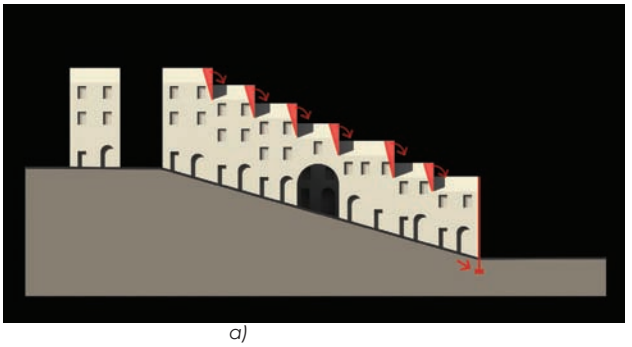
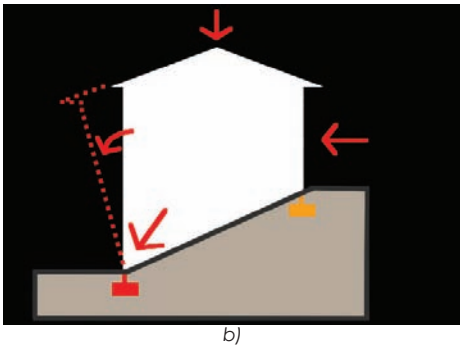


Figure 3: Accadia (Puglia), a ridge settlement. Here emerge a prevalent organization parallel to the contours.

2. Another factor to consider in an interpretation of seismic resistance on an urban scale is the form of the aggregate, in particular of the shape of the facade turned towards the slope. With reference to the mechanics of arches and



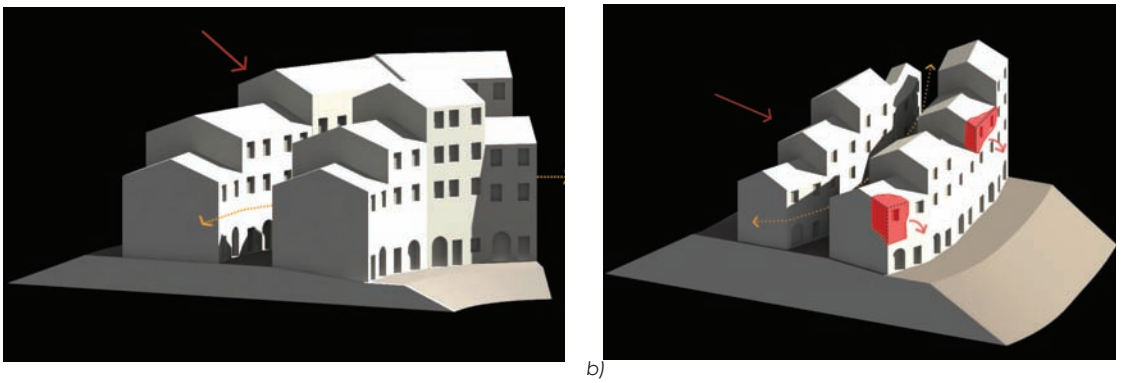
a)



b)

Figure 4: a) A layout orthogonal to the contours, the free standing walls are points of weakness.
b) An aggregate, on a slope, parallel to the contours, the facade might collapse out of plane under a seismic shock.

vaults, it can be stated that an aggregate with a concave shape aiming down and subject to seismic action towards the slope will develop a resistance mechanism which forces compression stresses upon the cells, as if they were keystones in an arch, resulting in a stabilizing effect. A blocking effect is spontaneously generated, one able to oppose the horizontal stresses. In the case of a convex form aiming down, the seismic thrust towards the slope produces the opposite effect – the formation of a tight arch, as a resistant mechanism, subjects the aggregate to traction stresses which walled buildings are little able
to withstand. These forces tend to detach the cells and weaken the consistency of masonry facing, with the consequent ejection of brickwork (Fig. 5).



a) *b)*

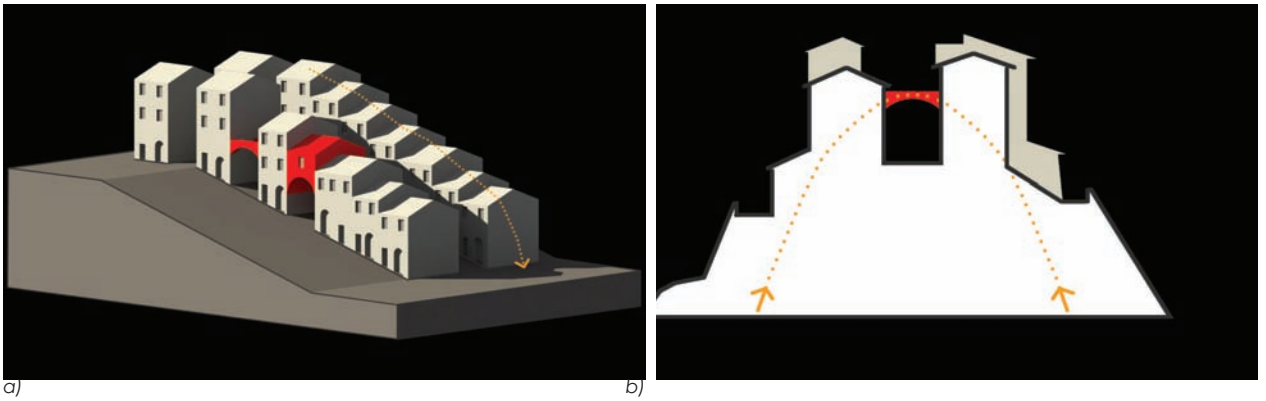
Figure 5: a) An aggregate with a concave shape develop a resistance mechanism which forces compression stresses upon the cells. b) An aggregate with a convex shape, where the forces tends to detach the cells.

From this reading of urban structure at the level of the aggregate we can see that the response to a seismic event is conditioned by the orographic layout and the form of the aggregate. This represents a preventative seismic approach to structure which is innovative in the following ways:

- This overall reading leads us to immediately single out at a qualitative level those situations offering resistance through their form and those situations of intrinsic instability most at risk.
- Following the identification of weak facades and the more resistant aggregates we have a preliminary interpretation but one which in the hands of Local Authorities and experts charged with single interventions can function as a basis of reference for working out where to act and in what adjacent building context.
- This analysis of mechanisms resistant by form or layout on the urban scale is helpful in contextualizing the analysis of local calculation, which is often limited to the remit of a single private property.

At the scale of the aggregate, after a reading of the "weaknesses" and with a view to prevention, it is advisable to reinforce the cohesion between the elements of the unit (facade walls and spine walls; vertical elements and inter-story flooring and roofing) and between units of the same block, using anti-seismic defenses which must limit out-of-plane damage mechanisms, the most dangerous. We are referring to chains, buttresses and counter-forts, and when these are insufficient we require true supporting structures aiming downwards (buildings-spur), whose task is to increase the support between the parts.

The same resistance mechanisms created on the scale of aggregates (given the interaction between the parts) can be extended on the urban scale through the creation of connections between aggregates (Fig. 6). Here we attempt to create "urban" resistance mechanisms involving all or part of the settlement, which do not belong only to any one aggregate. The general principle is that of the mechanics of arches - just as in an aggregate the building units act like the keystones of a resistant arch, so on the urban scale the aggregates and the connections between them become the elements of an overall arching resistance mechanism. Reinforcement arches straddling the streets are an example of urban connections between aggregates and are very often listed among those overall resistance mechanisms, according to the general principle, which is the starting point for this preventative action methodology. For this reason, parts working together is fundamental, in contrast to the "modern" concept of structural separation and technical joints, inherent in structures of reinforced concrete.



a) b)

Figure 6 a), b): Some examples of urban connections between aggregates. Reinforcement arches straddling the streets contribute to create "urban" resistance mechanisms involving all or part of the settlement.

Conclusions

Our paper is an attempt to make a contribution to the field of seismic prevention, an area of great current concern in Italy, both in terms of media attention and also from the socio-political point of view. The seismic events which hit Central Italy are still recent and were preceded by earthquakes in Emilia and L'Aquila. In rapid succession, the Italian territory and its historical towns have been destroyed by the "forces of nature". The media have focused attention on the operational modes of intervention and on how reconstruction should take place. Yet would it not be more useful to possess an awareness of the fragility of these areas and to take action beforehand, through taking preventative measures, certainly less onerous than a reconstruction plan?
The National Strategy for Inland Areas 2014-2020 promoted by the Italian Government seems to move in this direction by concentrating investment in the "weakest" areas of the country. It is within this context that the present contribution hopes to give simple – in the sense of intuitive and not simplistic – suggestions to identify resistance mechanisms on the urban scale, providing experts and local government with a framework of case studies and guidance which might be considered in the organization of action in historical centers. We furnish an interpretation at urban level allowing us to recognize those aggregate elements exposed to greatest risk and to pinpoint within these aggregates the structural units containing the greatest propensity to instability, presenting as a result high seismic vulnerability.

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39 THE ARCHITECTURAL HERITAGE OF KAMENICA TYPES AND FORMS OF THE DWELLINGS

Irklid Ristani

Abstract

The medieval village of Kamenica is situated in the district of Delvinë (southeast of Albania), on the side of the mountain Mali Gjerë. The village lays on the top area of two hills, in their slope and the "neck" created by their join. Kamenica, according to its urban organization, number of the ruins and their diversity, constitutes a significant settlement with great architectural values. The village from its abandon (the beginning of the XVIIth century) was no more populated. This fact has made possible, the conservation in a very good state of the buildings and it urban organization. In base of their functions, there are three types of buildings: the dwellings, the workshops and the churches.
The aim of this paper is the study of the architecture of the Kamenica's dwellings, which are the most numerous buildings of the village. The dwellings taken in exam (almost 100), has been documented in situ, during the doctoral studies.
Based on the numerous examples studied, it has been possible to draw significant conclusions on the architecture of the dwellings: the types, the functional organization, the architectural elements and the construction technique. A spirit of rational, generally characterizes the dwellings architecture, where the emphasis is placed on the functional aspect, without losing the overall aesthetic values.

Keywords: dwellings architecture, architectural heritage, tower dwelling, medieval village, history of architecture.

Introduction

The medieval village of Kamenica is situated in the district of Delvinë (southeast of Albania), on the side of the mountain Mali i Gjerë. The village lays on the top area of two hills, in their slope and the "neck" created by their join (Fig. 1). Kamenica, according to its urban organization, number of the ruins and their diversity, constitutes a significant settlement with great architectural values, not only within the country, but also in the wider Mediterranean region.
The village from its abandon (the beginning of the XVIIth century) was no more populated. This fact has made possible, the conservation in a very good state of the buildings and its urban organization. Based on the information about the neighborhoods (Bayir, 2005) and the surveys done in the suburbs areas of the village (Ristani, Muçaj, Xhyheri, 2014), it was made possible to draw the first general map of Kamenica. It is clear, that the village is planned according to the criteria of the settlements so called "borghi" (Piccinato, 1993): a hilly area with wide fertile terrains, numerous water resources, a central neighborhood surrounded by two or more peripheral and at least two ways that pass through the village.

Figure 1: General view of the Kamenica hills.

The aim of this paper is the study of the architecture of the Kamenica's dwellings, which are the most numerous buildings of

the village. The dwellings taken in exam, has been all documented in situ. The methodology used was mainly based on the surveys and the methods of the archaeology of architecture (Brogiolo, 2002; Francovich, Bianchi, 2002; Francovich, Gelichi, Parenti, 1980).

The architecture of the dwellings

Based on the numerous examples studied, it has been possible to draw significant conclusions on the architecture of the dwellings: the types, the functional organization, the architectural elements and the construction technique.
The dwellings were built next to each other along the narrow streets, as result the village has a great density. They are oriented mostly to the southwest and less to southeast, following the natural slopes of the hills. In some cases, they are built in groups of 3 or more, with a common entrance forming a small fortified unit. This solution is very usual in Kamenica. The access to the single dwelling or a group of them was made by the secondary streets, directly in the courtyard space. The dwellings of the village belong all to the same architectural type the so called "half-floor", which is much diffused in all the villages of the Southwest Albania (Riza, Thoma, 1970), built in hilly areas: Goranxi (Kamberi, 1976), Kardhiq (Riza, 1979), Dhërmi (Lazimi, 1986). This solution is addicted from the steep terrain, because reduce in significant way the works needed to create the terraces, where are built the foundation.
Even the dwellings belong to the same type, in base of their plan organization and volume composition there can be distinguished 3 categories: the simple "half floor" type, the composed"half floor" type, the tower dwellings.

The simple "half floor" type

This type represents the most common and numerous buildings in Kamenica, giving us the opportunity to study them in detail. The dwellings of this category have almost rectangular shape and are positioned perpendicular to the steep terrain lines. This solution makes it possible to develop the plans in two levels at different quotes. The ground floor is elevated above the terraced floor, whiles the upper floor with almost double surface area, extends partially on the lower floor and partly on the natural ground (Fig. 2). The functions are distributed vertically. The ground floor is used as a warehouse and was not enlighten. Next to its entrance are build the stairs that bring to the first floor, which is the most important part of the whole structure used for the living functions. Its interior is illuminated by a narrow window, with a width up to 55cm. This room seems to have a floor treated with two different materials. The frontal part has a wooden floor, as documented from the traces of the timber holes preserved in the sidewalls of the dwelling. While the ending part of the room was paved with stone slabs, where probably was placed the fireplace, which is an important and always present element in the house dwellings of the villages of Dropulli i Poshtëm region.

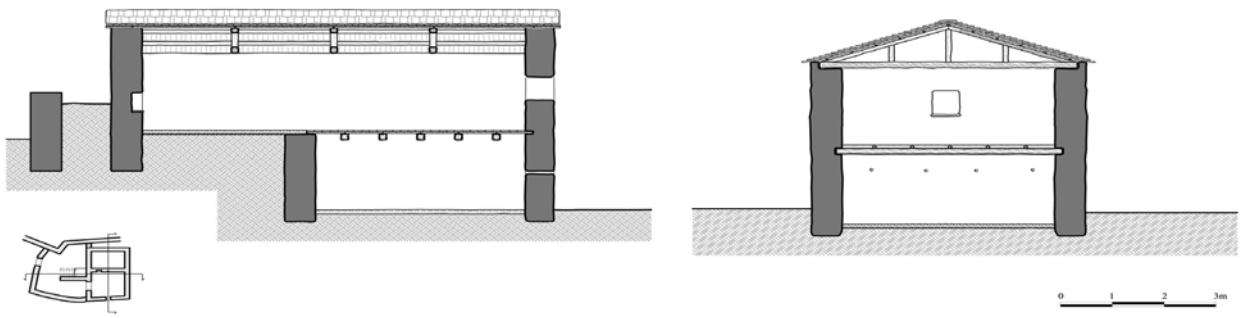

Figure 2: Sections of the half floor dwelling type.

Figure 3: View of the dwellings at the main square Qafa e Pazarit

An essential element of the Kamenica dwellings is the courtyard space, which is surrounded by high stonewalls. This space has an irregular shape, different from case to case, adapted to the terrain and the placement of the dwelling. The courtyard is often organized in two levels, divided by a wall or by the natural rock, depending on the terrain. Regarding the functional aspect of this space, the hypothesis of its close connection with the ground floor is very probable.

In general, we are dealing with a simple, rational architecture characterized by few stylistic elements. In its composition, the emphasis is placed on functional needs utilizing natural conditions, which have become the basic factor in architectural-urban design.

The dwelling appears as a rigid construction, enclosed with minimal facade cracks, highlighting it fortification feature. The only window is located on the south-west facing front, utilizing the best lighting and ventilation conditions that this position offers. It is narrow-cut and treated with a tufted stone slab at the bottom. The roof has been suspended with skeletons built with wooden beams and covered with stone slabs.

The compose "half floor" type

This category, preserves the basic characteristics of the main typology above mentioned, but distinguishes from them, due to their position, number of the rooms and their size. To this group, belong the dwelling houses built next to Qafa e Pazarit, the main plaza of the village and the top of the two hills. Their position is the first characteristic that distinguishes them from the rest of the dwellings. Being detached from the dense residential areas and positioned nearby the churches and the squares of the village, gives importance to these dwellings. This importance is remarked by the larger number of the rooms and the size of these dwellings. Their characteristic is the presence of an additional room in front or in the back of the main body (Fig. 4).

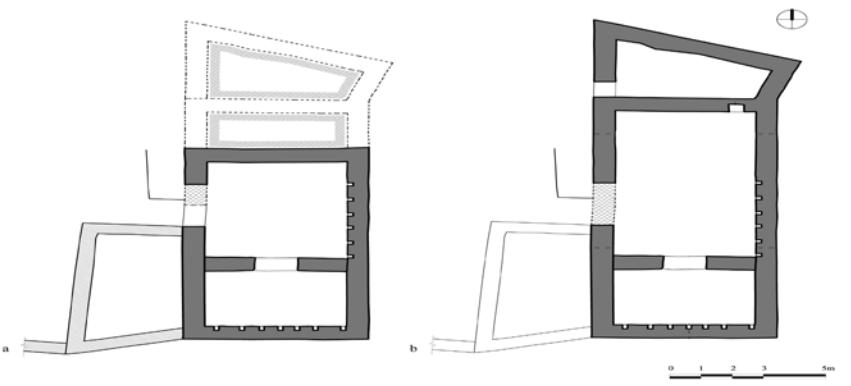

Figure 4: Plans of the dwelling no.1 a) Ground floor. b) First Floor

The tower dwellings

Among the multitude of buildings with residential function, the tower dwellings, represents the most interesting ones. These discern from the rest of the dwellings, not only due to their functional character (they had defense properties too), but also because of the employment of some architectural and constructive elements.
Based on the studies done so far, there are three tower dwellings build in Kamenica, inside the residences that are a small fortified architectural ensemble, very diffused in the medieval cities (De Minicis & Guidoni, 1996). The typology of the tower dwelling appears to be widespread in the Mediterranean space, both in urban and rural areas (Cadinu, 2014). The dominant element of these ensembles is the tower, which is distinguished from the rest thanks to its height of three floors. Each of these floors has a different functional aspect. The ground floor and the first floor are dark and ventilated through small holes settled along the walls and may had auxiliary function. The floors are connected to each other by the stairs, which are placed inside the tower. This solution remark the fortified character of this architectural type. The stairs are made of two different materials: on the ground floor they are made of stone, while on the first floor are constructed with the wood. Second floor is the only enlightened one, with at least a window. This was the main living place of the house. In the tower no. 3 there was found a fire-place with two rectangular niches on his side (Fig. 5.a). This element is very common in the dwellings of the villages of the area.

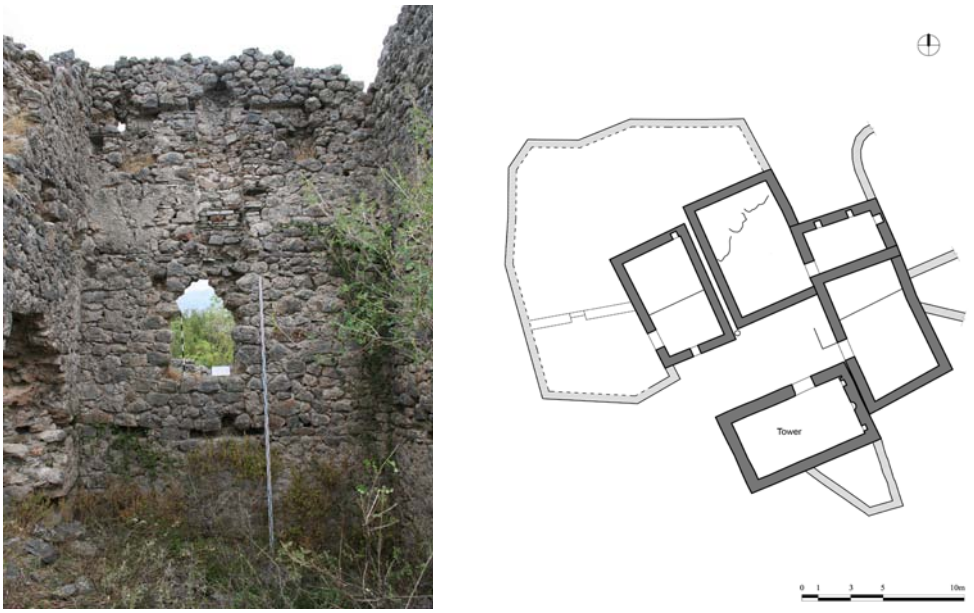

Figure 5: a) Photos of the inside tower dwelling no.3 b) Preliminary plan of the Residence no.2

Conclusions

The dwellings of the village of Kamenica occupy a special chapter in the architecture of the Albanian dwelling, as they are evidence of its treatment in the medieval period. They are distinguished by a unity, both in plan and volumetric compositions. The hilly mountainous terrain conditions have certainly contributed to the formation, reinforcement and spread of the "half floor" type of dwelling. This type takes on particular importance in the evolution of the dwelling, as it represents the passage to the one with two floors. Undoubtedly Kamenica dwellings are the earliest evidence of this type, preserved in our country. As such their study brings new elements into its documentation and interpretation.
Generally, the architecture is quite simple, rational and characterized by the use of modest stylistic elements. The whole composition highlights the priority to the functional aspect of the building, through the exploitation of natural conditions, which are determinant factors in the architectural and urban planning. The architecture of the dwellings, with small windows set in the high walls and the stone facades, point to their defensive character.
A spirit of rational, generally characterizes the dwellings architecture, where the emphasis is placed on the functional aspect, without losing the overall aesthetic values. The dwellings of Kamenica, represent the most oldies examples of this architectural type we have in our country. Systematic study of similar settlements would create an important database, which would help to fully understand the evolution of the architecture of the dwellings. In the same time, this database would enable their comparison with the similar settlements of the Mediterranean area, in order to extend the study of this evolution in a larger scale.

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40

TRANSFORMATIONS OF URBAN MEMORY. WHAT PLANNING DO WE NEED FOR TIRANA'S POLES

Besar Zifla; Gjergj Ruci

Abstract

Tirana is a city under continuous and impetuous change becoming a more vibrant and dynamic town every year. There is no need to explain the challenges and headaches it gives to urban planners and architects on private enterprise or governing institutions, central or local they might be. To make everything more interesting, the latest reform more than doubled its territory, together with the resources and population.
The social poles of Tirana have been identified for quite some time already. For their special function, their historic value as places of memory and their position across Tirana, they are thought as Poles of social life for the city, spots that would become nodes of communication with special attributes for the community around them, while the question is: How can urban planning help achieve this?
A group of students tried to give an answer to this question and this text will try to explain the method, the analyze and the challenges to perceive these Poles, by understanding also new patterns of communication in the process of General Plan design, while trying to work with a strategic approach and concrete needs for long-term and near future aims.
It was pure luck to deal with those spots while Tirana was going through the process of approving its latest General Plan. Strategic planning, while redesigning infrastructure networks may turn empty urban areas in new development opportunities; the spatial configuration of an infrastructure node can determine essential conditions, and simple inter-modal connections get transformed into complex synergy nodes capable of bringing new dynamics and socioeconomic development into play.

Keywords: Urban planning, social poles, connectivity

Introduction

In terms of "memory of places", unfortunately, it's a case where the place is fading, what remains is just the memory, without its previous spatial representation. But of course, we speak so much of memory because there is so little of it left (Nora, 1989).
There are a lot of questions about what's left from Tirana's identity, what we can keep and what should be transformed. Of course there are clear cases of monuments to be preserved and undergo processes of restoration, but also gray areas with a lot of issues, doubts and debate, where change will happen despite our theoretical thought, because it's in the nature of all living cities, part of permanent evolution, open to the dialectic of life itself.
Territorial reform, with one of the most important attributes that were General Territory Plan, is an integral part of this discussion, with the challenges it opens to new cities with more resources, larger competences and profound decentralization. While the debate is opened, what most actors seem to agree is a certain crisis of the traditional method of development to take care of the past, while transforming present shapes and failing to create identities strong enough to resist the future. There is a need for new means of orienting change and development and conditions to implement and facilitate growth by investment in the necessary infrastructure of several layers, from technical to economic and social.

Genius Loci

There are quite a lot of perspectives from scholars about memory in interconnected disciplines like philosophy, sociology, anthropology, geography, architecture, urban design, and architecture. According to Nora, places of memory or lieux

de mémoire refer to those places where "memory crystallizes and secretes itself"; the places where the exhausted capital of collective memory condenses and is expressed. To be considered as such, these sites must be definable in the three senses of the word: material, symbolical and functional, all in different degrees but always present. What makes them a memory site is the interplay of memory and history, the interaction of both factors, which allows their reciprocal over-determination. (Nora, 1989)
In psychology, recent studies show that inside the brain, memories are inextricably tied to place, it actually helps to link our memory with a where. For example, anyone can answer the question "where were you when 9/11 happened?!" This process is called "Episodic memory formation" and they actually found an exact part of the brain (hippocampus) dealing with connecting memories to shapes and space.
In urbanism is generally used the concept of Genius Loci –a little protective spirit from Roman mythology connected to a place of interest, that could be a crossroad, a neighborhood or a large household. It was usually depicted holding a cornucopia or a snake, as symbols of bounty.
In Albanian and wider Balkan mythology, randomly appear intriguing places: lakes, waterfalls, deep forests, caves, etc., inhabited by a fairy creature not to be disturbed by visitors, creatures which required respectfully treatment of rules and customs towards them and the particular venues they called "home".
In urban related literature, in order for the place to have such value, so to hold this spirit, it needed legibility as Lynch would claim, "together with an identified Structure, Identity and Meaning, for at least some people – the more the better" (Lynch, 1960). For Christian Nordberg-Schulz more qualities were needed like Singularity, Visual Scope, Motion, Continuity, Simplicity, Dominance, Clarity of Joint and Directional differentiation. (Nordberg-Schulz, 1980)

Polycentric Tirana

The latest General Territorial Plan of Tirana pointed to transforming Tirana in a Polycentric City, with poles understood as centers of specialized function, and with a strong emphasis on social activities. Tirana has been and still is a centralized city, with radial development spread along its mayor paths, with a road network of classic concentric shape: mayor arteries starting at Skanderbeg Square and reconnected by a succession of rings, generally occupied by heavy traffic and congestion.

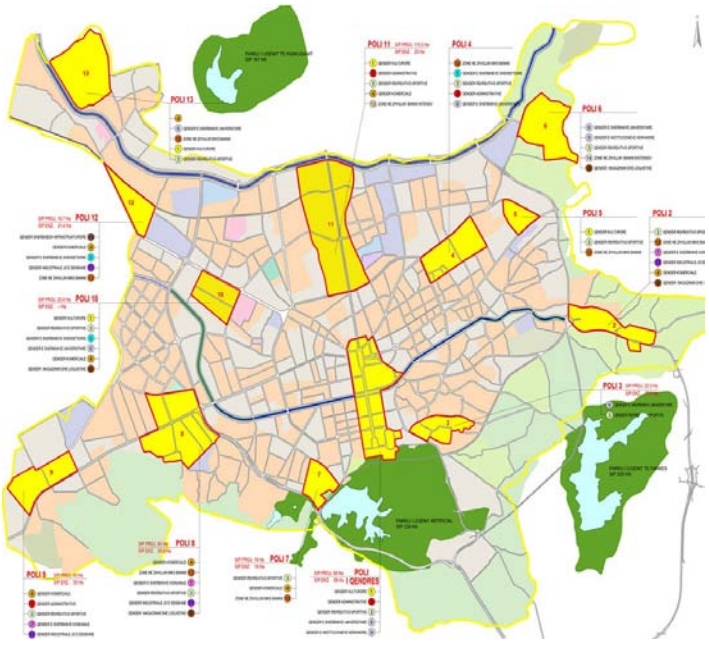


Figure 1: Social poles of Tirana-Extract from PPV- Tirana Municipality

The identified poles are spaces of considerable area, recognized almost by all Albanians due to history, mostly part of the industrial memory from the communist regime, with short aliases of maximum two words, Like Qyteti Students, Spitali, Shkoza – Autotraktoret, Lapraka, etc. At the time those centers were also part of a housing program, planned for the workers or people connected in any way with their function. They were mostly recalling logos vital for the industrial network of the city, but also they were defined by housing islands around them, urban lines of transport, particular functions and so on. In a very general way, they inspired a feeling of belonging and affiliation for better or worse to quite a large group of citizens living or/ and working near them.
We were trying to understand through design how to deal with those spots now that their particular function was overpassed but the idea, the memory is still here. It's recalled only in the names now, for most newcomers they made no sense first, but then got accustomed to those names and are still used even though they represent no particular function.
In order for this new network to prevail and polycentric Tirana to become a tangible reality, they should not be considered as isolated cases, but as nodes of the urban network, connected

between them with a wide range of qualitative synapses interlinking them as brain cells in the nervous system (Salingaros, 1998). Design experiments can help with alternative volumetric scenarios of development, by evaluating effects and possibilities and implementing draft programs. I will explain shortly the situation with the most curious of these spots.

"Kombinati"

It is a very interesting case of industrial archaeology in various aspects. The core is made of ruins from one of the most important industrial assets of the textile industry, now abandoned. Part of the offices complex is still used as offices for the municipality, while the rest is deteriorating as we speak. Not only the factory but the whole neighbored took the name, reference, and purpose from the production, the workers, their houses, families, and services related to them. The Textile Plant in itself started in 1948 and was inaugurated on November 1951. It was designed by Russian architects and engineers.
The housing compound is already a strong social pole of Tirana, but the memory of "Kombinat" is fading away, once even the last buildings will be demolished. According to PPV, it is an area of 43-50 ha, with priority development as Commercial, Administrative, Recreations Sports, light Industry and Communal Services Center.

Figure 2: Kombinat

"Kinostudio"

While "Kombinat" used to be extreme west, "Kinostudio" is the extreme east-northeast of Tirana. Due to the slower expansion of the city in that direction, it is visually more identifiable yet as sort of an urban boundary. Used to be the site for film-making and industry related to it during the communist regime. It was built from 1950 to 1952 again from a Russian project.
The buildings still keep the shape, while the main structure is transformed into the Ministry of Culture and Institute of Culture Monuments, while auxiliary spaces are used by several private televisions as studios and offices.
The housing tissue around is less related to this complex and its purpose, but there is still a strong perception as a name-giver and strongest referring point to the area. It's yet another case where the environment is visibly organized and sharply identified, which the citizens relate to its meanings and connections. (Lynch, 1960)

Figure 3: Kinostudio-Main entrance, today Ministry of Culture

"Autotraktorët"

This was, in my opinion, the most difficult case, trying to design it as a node of human interaction and social pole of the city, not because of lack of history or sense of identity, but because of worsening conditions and loss of function.
Again an extreme of the visible town, on the southeast part of Tirana, again an ex-jewel of industry during the communist

regime, but not a strong housing development around it. The area is today occupied by newcomers, with a case of social houses built by the municipality for low-income families, in contrast with the other two, inhabited still by people affiliated to the area from childhood and work.

Figure 4: Auto tractors Factory– Internet source

Final Expo

As it was mentioned before, this article relates to the work and study made on the poles as nodes of the new City, through design-related research starting from history to shapes, skylines and volumetric proposals for future development. Proposals were elaborated in close cooperation with the Municipality of Tirana and Planning Office, that I hope will use some of the ideas as case scenarios or "pilot projects", concepts put forth and required from the General Territorial Plan, that might work as Programs and background for concrete proposals and interventions in prospect. The final works were exposed for public view and sparked genuine interest.

Figure 5: Projects exposition at "The Piramide"-FAU Archive

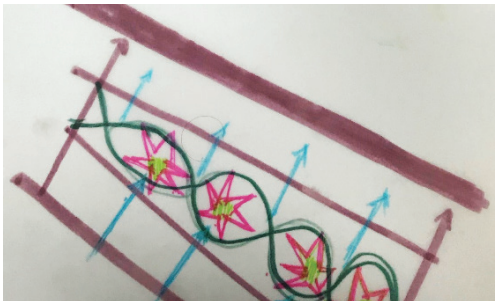
The Airport

One area that I would like to relate a bit more is the one developed at the old Airport site of Tirana. It was built during the 20-es at a period when roads lacked quality and continuance. It was the fastest connection of Albania with the world, and through it passed Kings and Emperors beside other high officials of the state. It is a very interesting situation especially for the opened space it still presents, its position in the heart of the actual city and very good connection to important arteries of communication. It is defined by strong "boundaries" of roads and lines of buildings both from the north and south, with an opened space in the middle. It is an area that has changed a lot and occupied steadily by various types of development, fortunately still representing an opened space with the option for a recreational park. Curiously proposals had a large variety of shapes but all connected in concept:

- Continuation of the "walls" made of high to medium

Figure 6: "Airport Field" and a recent sculpture celebrating its memory- Internet source

housing units on the border;
- Consolidation of certain areas with valuable architectural or urban tissue;
- The composition of the free space with several degrees of the relation between; social, commercial buildings and park area;
- Strong emphasis on improving connectivity towards the rest of the city.



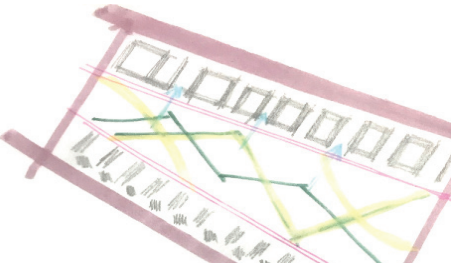


Figure 7 a), b): Conceptual diagrams of the proposals

It will be a sensitive node of development, due to opened space, property developments and real estate pressure in the near future, and in my opinion, the exercises provided can be very good examples of the basis for PDV-s (Detailed Territorial Plan) for the area, a step the municipality will be strongly involved. It can be a reminder of how important is its transformation into a social hub for the city and a way to organize or channel the development energy these spaces generate in real estate sector.
For the General Territorial Plan, this is a 25-30 ha area with development priorities toward Culture, Sports, Health, University, Commercial and Logistic centers. The projects developed can be understood as better and more elaborated programs to understand how those general concepts can be translated into real volumes and a visual how it might look.

Conclusions

There is a strong link between old Places of Memory and new Social Poles of Tirana. It is not by accident that those spots were selected, not just because of the unoccupied space they represent to the public and the Municipality. Also, they are very well situated in the map of bigger Tirana that cannot function without a distribution and decentralization of social functions and distinct functions for the inhabitants. Their development as hubs would transform the tissue of the city towards a more "star shape" network with the facilitation of transportation and everyday traffic.
The memory can be used through design to provide a better legibility for the city and as a means to reorganize the urban tissue. The spirit of these spots already exists for the people around them and on a larger scale. The formal shapes, key lines, representative buildings are present and can be transformed in remarkable and unmistakable places similar to homologue cities that Tirana needs so much.
Additional regulations can provide the basis for Singularity and the municipality can use its weight to implement them. In order to make the space more identifiable simple solutions like the type of trees, patterns or colors can be used to distinguish a continuous space that would give reinforcement to the remembrance image.
Design experiments can help as long as they are involving urban initiatives of larger scale, considering alternative scenarios of development, evaluating effects and possibilities, and highlighting the most important territorial perspectives.

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METHODOLOGICAL ISSUES FOR A NEW GREY URBAN HISTORY. A STUDY CASE: THE "HIGH CITY" OF ROME, FROM PINCIO TO ESQUILINO

Alessandra Ciacciofera

Abstract

This contribution purposes a concise study on the transformation of a urban frame of Rome, between Pincio and Esquilino, along that orographic edge that allows to distinguish the "high city" and the "low city" of the Capital, having a conclusive and closer look on the plan of the modern Rome in the first decades of the XXth century.
The work has collected in single frames and acts of urban transformation the principal specific studies carried out in this part of the city, historical charts and representations, adding new personal materials and results from the elaboration of the proper Ph.D. thesis about the project of via Bissolati, a road planned by architect Marcello Piacentini between 1930 and 1950, located on a specific section on the edge of the "high city".
From the study, it results how physical features had conditioned the city plan since its foundation and had influenced the growth of a parallel urban event, marginal to the political and religious centers established underneath along the Tiber. Furthermore, it's possible to trace some grades of continuity and discontinuity along different historical moments of urban transformation allowed to identify an antique persisting aim of this part of the Capital across the centuries. This aim is the identity of the "high city" of Rome as a subaltern urban pole of the Capital that in the Fascist period, among the debate of the 1920s and in 1931 plan, became the location of the new modern Rome. As a consequence, it's possible to refer to specific planning issues of that period to common transversal themes and find out possible reasons for some planning choices in comparison with previous plans.
This contribution wishes to meditate on methodological issues for new gray urban histories that move above all for modification of knowledge. Different, but as reliable, interpretations of a common study object.

Keywords: Urban studies, Rome, the theory of architecture

Introduction

The "high city" of Rome: a history of urban settlements on an orographic edge from Pincio to Esquilino[1]
The present study purposes a method of analysis of urban history, assuming a frame of the city of Rome as a subject of the survey. The analysis is supported by the graphics restitution and overlay of single steps of the urban arrangement, collected chronologically from a first scientific hypothesis of its orographic configuration to the last plans of Capital Rome in the XXth century. The aim of the study is to demonstrate how the orographic structure of a city influenced its plan during centuries; furthermore, how it's possible to distinguish different planning attitudes and recognize their grades of continuity and discontinuity with the past [2]. Finally, it's possible to acquire new visions of single specific historical projects or plans in comparison with a unique historical line made up of fragmented frames of urban transition.
Specifically, looking at the urban history of Rome, it's possible to recognize an orographic edge that allows a distinction of the "high city" from the "low city" of the Capital. This natural feature has influenced the urban development since the first urban settlement. In this study, some principal urban steps are recognized, critically structured and presented in three urban acts.

Act I. Layers of urban modification

The theme of "urban modification" is the common aim of the architectural interventions that had followed in this part of the city since the first urban settlements, located on the seven hills that define still nowadays the urban structure of

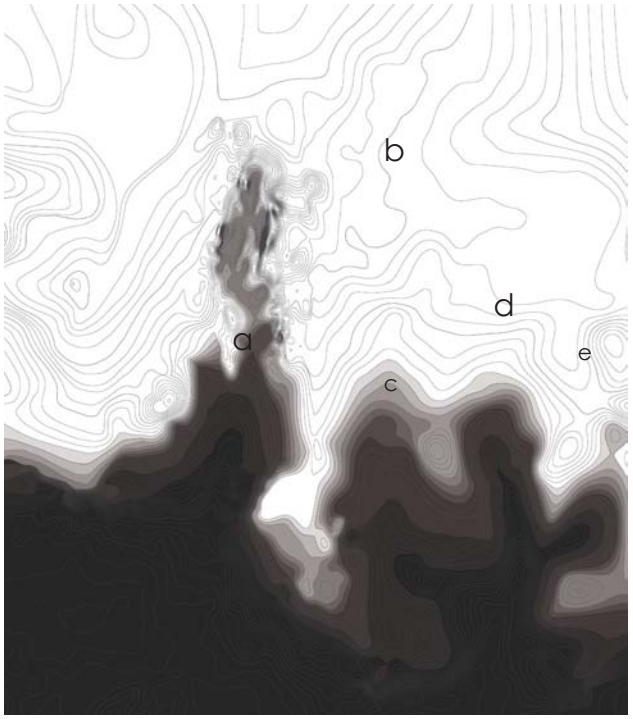

Figure 1: The "low" and the "high" city of Rome from Pincio to Esquilino: hypothetical restitution of the "Grade 0" of urban settlement. General orographic structure: a. Mount Pincio; b. Sallustian valley; c. Quirinale; d. Viminale; e. Esquilino. (A. Ciacciofera).

Figure 2: Actual configuration of a typical gorge located in the antique Etruscan regions in the north of Latium. Cerveteri (Roma). According to Lanciani, this landscape could be the hypothetical image of the antique valleys of Rome. (Ph. L. Franciosini).

Rome (the so-called Septimontium) until the plans of Capital Rome at the end of the XIXth century. With the term "modification" [3] we define the attitude of an urban development that has not compromised its morphological shape for centuries. In other words, single urban facts as specific architectural projects that settled in a place and in a specific time with necessary and limited terrain alterations. The result is the heritage of an orographic edge that was still surviving in its principal features before the interventions of the late 1800s.

1.1. Grade 0. Image and restitution of an orographic edge

Thanks to this permanent morphological arrangement, it's possible to give a hypothetical restitution of the orographic configuration of this part of the city at the beginning of its first settlement. The collection of graphic documentation from Capitoline Archive of Rome assures the reliability of the terrain elevation in the last decades of the XIXth century [4]. The result (Fig. 1) is the visualization of the antique Sallustian valley, so called for the famous historian Sallustio that built there his villa in 44 B.C. The valley is limited by cliffs, covered above with oaks and canes at the bottom as it's possible to recognize the typical landscapes of the Etruscian regions around the near city of Viterbo (Fig. 2). "Quirinale, Capitolino, Aventino, and somewhere also Celio and Viminale, were cliffs cut with a peak, intersected by deep and narrow valleys that made difficult the climb and the descent. The urban soil should look like, in the elevation profile, to the regions of Veio, Sutri, Civita Castellana, Wady Musa (Petra)" (Lanciani, 1878).

1.2. Four frames of urban modification: the growth of an urban pole, the issue of urban connections

It's possible to classify the urban modification of this part of the city in four frames that had followed since the antique Roman settlement until the plan of Sisto V (1585-1590) and the interventions of the last XVIIIth century[5].

1. The Antique Rome: the high city of Rome, surrounded by Aurelian walls was a "garden city", full of villas and hortis, above the dense urban center along the Tiber. The road Alta Semita, from Quirinale to Porta Nomentana, defined an extended settlement, from which we recognize symmetrically the Sallustian hortis and the Diocletian baths as the major urban facts in a semi-urban region above the hills.
2. The decline of the Western Roman Empire is acquired symbolically in Rome with the arrival of Alarico in 410 A.C. The region of the high city had been totally abandoned yet. It was a grazing land, covered by scattered ruins. This configuration would be maintained until the XVIth century.
3. The pope Niccolo V established a period of renovation. The high city of Rome was re-discovered and its ruins were recognized as the surviving memory of an antique greatness to be collected in new properties settled above the medieval center. With the interventions of Pio IV (1560-1565) and Sisto V, the high city returned

to be a subaltern urban pole. On the path of the road Alta Semita, the new Via Pia was drawn and Porta Nomentana was restored by Michelangelo as the new Porta Pia, represented as a gate of gardens and vineyards. While, it's referred to Sisto V, the plan of via Sistina: an urban connection that crosses the hills, linking the high and the low city, from Pincio to Esquilino. Finally, besides the Diocletian baths, the construction of the Mosè fountain in 1587 by Domenico Fontana and the three churches of San Bernardo (1598-1600), the facade of Santa Susanna in 1603 by architect Carlo Maderno, and Santa Maria della Vittoria in 1626.

4. In the meantime, with the growing of a new urban pole, the landscape of villas came back in a new configuration of noble properties, structured in this new "antique" high city. The result of these urban processes (Fig. 3) was substantially the city represented by Nolli's chart in 1748. In that representation, we recognize the natural features of that orographic edge, from which this urban plot has begun.

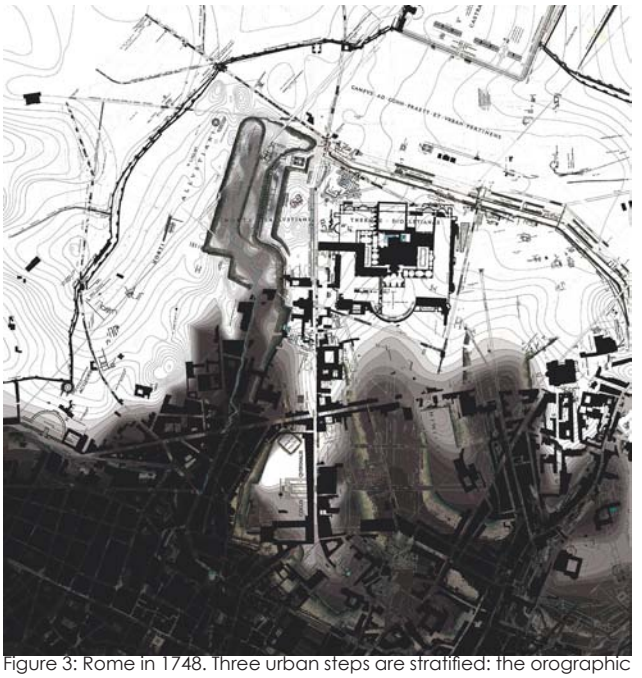

Figure 3: Rome in 1748. Three urban steps are stratified: the orographic structure; Lanciani's Forma Urbis Romae (archaeological map of Rome, 1893-1901); G.B. Nolli, La Nuova Pianta di Roma, 1748. (A. Ciacciofera).

Act II. Capital Rome. Urban transformations in the XIXth century

With the election of Rome as Capital of Italy in 1870, the high city was identified by the minister Quintino Sella as a new urban pole for the new Ministeries, confirming the continuity of a historical aim of this site. However, the emergent growth of the population was not totally controlled by the first urban plans (1873, 1883) that couldn't prevent the urban extension beside the historical center. Some private interventions were significant for the radical change of the urban morphology and the urban image of the high city, from a semi-urban landscape of villas to a dense system of neighborhoods for the new middle class (Fig.4).

These interventions signed the final abandon of the Sallustian valley underneath the new urban ground. We can cite the private plans of Sallustiano and Ludovisi quarters between 1883 and 1886. While the first plan destroyed the antique Sallustian valley with a landfill layer of about 15 meters (Fig.5), the second one filled totally with a parceling plan the magnificent villa Ludovisi, who's the surviving building is now a part of the built extension of Piombino Palace, thanks to the plan of the architect Gaetano Koch in 1889. Assuming these urban facts, it's possible to define, in opposition to the concept of "modification", the term of "transformation" as a radical change that refuses the existing context imposing a new urban shape.

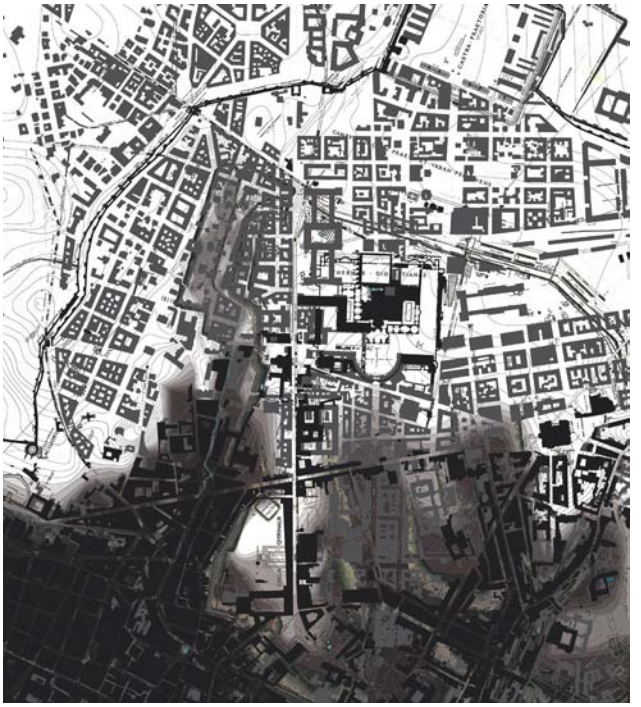

Figure 4: Capital Rome. Four urban steps are stratified: the orographic structure; Lanciani's Forma Urbis Romae (archeological map of Rome, 1893-1901); G.B. Nolli, La Nuova Pianta di Roma, 1748; Istituto Geografico Militare, Piano Topografico di Roma, 1924. (A. Ciacciofera)

Act III. The plan of the modern Rome in the "high city"

The discontinuity signed by the first plans of Rome was acquired in 1909 plan as a basis of an urban project that recognized the potential role of the high city as a subaltern urban pole inherited by the debate in the 1920s. The speed and consistency of urban growth and the new emergent needs of the modern society influenced different

projects planned by a new professional class of architects that would be the principal characters for the plan of the modern Rome. La Grande Roma by Marcello Piacentini in 1925, as the GUR's plan in 1929, was a proposal of modern Rome on the high city that recognized the theme of urban connections between opposite parts of the city as one of the most important focus for urban planning. Both the unbuilt plans established the retreating of the railway station to Porta Maggiore, drawing on the previous rail path a new huge Mall, referred to an American idea of a modern avenue of offices and institutions crossed by modern vehicles. In the meantime, the plan of via Barberini in 1926, was a response to the connection between the high and the low city on the Tiber across the historical center.
With many difficulties, these urban visions were inherited by 1931 plan that introduced beside the plan of via Barberini, the project of via Bissolati, a modern avenue that would connect the new plan of the railway station in Porta Maggiore to the neighborhood's over the Tiber, crossing the edge of Pincio mount on a path peripheral to the center.
The result of these plans (fig. 5) is the representation of a urban addition, that in discontinuity with the interventions of the XIXth century, can be interpreted as the final modern frames of a historical continuity, that define a common aim of the high city of Rome between Pincio and Esquilino, over the centuries.

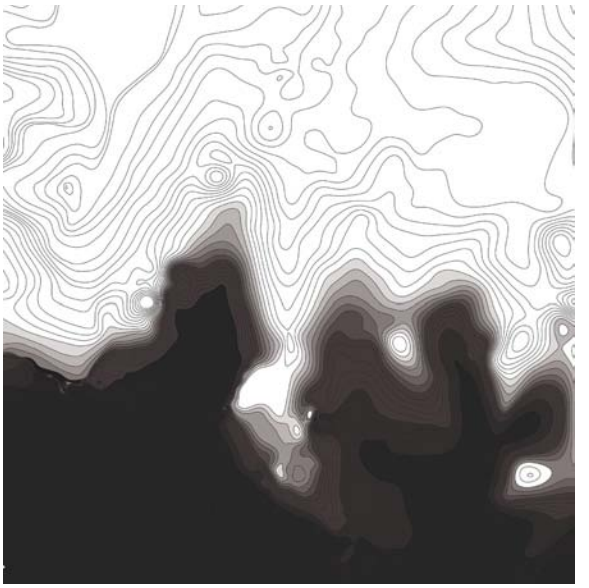

Figure 5: The orographic transformation of the high city of Rome after the interventions of the late XIXth century. (A. Ciacciofera)

Figure 6: Modern Rome. Five urban steps are stratified: the orographic structure; Lanciani's formaurbisromae (archaeological map of Rome, 1893-1901); G.B. Nolli, La nuovapianta di Roma, 1748; Istituto Geografico Militare, piano topografico di Roma, 1924; some elements of 1931 plan, related to the modern addiction planned in the high city. for a general orientation: a. Via Bissolati, 1931; b. via Barberini, 1926; c. the plan of the railway station, whose retreating, minimized in 1931 plan, was unfortunately abandoned before the final approval (A. Ciacciofera)

Conclusions. Results, issues, and point of views for new greyurban histories

This contribution, so expressed synthetically, could be interpreted as an "unfinished" conclusion for an urban plot that would be correctly continued after the WWII with other plans and histories of this site. However, no other projects would be collected as an expressed continuation of an idea of a subaltern city that was totally abandoned, following other plan directions after the failure of 1931 plan, i.e. the plan of E42.
Until the first decades of the XXth century, this aim of the high city of Rome is a sequence of ideas of the city and urban configurations. These plans can be linked along historical lines of continuity and discontinuity, as a comparison with the existing context a specific plan had to deal with; but overall, with a primordial aim, represented as an orographic structure that has followed this urban plot in a background layer. Finally, it's paid attention to the methodological approach. This contribution is one of the possible points of view for the description of the urban history of this part of the city: the description of an orographic feature, as one of the principal local conditions that had influenced the urban settlements and it's recognized as the antique reason for the continuity of some plan issues during time. According to an idea of a "gray theory", as Goethe said, by means of Mefistofelis, in his Faust, herein, it's possible to purpose an idea of a "gray history", that moves not only for addition but for "modification" of knowledge during the time. "Modification" with a double meaning: the acquisition of different reliable interpretations about a common object as historical representations and maps of an imaginary city across the time; finally, the image of an "alive" theory that can regenerate itself, change or die.

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Notes

[1] The present contribution refers to a field of my Ph.D. research, whose this pubblication is a synthesis of the major themes. For a more detailed study: A Ciacciofera, Inter urbes et colles. Via Bissolati, Roma. Ragioni della forma di una strada dell'architetto Marcello Piacentini, tutor: arch. Francesco Cellini, DdR Architecture: Innovation and Heritage, XXIXth cycle, Università degli Studi Roma Tre, 2017.
[2] The present study acquires the urban theories of Aldo Rossi and Vittorio Gregotti; the methodological approach of Saverio Muratori.
[3] The term "modification" is related mainly to the studies of Vittorio Gregotti (Gregotti, 1991).
[4] The documentation refers to the parcelling plans of the late XIXth century. ASC, Ripartizione V LL.PP., Piano Regolatore (fuori Posizione), B. 70, F. 12, Nuovo quartiere agli Orti Sallustiani. From the drawings it was possible to note the elevation of the preexisting terrain. The fundamental hypothesis is the permanence of an original orographic configuration for centuries before the plans of Capital Rome.
[5] The present synthesis of the major historical urban events in this part of the city refers to the methodological approach of Fagiolo's studies (Fagiolo, 1987).

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SOCIALISM AND URBAN PLANNING IN ALBANIA 1944 - 1990

Eno Kotmilo, Gjergj Kotmillo

Abstract

This paper presents, within the 1944-1990 time-frame, the planning skills, the country's developments, achievements and its failures. The research materials consist of annual statistics, archive materials, such as bibliographies, historical and economic data. This material is discussed analytically and comparatively in relation to the study period, which is divided into several sub-periods, distinguished particularly from political events in the camp of the former communist bloc countries and the economic aid from these countries: 1944 - 1948 aid from Yugoslavia; 1948 - 1964 aid from the former USSR; 1964 - 1974 aid from China; 1974 - 1980 beginnings of economic difficulties, "With our own forces"; 1980 - 1990 economic depression, financial crisis (the end of socialism). Every sub-period is analyzed in concrete examples in the field of urban planning with relevant comments from expert opinions from that time. By 1974 the pace of the overall development of the country was quick, thanks to the aid and soft loans from friendly countries. This same rhythm is observed in the fields of the urban planning studies as well as in legislation, in the structure of the administration, and the technical staff. The pace of investments was maintained, until 1990 where this momentum was concluded along with the general socio-economic collapse of the country. As a conclusion, socialism planned, but in Albania, it could not afford to invest in the service of the population with its own budget.

Keywords: urban planning, architecture, socialist city, eastern block, Albania

Introduction

When I was a child, I experienced socialism with the receptive skills of that age, but this is not the case to address these perceptions, it is more than that. With a degree from NJIT School of Architecture, with working experience in the United States and in Albania, I am presenting a paper on the developments in Territorial Planning in Albania, for the period 1944 through 1990, but not with my perceptions, with analysis and judgments on facts, selected from official sources, especially from annual statistical publications, the real facts of the city's constructions, which through them, reads the story, and which ultimately make up the object in this paper. I received a great help from honored architects and urban planners. Their experience during this period, constitutes an object for another paper. I'd like to thank all of these professionals, with respect for all those who are not among us, and a special greeting to my father, Gjergj, who cared so much about me.

A short intro of Chapter One

How can one build without a foundation? Before 1944 the State existed, but what did it inherit?
First it inherited a very poor country, with a population of about 1 million, average age 40 years old, and with a production that guaranteed food for six months. Where 75-80% of the population lived in the countryside, and a road infrastructure far from normal. But, a state with all government structures was inherited, as it is according to many studies then, and of later editions. I perceive this because even today the most important cities, especially Tirana, show much about the level of Territorial Planning (urban studies) and in architectural designs. Tirana's infrastructure is what it is today, and remains convincingly without any doubt. Legislation was of a level with the western states and a very well-prepared team of architects was established.

Table 1: The geographical position of Albania (Statistical Yearbook of Albania 1991)

Geographical latitude	**Degree**	**Village**
Northern Latitude	42 39'	Vermosh
Southern Latitude	39 38'	Konispol
Geographical longitude		
Eastern Longitude	21 40'	Vernik
Western Longitude	19 16'	Sazan

Table 2: Length of the border(Statistical Yearbook of Albania 1991)

	Total	**Land**	**River**	**Lake**	**See**
Total length (km)	1094	657	48	73	316

Table 3: Surface according to altitude ASL (in meters) (Statistical Yearbook of Albania 1991)

	Total	**0-99**	**100-299**	**300-599**	**600-999**	**1000-1499**	**1500-1999**	**above 2000**
Total (m)	28748	4661	3940	5316	6601	5821	2069	340
In percentage	100	16.2	13.7	18.5	23	20.2	7.2	1.2

The Great Friendship with Yugoslavia 1944 - 1948

In this chapter a special emphasis is placed on the implications of deep political, economic and social changes in Albanian life, but not only. Changes that are directly affected by the up-to-date social relations developments, the dealings with the state, property, and in particular, with human rights. There were extensive changes in the field of construction and urban planning. The socialist state took over the obligations towards society and social services. Deep changes in the legislation of urban planning and construction. Changes in administrative structure, state investments, etc.

SOCIALISM - an ideology and practice that is based on a centralized planning of every area of social life, and for Albania, a borrowed theory and practice. From this great friendship, the practices and the examples to build socialism in Albania were taken, in many cases overstepping them, especially in basic human rights (Qano Lako, *2017*). Territorial planning started a new road, where the state had all the rights in determining the functions and services in the territory. Special attention was paid to agriculture, where a range of intervention was planned for the improvement of agricultural

Figure 1

land; irrigation, drainage, and reclamation of marshes, first the Maliq – Korçë swamp.
The first infrastructure planning began with the Tirana – Durrës railroad, with a credit. By building some industrial facilities to push the primary needs of the population, this ideological "Great Friendship", ended and went to another "Greater Friendship" but a little further geographically. Certainly, any cooperation in all areas was interrupted.

The "Even Greater Friendship" with the USSR 1948 - 1964

"Our omnipotence" has followed us, especially for the fate of a very poor people, very close to a rich Europe, but the Ideological Friendship has no limits. Without any doubt from this Friendship, the Albanian people recognized a very strong light and darkness, as is the foundation of a communist ideology.
First, it was the preparation of the technical – engineering personnel. Until the 1960's a number of prominent professionals were trained, among them, very few for the urgent needs were architects and even fewer planners and urban designers, for the simple fact that such professions were not yet well known or appreciated. One of the first Plans was the definition of Land Use Territories to protect the "land of the bread" (as it was rightfully called), which, together with the interventions in irrigation and drainage, make up one of the most important vital planning in Albania. (Qano Lako, 2017). The Socialist State took over one of the worst problems, namely, the housing of the population, excluding self-housing, as one of the only opportunities at that time. This brought the housing in a desperate and long-lasting condition, and it was never resolved for a minimal level of well-being.
Now with generous assistance, long-term and very facilitating loans from the Kremlin, an intensive construction of housing began throughout the country, just to clarify, this was only for the cities, and it excluded the 75-80 % of the country, namely the village population. So, we are talking about helping to shelter around 1.5 million, with a natural increase of 2.4 - 2.7% per year, and with a 3 - 4-member family on average.
A major addition to the socialist government was the construction of Residential Centers and New Cities near the powerful industrial clusters such as Maliq, Kurbnesh, Cerrik, etc. Their Urban Planning and Residential Constructions were self-supported, and developed nearby them. The Local Plans of these, now urban centers, were entrusted to foreign designers. Consequently, these centers resembled the Russian Kolkhoz and Sovkhoz. One simple, very regular plan, with the best coefficients of that time, equipped with all the necessary social and cultural services and engineering infrastructure, just as the theoretical model.

Figure 2

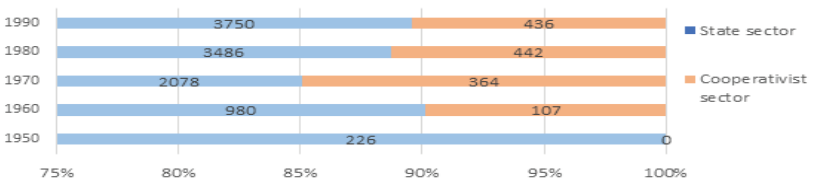

Figure 3: Total investments, at prices of 1986(in million Leks)(Statistical Yearbook of Albania

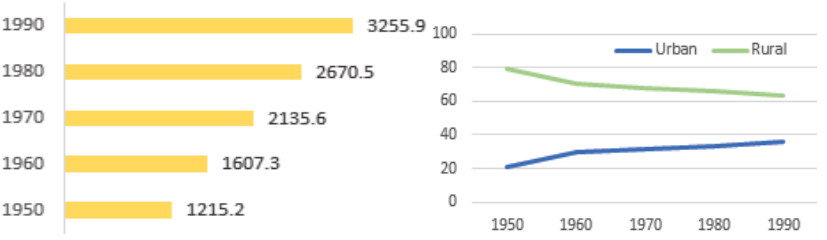

Figure 4: a),b) Annual average resident pop. (in thousands and %)(Statistical Yearbook of Albania 1991)

I can assure you that today you can easily verify these accomplishments. I can also assure you that you will find some strange interventions among them. Apartments were developed in 2-3 floor models, due to the lack of construction materials, also to fit into the rural environment which surrounded them. For the first time after the monarchy, the main cities were Locally Planned, or revised, which was a success for time.
These Local Plans were responding to new policy criteria, such as:

1. Citizens were expelled from their land and residence, without compensation;
2. Private housing could be expropriated, for the interests of the state, with a symbolic compensation or with an apartment;
3. No change of residence was permitted, except in cases with a special decision;
4. Confiscation and prohibition of the use of personal motor vehicles, allowed only by special decisions;
5. The Albanian State Bank provided loans only for simple renovation of housing in the cities;
6. In the case of damage to property by earthquakes or floods, the State assumed their reconstruction or by soft loans.

Local plans, already based on the rigorous criteria as mentioned above, simplified their design for prospective development, proposing new, broad, straightforward means of implementation, without worrying about many demolitions and expropriations, thus bringing a new language to our cities, certainly relying on their upcoming achievements.
All interventions were based on Partial Urban Studies, where examples from other parts of the Communist bloc were found. It was the beginning of the first residential complexes, designed almost with the theoretical examples of the utopian plans, with urban coefficients of the most advanced at the time. Initially, there was an effort, but with a total usage failure of the 1, 2, and 3 story apartments in the main cities, which today is difficult to find a reason what prompted the planners to design such buildings.
In Tirana there are such examples, especially in the "New Tirana District", but they were quickly corrected, going on to 4-5 stories.
I must reiterate that during this period complexes and dwelling blocks, with admirable housing conditions were erected in almost all major cities, but with an architectural presentation acceptable only to that time.
It should be mentioned the organization of the design departments within the state administration, with Albanian and Eastern Bloc countries' technical - engineering personnel, mainly from USSR and Bulgaria, for urban planning and architectural assistance. (Qano Lako, *2017*) As the first institution, the Enterprise Project (Ndërmarja Projekti) was established in 1948, later the Design Department (Drejtoria e Projektimit), and later the Design Institute (Instituti i Projektimit).
In the years to come, the state underwent further restructuring. Within these departments there were Sectoral Studies and Urban Planning units. One of the greatest achievements, was the "Complex Planning of all of the Territory", which treated all these areas of economic interest, as in:

- The field of hydrocarbons
- The field of hydro-power
- The field of mining, and
- Almost every area of economic interest.

The end of the "Great Friendship" and the beginning of a "Not so Great Friendship" 1964 - 1974

After a total collapse of political cooperation, a total termination of financing, termination of credits, and finally the interruption of diplomatic relations, and when these were not enough, the removal of specialist technical - engineers from the work sites of each active construction.
So, another period begins. As always, the fate of a poor people, in the middle of Europe, was found on another continent, in China. The Chinese government offered to the Albanian government and its people urgent assistance. The first round of aid came for

Figure 5

the continuation of the suspended construction works throughout the country.
This financial aid fueled and empowered institutions like:

1. The Institute of Studies and Design No. 1 (Architecture, Urban Planning and Design);
2. The Institute of Studies and Design for Roads and Bridges No. 2;
3. The Institute of Studies and Design for Hydroelectric Power Plants No. 3;
4. The Institute of Studies and Design for Large Industries Building No. 4;
5. The Enterprise of Geology and Geodesy.

This aid also fueled the economy and especially the constructions sector. It should be mentioned the construction of the hydropower plant on the Drin River, processing of minerals, processing of fertilizers and super-phosphates, and food processing, which just brought about the preservation of welfare.
Facilitated by funding for these projects, the state maintained and added housing construction to cope with population growth, now about 2 million.
With all the rhythm of growth, no supply ever covered the demand. During this period the pace of preparation of graduate experts increased. The Albanian technical engineers, led the designs and implementations of the works. In 1966 was the first starting year of the State Faculty of Architecture, which began to fill the huge gap after 5 years or more. Thus, the empowered Institute of Designs, and later The Institute of Studies and Design Nr. 1, the first institute to study the design of architectural and urban design projects.
The level of professionalism and the pace of projects had increased considerably. All major cities were completed with a review of the Local Plans, enabling each inhabited center to be equipped with an individual Plan and with the completion of the "Architect's Office" in each Local Government Unit (Qano Lako, *2017*).
In each county, the conditions were gradually set up for each village to be complemented with a Local Plan. At this time, a legislative act was recommended in the Urban Planning Regulation, that every city, inhabited center, or village, would be virtually and practically bordered by "The Yellow Line". This was one of the acts that ensured the preservation of the Agricultural Land without a special decision from the central and local governments. The violation of this act led to the conviction of some mayors. It became a norm for all the people. In cooperation with other institutions, the National Plan was drafted for the protection of the natural environments, in particular forests and pastures.

Here is the end of the "Not so Great Friendship" – "Now with our own forces" 1974 - 1990

Closing the relationship with China and leaving the Albanian Socialism with all of its problems, as it was named by the rulers themselves, the irony of chance, "We Will Build Socialism with Our Own Forces". It was just craziness. An economy that was not supported by funding, with degrading technology, and with a crop that did not cover the needs of the country, a whole nation was chastised. (Qano Lako, K.) The construction sector was the first one to feel the reduction in growth, the lack of raw materials and building materials. A drastic reduction of new constructions began. The constructions of the apartment buildings went out of hand, and it was passed on to the citizens to build by themselves, in cooperation with their institutions, as an extracurricular activity. Now, to secure an apartment,the ones in need should work in construction, with help from their institution.

Figure 6

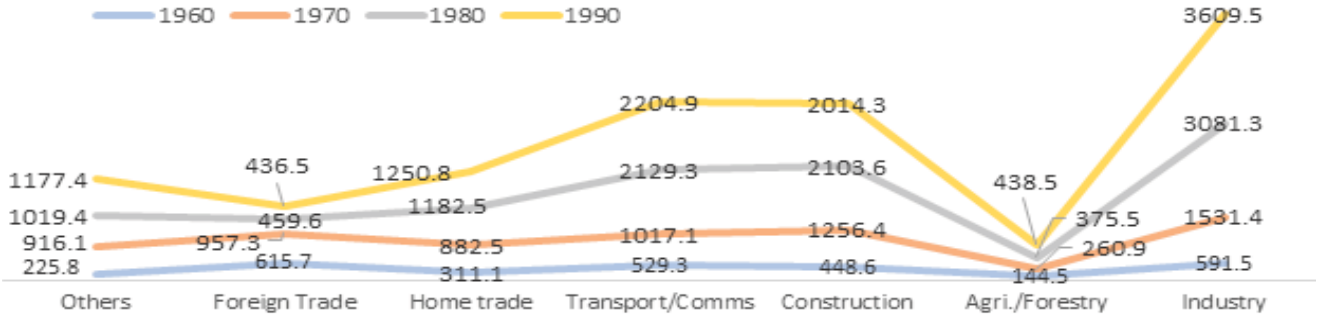

Figure 7: Growth of social product (in percentage, where 1950=100)(Statistical Yearbook of Albania 2011)

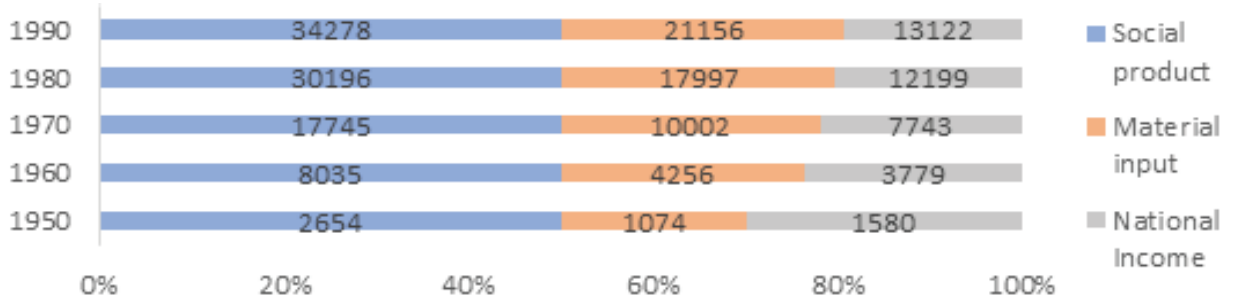

Figure 8: Social product and national income at the prices of 1986 (in million Leks) (Statistical Yearbook of Albania 1991)

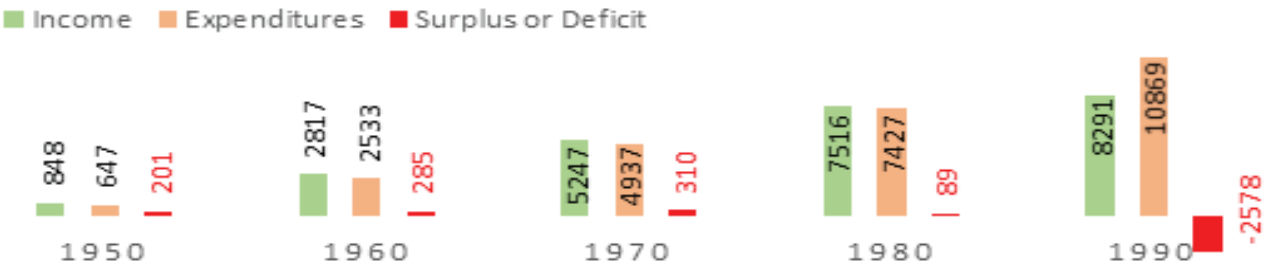

Figure 9: State budget (in million Leks) (Statistical Yearbook of Albania 1991)

This led to an unguided planning of housing, thus, avoiding the residential blocks that required expropriation, which were used so successfully in previous years. It is to be noted that in the Local Regulatory Plans it was boldly planned with advanced urban infrastructure, especially within the city ring roads, and a more suitable zoning plans for the future needs. After 1980, according to many economists and the statistical data, the country went into a financial collapse by "eating itself". The government started to dip into the State Treasury just to buy the most basic eating needed for the entire population, that including the villages. A drama started with the food rations, which finally became too desperate and shameful after many years of experimentation with human destiny.

Conclusions

Socialism as an ideology, as applied to the former Communist bloc, failed, but the greatest failure was socialism as a practice (as an economy). In this context, as a theory of a Centralized Planning, there were acceptable results in some areas of social life. Territorial National, Regional and Local Planning produced satisfactory results, particularly in the urbanization of the territory, the design of Local Plans of each city, inhabited center, and village.
It was possible to control the entire territory of the country through legal acts, recognizing the great impact of the fear of family punishment as one of the repressive measures of the "Class Warfare". No illegal constructions were made.
Based on the above, the "land of the bread" was best protected from misuse and construction, as one of the permanent crops for agricultural land.
The Albanian state, totally dominated by communist ideology, was always disconnected from international relations, apart from the bloc countries even though with strange implications, and when it was finally disbanded, the government was not able to construct and implement a state with contemporary infrastructure. Albania, despite the Planning efforts, turned out without roads, degraded railroads, and one degraded airport, three of the most important elements of interconnections with the world. And finally, with an economy, finances, and agriculture that ended up a whole nation in an extreme poverty, at the same time being in the middle of Europe.

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Qano Lako, K. (2017). Personal interview. 12 December 2017.

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THE SHAPE OF WATER LANDSCAPES: CAMPANIA INLAND BETWEEN MIDDLE AGES AND MODERN PERIOD

Lester Leonardo

Abstract

Mills, canals and other water infrastructural works have always characterized European and Italian rural and urban contexts. Particularly between the Middle Ages and the Modern age there was an exponential increase of different typologies of water mills and facilities connected to them.
Landscape archaeology has often to deal with such archaeological documents that are usually disconnected from their original context because of their fragmentation and the heavy alteration of the territories over the last decades. However the multidisciplinary and diachronic method allows us to reconstruct and set these structures in time and space, to understand the connection between them and the territories.
The study of the interaction between nature and man is crucial to understand the birth of "liquid landscapes" during the Middle Ages in territories rich in water resources that, in most cases, were already exploited during ancient times. Reconstructing the medieval urban and rural landscape is an indispensable occasion for the conservation, enhancement and fruition of such important testimonies, especially in those areas where the exploitation of hydraulic energy was at the core of local economy.
This is the case for many territories of southern Italy located near the Apennines Range; particularly the area of Campania region corresponding to the province of Benevento still has considerable remains of structures and hydraulic works. In these areas hydraulic energy powered factories not only used for milling cereals, dried fruits and pressing olives, but also for the production of fabrics or processing other materials.
The water landscapes context revolved around the engineered control of water sources: the streams control and the creation of a dense network of canals connected to catchment basins, represented an important system of soil management for a territory that is very fragile and subject to landslides and floods.

Keywords: Middle Ages, water landscapes, archaeology, Campania inland, mills

Introduction

Infrastructures and factories based on hydraulic energy have shaped the European and Italian landscape from antiquity to the present.
Mills, dams and artificial canals have changed the appearance of the territories creating a system of "liquid landscapes" whose layout is still visible and traceable.
The study of the interaction between man and nature, from which these water landscapes originate, is of fundamental importance for understanding the transformation and the territory evolution in those contexts where the abundance of water sources represented a cornerstone for the economy of the local communities.
The construction of mills and the organisation of systems for water capture and canalization represents the tangible sign of a skilful management. The management and exploitation of the water resources were quite widespread and advanced since the Roman age, as proven by the many archaeological data and documentary sources available.
In the territories, such as the Italian Peninsula, where cereals were produced and consumed in a certain amount it was necessary a large amount of energy that only water power could guarantee. The hydraulic energy also provided various manufactures allowing the operation of different types of factories. Furthermore, the plan and the construction of water branches and canals also facilitated and improved the life and the economy in the territories where the lack of water sources constituted an insurmountable gap with other areas. Fish farms, animal drinking troughs and water basins, widely

spread along the waterways and the artificial canals, became an increasingly common element not only in rural landscapes, but also in urban contexts. These structures developed mostly from the Carolingian age and reached the period of maximum diffusion between the twelfth and thirteenth centuries (Galetti, 2014, p. 107; Rotili, 2015, pp. 414-415). The role that these infrastructural work had in the territory management and safeguarding was very significant, especially in the hills and highland areas of the Apennines which are particularly fragile and subject to landslides and floods. The mill is a featuring element in the context of water landscapes and played a prominent role in the economic and social field of cities and of suburban territories.
Before representing one of the most important innovations resulting from technological knowledge matured since ancient times, the mill is a relevant architectural manifestation inserted in the European urban and rural scene where this machine became a real driving force of economic, social and territorial transformations (Galliazzo, 2005, p. 9).
The diffusion of mills, canals and structures connected to them was a phenomenon that affected the Italian territory in a capillary manner; from the thirteenth century onwards there will be no fortified settlements, cities or a monastic communities located near a waterway without having at least one mill or factory powered by hydraulic energy (Rotili, 2015, p. 415). This is the case of some territories of southern Italy (Vitale, 2015) and in particular of the Campania inland region where there are numerous streams with considerable flow. The presence of such waterways constituted the essential resource for the development of particular manufactures. The written documentation and the data obtained from the archaeological researches give a very interesting description of the Apennines territories falling within the current territory of Campania and Molise regions.
It should come as no surprise that water mills and related facilities, so common in cities and rural areas, appear often in public and private written documentation. And it is no coincidence that these structures left obvious traces not only in historical cartography, but also in local toponymy.
The importance played in urban and rural economies is evidenced by the abundant information obtained from the careful examination of written sources: for example, disputes over the use and abuse of water that fed the mills' canals and the operation of the mills become more and more frequent during the late Middle Ages. It seems clear that mills were at the same time a source of income, but also an element of discord (Vitale, 2015).
The written documentation also conveys that most of the water mills were owned by ecclesiastical institutions: this fact, despite the significant lack of documentation, gives us a pretty accurate picture of their economic role, with the management of mills and factories which could only be guaranteed by those who had considerable wealth because of the high maintenance costs. In this regard, the mills owned by members of the aristocratic elites were quite common, although in smaller quantities: the use of such facilities by the population of the surrounding territory was often subject to the payment of taxes to the owner of the mill.

MILLS AND WATER LANDSCAPES IN CAMPANIA INLAND TERRITORIES

References and data on water landscapes are numerous both in urban and rural areas of the Campania inland region as the territory (figure 1a) falling in the current district of Benevento (part of the area known as Sannio).
The town of Benevento, reaffirming her centrality under the Lombard Duchy and then Principality (since 774 AD) of which the city became the capital and a main cultural and economic center, had a considerable amount of manufactures and structures related to the industrial and agricultural management of water (Rotili, 2014, pp. 60-61). The presence of such infrastructure was encouraged by the geomorphological context of the valley where the city was located: two rivers, the Calore and the Sabato, and some streams cross and delimit the urban perimeter (figure 1b). In addition, the Calore river, navigable until the second half of the nineteenth century, was considered an important connection to the valley of the Volturno river, of which it is the main tributary, and to northern Campania and the Lazio region (Lonardo, 2017). The city therefore had a close relationship with hers rivers since the Roman age; this link was strengthened in the early Middle Ages with the exponential growth of the hydraulic structures built along the rivers and the artificial canals. It is conceivable that Benevento, even in Roman times, was equipped with mills like many other Roman civitates; for example, in Rome these structures were built from the second century AD on the Janiculum Hill (Bell, 1993). The presence of merchants and productive areas in Benevento did not fail even when the city became part of the possessions of the Papal State at the end of the eleventh century. It is exactly from this period that the mentions concerning canals, mills

and commercial activities related to these structures become more and more numerous. As an example, a praeceptum concessionis et confirmationis dated to 1077 (Martin, 2000, XXV, VI, 25, pp. 747-750) is of great interest: in this document Landolfo VI, prince of Benevento and Capua, granted to Dacomario, a leading figure in Benevento society, the right to dig for canalising the water (from an already existing canal) to the Dacomario's mills. First of all, the document is an important proof of the presence in the city territory of numerous mills, whose construction had to be authorized. In addition, the praeceptum transmits the existence of a canal that, detached from the Sabato river, crossed the suburban territory and subsequently subdivided into smaller branches that ed the manufacturing activities of the city (Rotili, 2006, p. 44). These canals (figure 1c) characterised the urban landscape of Benevento from the Late Middle Ages until the middle of the last century (figure 1d), when this complex water system, of which traces still remain in the urban grid and in the names of the places, was dismantled.

As previously mentioned, the network of mills and hydraulic infrastructures was clearly more widespread in the rural area, especially in those territories characterized by many rivers and by medium or high hills that allowed to use better the hydraulic energy. Hydraulic factories are common in the north-eastern area of Benevento: in this territory the water energy was exploited to power factories not only used for milling cereals, dried fruits and pressing olives, but also for the production of fabrics, cornerstone of the local economy, or processing other materials (wood, iron). The silvopastoral economy, well documented in these territories since Roman times, led to the development of the processing of natural textile fibres and the production of fabrics (Franco, 2003). As part of these operations, the fulling of wool, a process used to make these fibres compact and waterproof, was carried out by the water fulling mill; this term indicates both the machinery and the building that contained it.

As we learn from the legislative sources, such as the so called Concordia Litis of 1540 stipulated between the governor, delegate of the Carafa feudal lords, and the municipality of Cerreto Sannita, and from notary deeds the ownership of the mills and water fulling mills, as well as the artificial canals, was divided among various figures: the municipality, the count, religious institutions and private citizens (Franco, 2003, pp. 118-123) who had the possibility, through the control of the structures, to invest capital and make profits. The same situation is also documented in the neighbouring settlements: in the town of S. Lorenzo Maggiore most of the mills were owned by the duke (Ivone, 1997).

From the archaeological point of view, few traces are still visible on the territory of Campania inland. The cause of such lack of archaeological visibility is partly due to the inconsistency and the perish-abil-

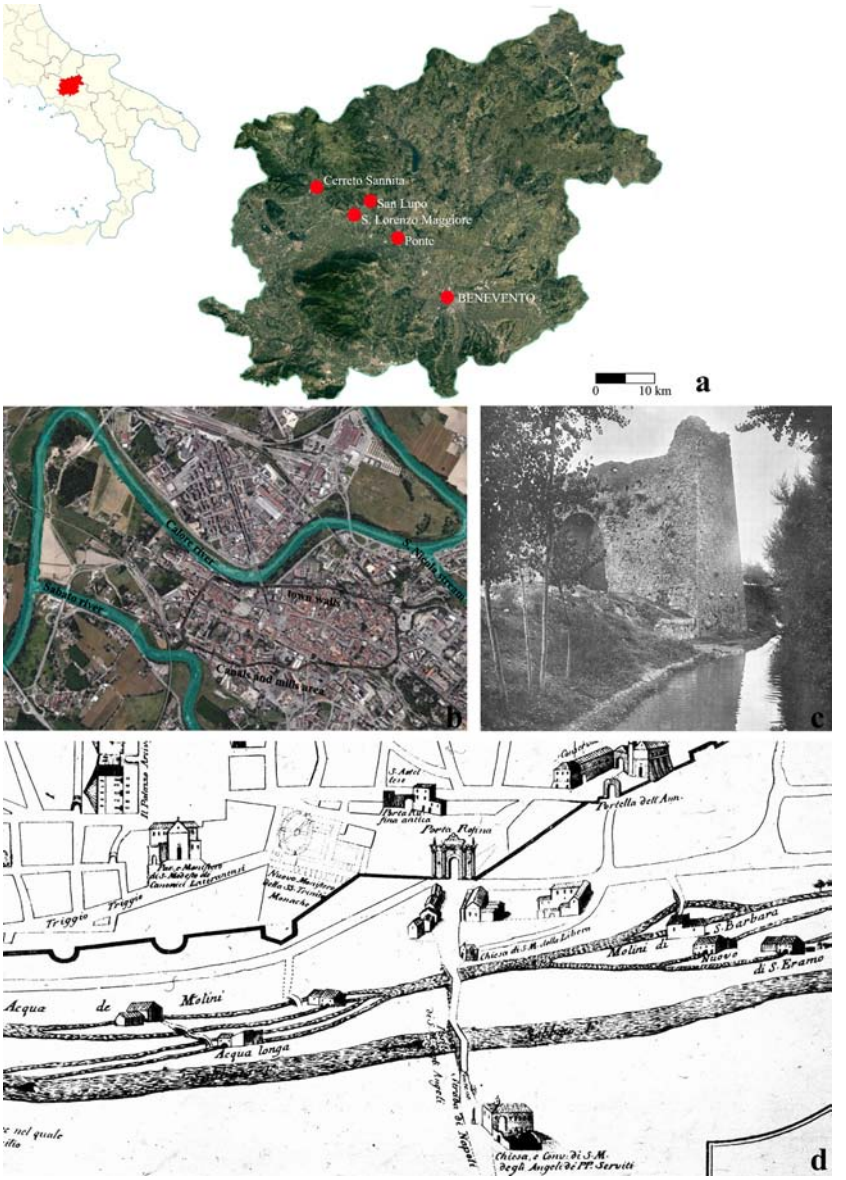

Figure 1: a) The province of Benevento and the places mentioned in the paper; b) The city of Benevento with her rivers; c) Canal in Benevento (beginning of XX century picture; Rotili 2006); d) Liborio Pizzella's Pianta della pontificia città di Benevento (1764), particular.

ity of the materials with which the structures of the mills were usually built, especially in the Early Middle Ages. Medieval and modern structures also had, as we can deduce from the written documentation, many metal mechanisms that were often recovered and recycled when these structures fallen into disuse and necessarily abandoned. In addition, many structures built in the Middle Ages have been partially rebuilt or were affected by significant renovations during the Modern age with the advent of new technologies, which have distorted the original appearance. Even canals and water basins have often been erased by anthropic factors or natural events.

As for the types of the water mills, similarly to what is documented in other rural areas of southern Italy, there are vertical-wheeled mills and, in most cases, structures with a horizontal wheel composed of wooden or iron blades, flat or spoon shape, hit by a jet of water canalised under strong pressure. The room where the wheel was positioned was reached by water through a canal, usually in masonry (figures 2a-b), which captured the water upstream from the river. In some cases, the water, before reaching its destination, was conveyed to a water basin, especially useful in case of dry periods. The water flow occurs through a pipe placed at a lower altitude, which connected to the main canal directed towards other mills or flowed directly into the stream.

A particular type of mill is well documented in the territory currently falling within the municipalities of S. Lupo and S. Lorenzo Maggiore, in the province of Benevento; this is a high hill district characterized by the presence of numerous streams whose water flow allowed the capture to feed the numerous factories dedicated to the grinding of cereals and the production of particular types of fabrics.

Archaeological surveys carried out in this area led to the discovery of structures attributable to the category of "mills with towers" (figures 2c-d), built between the seventeenth and nineteenth centuries and spread in an area that includes the territory between the regions of Campania, Basilicata and Calabria (Vecchio Ruggeri 2002; Galliazzo, 2005, pp. 55, 58-60). In this typology of mills it is possible to find structures that had a derivation canal from the stream, in some cases raised with an aqueduct bridge over arches, which reached, upstream of the milling building, a circular, semicircular or quadrangular tower structure. The water was canalised into a duct inside this tower and then directed to the mill, placed at a lower altitude, to allow the operation of the millstone (figures 2e-f) .

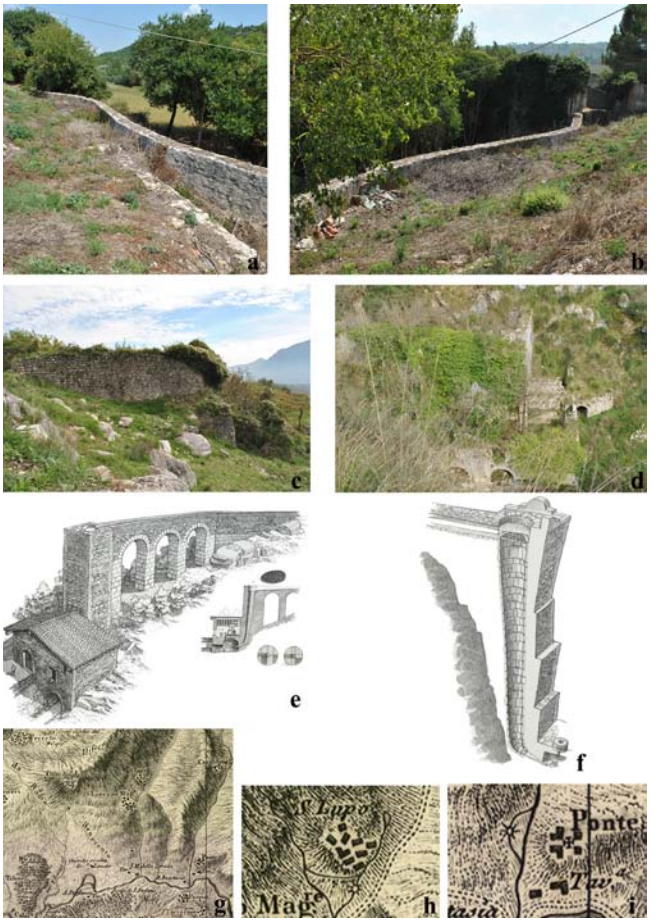

Figure 2: a-b) Mill canal (Ponte); c) Remains of a mill with tower (S. Lupo); d) Remains of a mill with tower (S. Lorenzo Maggiore); e-f) Reconstruction of a mill with tower and of a millpond (Galliazzo 2005); g-i) Rizzi Zannoni's Atlante geografico del regno di Napoli (sheet 10, 1808). Detail of mills in Ponte and in S. Lupo territories.

The archaeological data find testimonies in the Modern age cartography: the presence of canals derivated from the Ianare stream and of mills in S. Lorenzo Maggiore and S. Lupo territories is evidenced, for example, by the annotations present in the Atlas of the Kingdom of Naples made by Giovanni Rizzi Zannoni in 1808 (figures 2g-i). The impact that mills, canals and water basins had on the territory is confirmed by the toponym that perpetuate the memory of their presence. Together with the documentary, cartographic and archaeological sources, it gives a meaningful description of the centrality and the significance of the mills in Benevento territory.

Conclusions

Mills and milling manufacturing, together with the production and processing of wool and fabrics, represented the cornerstone of the economy of the aforementioned sites, being documented in the Sannio territory in greater numbers at

least since the eleventh century.
In conclusion, although the mills have significantly characterized the Apennines territories of southern Italy since ancient times, the traces left on the territory by these infrastructural work, nowadays isolated from their context of origin, appear increasingly blurred and vague remains of an important past. An important past in which the art of milling, configured as one of the most significant moments of Occident civilization, and the fabrics production led to the formation of a cultural identity that has united different communities and territorial contexts.
Furthermore the water landscapes, of which the mills and the hydraulic infrastructures are an essential part, constitute a symbol of the skilful interaction between man and nature.
Studying and reconstructing the urban and rural water infrastructure of a territory, through a multidisciplinary and diachronic approach and through the use of documentary, cartographic and archaeological sources, is therefore a crucial opportunity not only for knowledge, but also for the purposes of conservation, enhancement and fruition of these important testimonies which have value of civilization.

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44 CRITICAL REVIEW OF RESTORATION METHODOLOGY OF THE ARCHITECTURAL HERITAGE ADOPTED IN ALBANIA IN THE LAST 20 YEARS

Ardit Lila

Abstract

The restoration of the architectural heritage is a very complex topic in continuous development. The issue raises interesting questions about the methodological approach to be followed and the objectives from which it must be started for the definition of a correct restoration. In Albania, in academic terms, different normative efforts have been done by means of the production of technical documents that establish how to evaluate the problem with more awareness. In the international field, from a general point of view, it is possible to refer to the ISCARSAH Recommendations that give a preliminary approach, a sort of guidelines about the restoration of historical heritage. Currently, in this field are being used different approaches: either a criterion based on the restoration, which puts attention to the form and to the basic traditional materials of the building but less in the originality of aesthetic design and architectural elements; or a technical method that is more interested at the building but, in many cases, involves over-dimensioned interventions than the real requirements, altering the original form and history of the artefact's.
The research method consists in reviewing case studies and fieldwork especially conducted in Albanian cities with a significant Architectural Heritage during the past 20 years, observations and interviews with the specific restoration experts to better understand their opinion and critics about the adopted restoration methodology. For this purpose, there have been analyzed variable examples like the transformation of the "Vila 14", designed by arch. S. Luarasi located in st. "Asim Zeneli", Tirana after the restoration process, the restoration project of the "Babameto's house" in Gjirokastra, etc., to identify where the architectural heritage sector has received the right restoration methodology to maintain and preserve its aesthetic values. An important part of this analysis is the critical review of the project from the Preliminary identification phase (amnesia and diagnosis), how the structure or the elements that compose it are treated until the intervention phase.

Keywords: Critical review, architectural heritage, restoration, recommendation

Introduction

This research, tried to identify in a general view the history of protection and restoration of the architectural heritage in Albania and to identify some of the objects that are restored in the period mention above in order to have a report and at the same time a critical review of the applied restoration methodologies. In this terms,are identified the restoration criteria based on "Recommendations for the analysis, conservation and structural restoration of architectural heritage" ISCARSAH guideline in order to complete somehow this critical review making a comparison between this international guideline and the applied restoration methodologies adopted in Tirana. The relevance of this study is justified in terms of its contribution to the academic debate and require recommendations to the restoration methodology adopted in Albania in order to have a critical review how the structure and all the other elements of the building are treated. For academic purposes, this research offers new insights to the topics regarding the restoration methodology adopted in the last 20 years in Albania and how to reconsider aesthetically the structure and the building significance exactly through the restoration process. Furthermore, it contributes substantially to the debate about the right restoration methodology and the emergence of a new focus in considering, maintaining and to point aesthetically all the structure and the elements that the building possesses.

Research objectives and Literature review

The main objective of this research is to study the restoration criteria, to highlight the appropriate methodology on how to bring in a good state the important monuments or buildings of the Architectural Heritage in Albania according to the ISCARSAH recommendations and practical examples realized in different countries that are part of UNESCO. Why the restoration? Because it is well connected with the whole history of the object starting from the architectural idea, elements, and materials and of course how to preserve the aesthetic design of the object structure. Some specific research questionnaire:

1. Which is the history of the protection and restoration of monuments in Albania?
2. Which are the restoration methodologies adopted in these last 20 years and did they respect the originality of the structure and the significance of the building? (Restoration of the Basic Elements of Architectural Heritage to maintain the real value of the whole object, the description of their conditions analyzing the transformation that they have taken after the interventions that have been made. To show some of the examples where it has been respected a proper restoration methodology and where it has not happened)
3. Which is the relationship between the restoration methodology and the originality of the building structure?
4. Does Albania require the support of the international recommendations for the restoration methodology like for example the ISCARSAH guidelines and other international recommendations? (Building techniques and processes: restoration. How to define common principles and best practice? Restoration criteria referring to the ISCARSAH Recommendations)

In this study I try to provide a literature review that helps on the existing concepts and theories that are relevant to the research questions, forming so a general framework to guide this research. It combines insights of literature on topics related to the history of the architectural heritage restoration, the historical side of the protection and restoration in Albania, the restoration theory of the architectural heritage, the techniques aspects and the practice of the restoration process of the Architectural heritage.

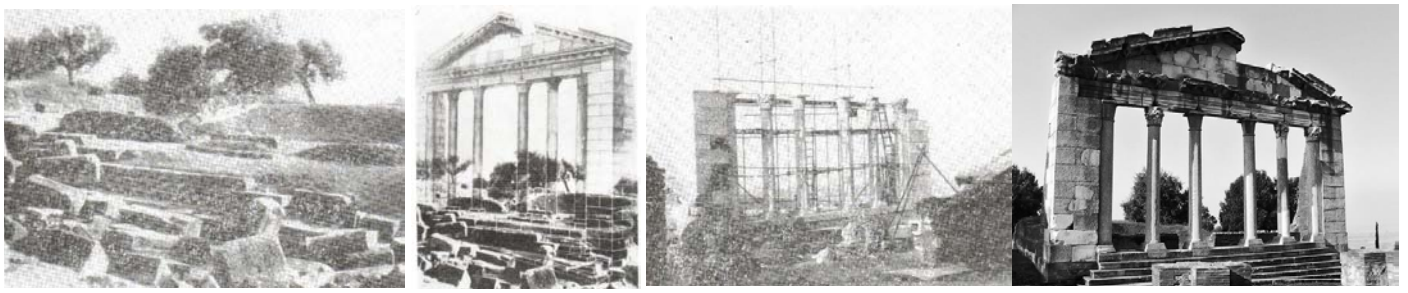
Restoration history of the architectural heritage

The interest for the monument was explicitly seen for the first time during the Italian Renaissance, where many artists and architects began to survey and study the ancient monuments in Rome. Formation of scientific thought of restoration takes a big push in the International Conference held in Athens in 1931 and then the insights on the restoration criteria referring to the Conservation and restoration card of the Architectural heritage Venice 1964. During the second half and the end of the nineteenth century, theoretical thinking and European restorative practice walked through different routes, from stylistic restoration (Violet-Le-Duck) to denial of restoration that accepts only conservation (Ruskin) as well as new ways with their critical attitude. The Italian historian Cesare Brandi has played also an important role in the field of restoration. In the words of Brandi, the concept of restoration refers to an operation to make more efficient a product of human activity, whether it is an industrial product, a work of art or architecture. From this point of view, the decision to preserve, return to the use, an artifact neglected or not used, means confirmation of the value in the first place, regardless of the reasons that led to the abandonment.

The history of the protection and restoration in Albania

The first real normative act for the protection of cultural heritage of Albania belongs to the period after World War II. It is the law no 568 dated 03.17.1948, no. 609, dated 24.05.1948 "On protection of cultural monuments and rare natural objects", which approved the decree no. 568 dated 03.17.1948. This law, drafted by the Institute of Science, was followed by the announcement of the first list of monuments that were put under state protection. In 1961 the Council of Ministers took the decision to declare as museum towns like Berat, Gjirokastra, the old part and underground of Durres and the bazaar of Kruja. In this decision were defined deadlines for issuing the regulations of their zoning that meanwhile, will be administered, well-kept and restored in analogy with the provisions of the Regulation museum of the city of Berat, approved in that year. (Meksi, 2004). After 1965 the duty to protect and restore local monuments were commissioned to the Institute of Cultural Monuments. With the overthrow of the communist regime as a result of the economic difficulties

that followed and the thorough restructuring of the state apparatus, there was a reduction in state care in the field of cultural heritage. In 1994 it was adopted the Law "On protection of cultural property and movable property" which made the first legal steps to enable, with the permission of the Ministry of Culture, excavation and restoration work by third parties, including foreign specialized institutions, who could fund such works. After the general overview over the years is worth mentioning two of the completed restoration projects such as the restoration of the Temple of Agonothets in the city of Apollonia (Koço Zheku) and the restoration of the dwelling of the painter Vangjush Mio Korçë (Pirro Thomo). The Agonothets monument was discovered many years ago and was part of an architectural complex, built around the first century AD. It represented a commemorative monument and served simultaneously for meetings and artistic performances. From the results of archaeological excavations, the Agonothets monument was found collapsed by a powerful earthquake, probably the earthquake of the year 345, which caused great damages in the Adriatic coastal cities, and was mentioned by many authors of that time.



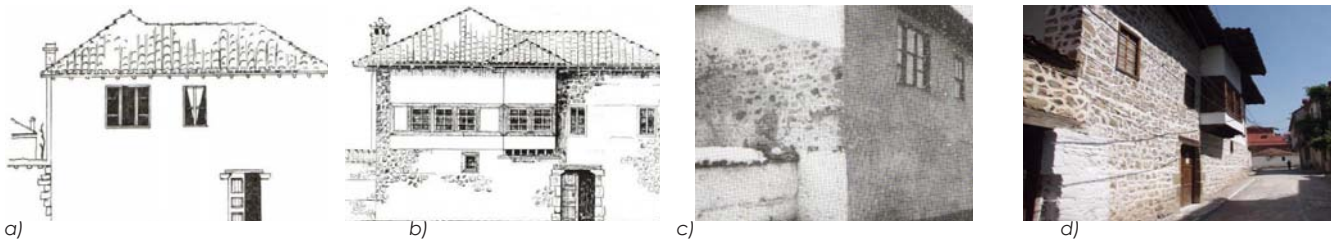
a) *b)* *c)* *d)*

Figure 1: Agonothets monument, a) collapsed state, b) the idea of the restoration project, c) Work in progress, d) After restoration. Source: (Journal article Monument, 1979)

The rebuilding works of the main facades pillars of the Agonothets) monument was preceded by an analytical study that was done about the situation, construction, and architecture of the monument. The restoration project based on scientific criteria stipulated that the assessment of the architectural monument, through the establishment of the pillars of the main façade, should be to the extent of the necessary requirements for the prevention of further damage and at the same time in complete harmony with the archaeological ruins and the natural environment surrounding the monument. The dwelling of the painter Vangjush Mio located in Korça was transformed in a gallery where the works of the painter were exposed. In the existing state, the house kept the traces of changes and frequent reconstructions which had lost its initial appearance. On the other hand, the apartment was in bad technical conditions which required restorative intervention. On the technical side, the dwelling was in much-degraded condition. The roof's material was largely decomposed. This had brought obvious deformities on the ceilings of the two main facilities.

a) *b)* *c)* *d)*

Figure 2: a), b), c),d): Restoration works in progress. Source: (Monumentet, 1979).



a) b) c) d)

Figure 3: a), b), c), d): East view - Before and after the restoration; source (Monumentet, 1979).

A particularity of its architectural formulation is the uncovered decorated wooden supporting constructions. The dwelling is set under state protection for its values of historic character, as the house of the well-known painter, people's artist Vangjush Mio. In the image below we could see the before and after restoration.

Some of the case studies conducted in Albanian cities with a significant Architectural Heritage during the past 20 years

This part of the research presents the restoration projects, the data collected and analyzed in order to answer the specific research questions of this study and is supposed to create a general framework for the adopted methodology of restoration, deduced from the different case studies of different cities and different types of buildings in such a way. The quantitative and qualitative data are clustered and analyzed at variable examples in the principal cities of Albania i.e.: (1) RCV - Restoration Project of the Cathedral Saint Mary in Voskopoja, Korça; (2) Restoration project of the Babameto's house, Gjirokastra; (3) The transformation of the "Podam" Vila after the restoration process and; (4) The transformation of the "Alehandro" Villa after the restoration process.

1) The Saint Mary Cathedral in Voskopoja (38 X 15.30 m) is one of the largest basilicas in Voskopoja and Albania too. It was constructed during the last years of the 17th century whereas the frescoes date in the early 18th century. The Cathedral of Saint Mary belongs to the type of basilicas covered with a system of belts and spherical besides. It represents the highest level of achievement of this type in our country.
A major problem of this building was the humidity penetrating through the eastern wall and therefore infiltrating the interior of the monument. There was a risk of the frescoes and the wooden structures being destroyed. The project intended to restore the Saint Mary Cathedral from its demolition, decay, and train a new generation of young restorers-conservation specialists and raise the awareness of the surrounding communities regarding their historic past traditions and values.

a) b) c) d)

Figure 4: a), b), c), d): Saint Mary Cathedral restoration of the porch columns, damaged wooden beams, Intervention on the wall frescoes. Source: (Albanian Heritage Funds, 2012).

The intervention's aim was to consolidate the existing conditions of the church, and the restoration of some parts in order to eliminate the damages and consecutively avoid the risk of their further aggravation. It was achieved through the strengthening of the existing construction with stitching of the fabric, injection fillings, and covering the visible cracks on the walls. In addition, the process was supported by new constructive elements: metallic wires, metallic tie beams, etc. At that stage, a particular treatment was required for the frescoes in the western wall of the church and in the portico vault which were considerably damaged.

a) b)

Figure 5: a), b): Saint Mary Cathedral before and after restoration; source (AHF, 2012).

2) The restoration project of the Babameto's house, Monument of Culture of first category (further Babameto I) was part of a wider cooperation of so-called "Gjirokastra 2009-2011", based on the contract signed between the Swedish Foundation "Cultural Heritage Without Borders" (CHWB), Organization for the Conservation and Development of Gjirokastra (GCDO), Ministry of Tourism, Culture, Youth and Sports, the Regional Directorate of National Culture - Gjirokastra, and the Office of Management and Coordination Museum City of Gjirokastra. Initially, the work team has done extensive research in the archives of various institutions of the state to collect information on existing documentation related to the house.

a) b) c) d)

Figure 6: a), b), c), d): The Babameto's house before restoration, main damages of the house, the situation of the roof. Source: (CHWB, 2012).

In addition to the research work, it was done from the start the surveying of the house through photographs and field measurements and coordination of all major structural and aesthetic elements of the facility. To facilitate the process of the ground surveying it was first performed the waste cleaning of the house, the green-threatening condition of the monument, retaining structures were placed on the structural elements that risked the collapse and it was filed the necessary scaffolding for measurements and recording.

a) b)

Figure 7: a), b): The Babameto's house north facade project and the situation after restoration. Source: (CHWB, 2012 & http://babametohostel.beep.com/).

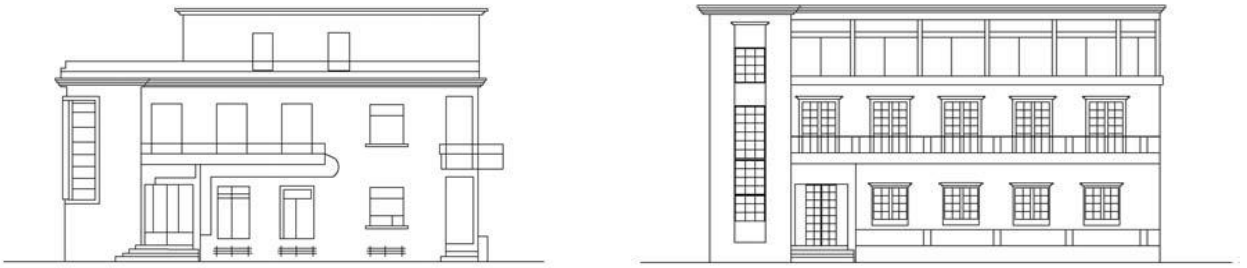
The above documentation was completed by two important tests: static analysis and analysis of materials. The restoration project was based on recommendations from the static analysis of the structures and the materials analysis, upon the values analysis and the ability to use traditional materials and techniques.
The definition of function was based on recommendations submitted by the owners of two buildings, the analysis of the values, the size of the internal spaces and ability to undo any additional work that was done in contemporary in the interior spaces.
Regarding the transformation case studies, we took two of them the Vila Padam and Vila Sheko now Vila Alejandro.

3) The "Podam" villa is a good example of aesthetic design and in the same time one of the objects that are still in good conditions and has maintained the originality of the traditional elements, the quality context, and the architectural composition. The villa is well maintained and has not changed over the years and the few changes that have been made are in accordance with the original design.

a) *b)* *c)* *d)*

Figure 8 : a), b), c), d): Interior and exterior "Padam" Villa. Source: (Bushati, 2012).

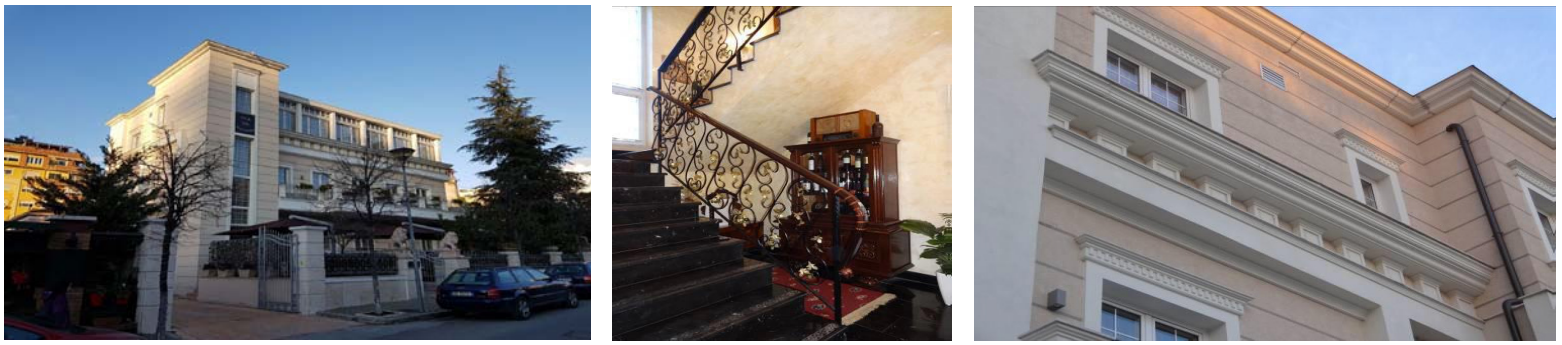
4) The "Alejandro" villa built in 1941 and designed by arch. Skender Luarasi, as a two-story villa, functioned as such and kept all its original details until the year 2000. In 2010, the owner changed once again, and the change consisted of an additional floor, which modifies the whole look of the villa, as it has nothing in common with the two existing floors.



a) *b)*

Figure 9 a), b): Villa "Alejandro"before and after restoration. Source: (Luarasi, S. 2010).

Nowadays, it has turned in a poor example because, after the restoration or better the transformation, this object lost the authenticity of the original project. Although it has been maintained well, it doesn't carry any values of the modern architecture of the period in which it was built.
During the last twenty years, our national cultural property has suffered a tragic fate. A large proportion of these modern facilities, mainly residential villas, were cruelly destroyed, leaving their place to anti-urban concrete multi-store buildings.



a) b) c)

Figure 10 a), b) c): Villa "Alehandro" after the restoration process. Source: (Bushati, 2012).

Conclusions

This research stressed the importance of shifting the focus from the history of monuments protection and restoration in our country during the last 20 years to have a general view of the adopted restoration methodology. This was possible by bringing some specific restoration examples in Albania so we could show if they respected the originality of the structure and the significance of the building.
In the example "Alejandro" Villa we can notice that the restoration methodology adopted was really the worst because it has transformed totally the original project by adding one level and of course changing the facade of the monument. Following with the other example "Padam" Villa where the adopted restoration methodology was not the best one but the important thing is that the process did not change the original project and the value of this monument.
The "Voskopoja" restoration example was another one that tried to follow the basic recommendations for the restoration criteria but unfortunately, due to the low budget, it resulted in an uncompleted project.
At the "Babameto's Home" project in Gjirokastrais really clear how the adopted restoration methodology has conformed the recommendations that have to be used in a proper restoration process by starting from the documentation, analytic phase and until the restoration project. After this report with all the data collected we can get to the conclusion that our country nowadays requires the support of the national and international recommendations for the restoration methodology like for example the ISCARSAH guidelines and other international recommendations.
It is the restoration methodology that leads us to understand the structure of the building and at the same time how to preserve it together with the traditional components. The worst restoration methodology is to totally transform the original project by adding levels and changing the facades of the monument and not respect the structure and the traditional components of it. Using an appropriate restoration methodology for structures and all of the components of the building, including the traditional ones, we can draw out and appreciate thus not transforming and in some cases eliminating these elements by missing the historical and aesthetical value of the objects. The Albanian national heritage can be used as an important generator for income. However, there is a need for the development of professional knowledge regarding the maintenance and management of the national heritage. There is an obvious risk of the heritage being destroyed but if we follow a proper restoration methodology we can save and maintain the treasure of the architectural heritage in Albania.

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45

THE BAY AS EXPRESSIVE DEVICE IN ARCHITECTURAL DESIGN. MODERNIST EXPERIENCES IN THE PROJECT OF FACTORIES

Vito Quadrato

Abstract

The relationship between architectural expressiveness and concrete formal structure was the leitmotif of the Italian structuralism in the second post-war two decades. The design of industrial structures radicalised this relationship because of the production processes nature that imposed to the architect the dimension of standardisation, repetition and economy of means. This approach reduced the distance between architectural form and informal building.
This research aims to show how this condition transforms the idea of design process by some Italian authors, in the restricted field of reinforced-concrete structures for industry. The architectural Form becomes a process that faces with all the aspects of the project: the technological content (cooling, ventilation and water-drainage systems), the economic side, the engineering start up. In this way, the project of industrial structures is an outcome of the components design, constituted by structural elements (pillars, beams, desk boards), and controlled by the project of a structural bay, as a device of the design process.
In this sense, the proposed paper shows the research on the Kodak factory in Marcianise by Aldo Favini and Gianluigi Ghò as a paradigm of this phenomenon. The paper illustrates how the hollow structural form of the elements addresses the problem of the technological content in the architectural design, showing morphological-structural models that isolates the bay as a design device. This aspect defines a specific quality of the industrial prototypes, developed through the professional partnership between the architect and the engineer. The knowledge about this kind of industrial prototypes is useful on one hand to admit these building as an Italian historical heritage that needs to be preserved, on the other hand to understand how it is possible transform these buildings through a new adaptive reuse.

Keywords: industrial heritage, structural Form, culture of technology, memory of places

THE BAY AS ARCHITECTURAL DEVICE IN THE MODERNISM. EXPRESSIVE PARADIGMS

If upon architecture, the concept of elemental coincides with the one of fundamental, the bay, defined as the dimensional and grammatical relationship between the members that establish a structural spacing, is the outcome of a problematic and essential topic of the architectural composition. The history of architecture used the term "bay" by reference to the structures that work through a discrete system of loading forces flow, which tends to identify, in the plan-form, a set of points that transfer the structural bearing according to a vertical way, visible in the section-form. From this point of view, the design of the bay cannot depart from the synchronous control, by the designer, of the structural elements, schematically identifiable by two kind of relationships: the support/coverage/foundations system and the distance apart one and other of them that tests the unit structural system validity.
As highlighted by Jacques Gubler, the design process that leads to the definition of the bay, passes through a "reasoning by recurrence" , recognizing the bay itself as a device potentially repeatable, a structural unit of the architectonic organism. The process of construction industrialization that concerns to the Modernism revived the notion of the bay as a feature of architectural design, taking on the idea of "reasoning by recurrence" as a condition sine qua non for the definition of the built Form. According to this process, the risk on the concept of the bay was its degeneration in a purely structural fact, applied in a mechanical and slavish way. On this aspect, Luigi Moretti asserted the difference between formal and informal architecture: "an architectural work is both a reality and a representation, if, naturally, it exists a will of representation, that is to say an expressive will. The lack of this will determines the absence of architecture and the build-

ing has only structural and technical features; in this way the building is subject to the ageing of the technic and not to the immutability and immortality of the Form." This then is the question: how is it possible highlight, or at the very least preserve the expressiveness of the Modernist architectural building, by the design who recognizes its starting point in the bay, as a spatial device? The probable answer brings to light the dual nature of the idea of bay, metaphorically identifiable in the history of architecture. The first one deals with the possibility, implicit in the bay, to identify the strong link of the assembly of structural elements and a clear overview of their construction methods; the second one recognises the value of the bay in the sequence that comes out from the hierarchical aggregation of the parts, the "expressive concatenation" , according to Moretti's definition.
In this first case, the expressiveness of the architectural building depends on the syntactic paradigm of the structural elements' grammar and by their topological and hierarchical definitions. Consider, for example, the project of the Arnolfo di Cambio's two projects for the ciborium of San Paolo fuori le Mura and Santa Cecilia, described by Arnaldo Bruschi: " in both cases, the ciborium was conceived in a three-dimensional way, as a canopy or an ideal square bay; that is to say as the elemental spatial module of the European Romanic-Gothic tradition. […] The layout of the adopted solution […], is a syntagm, a comprehensive system of elements, none of which is independent from the others, or, on the contrary, it transforms substantially the whole of the building. Even if one were to make the arch greater, keeping unchanged the layout, it should increase also the lateral frames, the overhead gable, and then the supports. Arnolfo tends to identify an architectural drawing coherent with the construction needs, but first of all, valid in itself, autonomous and invariable respect to the physical dimensions" . The case of the Arnolfo di Cambio's ciborium is the ideal metaphor of the synthetic power of the bay to prefigure the built form. The part, constituted by the device bear-pillar-foundation, represents the whole of the building and it is a guarantee of an architectural expressiveness. The second nature of the bay, as stated above, focuses on its inclination to become a sequence of spaces. Around this notion, Luigi Moretti constructed the logic structure of his essay "Strutture e sequenze di spazi". Indeed, the Roman architect the author wrote: "The survey should cover the spatial unit formed by inner volumes, which compose a layout and a concatenation; they establish, with the changing of their perspective and in relationship to the paths and the necessary and possible time for their vision, a sequence, in the current meaning of the term. I would clarify the different modalities of the sequences of these volumes, coordinated in units, and then the structure of their composition, that is to say type and reason; I would understand the differences between the volumes and the chain of spaces that they form." The added value of the bay resides in its disposition, not in its autonomous unit. This value is recognizable only when the bay makes up with the others bays, giving rise to a structural pattern, as Moretti says. To this end, the main aspect in the design of the bay is the void space arranged by the structure within the building; the perceptive tension created by an organic system works only in the experience of its inner character. Indeed, the topic of the expressiveness of the bay further radicalises the relationship between architectural expressiveness and structure looking at the places of production, because of the production processes that imposed to the architect the dimension of standardisation, repetition and economy of means. This approach reduced the distance between architectural form and informal building.

THE BAY IN THE DESIGN OF FACTORY: THE EXPERIENCE OF THE MASTERS OF MODERNIST MOVEMENT

The pressing operational dimension that characterized the places of the production during the Modernism, was a chance for Perret, Kahn and Le Corbusier in order to develop operative paradigms, assuming the design of the bay as the first stage of the project definition. Comparing the designers for factories with some project, most prominent in the history of architecture, for which the three masters work in the same period, it is possible note a personal interpretation of the topic of the bay, which, starting from the design of factory, influenced a part of architectural work of the same authors.
The experience in the field of utilitarian structures consents Perret to develop a figurative vocabulary for the reinforced concrete construction. This "testing laboratory" permits to develop some constructive prototypes subsequently applied to the civil buildings. Starting from the Hennebique's patents in 1914-1916 Perret developed some models of "coques en beton", concrete shells applied to the Wallut Docks in Casablanca. The docks consists of six single-storey reiterated bays, covered in the lenghtwise by six low vaults, resting on concrete pillars. This arrangement remembers, according to Gargiani, the constructive system defined by Viollet Le duc "cellular", otherwise " a series of halls covered by barred vaults resting on walls that work as counteforts " . This kind of bay becomes the spatial unit of the Le Raincy cathedral: the bay

was arranged, in this case, transversally to the development in length of the plan of the church and reiterated in number of five bays. These bays were crossed in length by the higher central navy, creating a hierarchy that contradicts the paratachtic arrangement of the minor bays. The same Perret underlines the similarity of the church to a factory: Gargiani observes in the designer approach, "the will to improve the result of a technical aspect to a constitutive aspect of the architectural composition" .

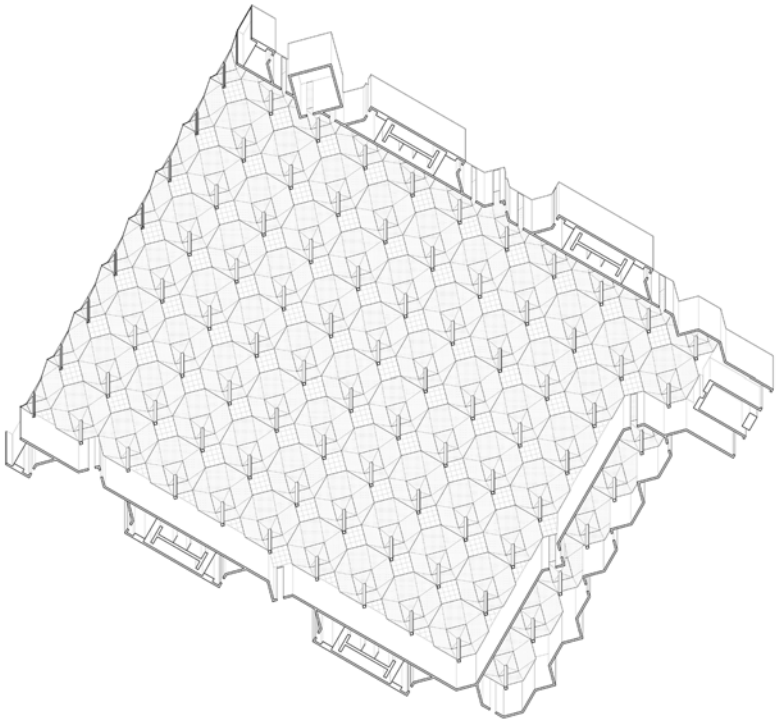

Fig.1 – Axsonometric view (from bottom to top) of the Olivetti-underwood Factory by Louis I. Kahn, Vito Quadrato, 2017

From the 'sixties the Louis I. Kahn's theoretical training on the form of the bay seems to focus on the building as "structural pattern" and how the bay becomes the "giver of the light" as sophisticated and technological device. Anna Rosellini underlines this aspect about the Kimbell Museum: "" The design of the roof profile becomes the fundamental theme for the lighting quality, and it takes on the configuration of the vault, explored by Kahn in the studies conducted in the summer and the fall" . Actually, the design process that lead to the construction of the Kimbell Museum seems to be not so different by that which Kahn was developing for the Olivetti-Underwood factory in Harrisburg (fig.1). As well as for the Kimbell, for this project, Kahn started from the definition of the structural bay that became "a structural unit in reinforced concrete that will be "flexible enough to fit the company's sense of alertness to change" . Thanks to the aid of Komendant, the American architect designed a reinforced concrete inverted umbrella that guaranteed a structural continuity between the support and the octagonal base of the coverage. Between the coverage and the support, Kahn introduced also a capital, "in order to do the pour of the inclined planes after the construction of the column and capital system" . The sense of the design of the bay respect to the architectural expressiveness of the building is confirmed by the sequence with which the bay is iterated in the horizontal sense: thanks to the particular shape of the coverage, the juxtaposition of four structural unities created a void assigned to carve out the vertical lighting. Hence, as well as the Kimbell, the topic of the project was the definition of a structural pattern able to set up an open plan, flexible to subsequently amend.

The principle of aggregation of a parallelepiped unit as an architectural paradigm for a horizontal settlement system, concerns a large majority of the Le Corbusier's work. This is due to the ability of the idea of unitè to control, in an anthropometric way, the relationship between the structural elements and their architectural meaning, in an inter-scalar logic. The bay, defined as the minimum organizing unit, tends to coincide with this idea of "Le Corbuserian unitè". The Le Corbusier's personal interpretation of the role of the bay consisted of the exportation of its validity from the scale of the building, to the scale of the settlement.
This is clear if we analyse the design process that lead to the definition of the project for the Olivetti centre of electronic calculation in Rho (1962-1964). The structural unit (15x45 m in plan), consisted of prefabricated V-shaped beams,high 1,8 meters, that rested on two parallel walls. In the layout proposal, Le Corbusier experimented the concatenation of this unit in order to create a horizontal pattern constituted by operations like subtraction, rotation and addition of the same unit. This process of experimentation had the goal to obtain a great horizontal platform, in which every "unitè de batiment" created a relationship with the surrounding landscape. Comparing the structural pattern of the definitive project with the one of the Hospital of Venice, it seems to be clear that Le Corbusier put on the same level the idea of working "unitè" with the recovery "unitè", joining them in groups of three around a sequence of voids spaces. The bay assumed, in both cases, the role of device capable to set a building that becomes metaphor of an urban system, consisting of the voids of the square and the volumes of houses.

THE BAY AS STRUCTURAL DEVICE IN ITALIAN REINFORCED CONCRETE PROTOTYPES FOR THE FACTORY

The particular category of reinforced concrete prototypes, built in Italy between 1950 and 1975, represents a proof of this different design approach. These prototypes regarded a specific type of factory, the single-storey reiterated bay. In those years, the development of prototypes was affected by the adoption of prefabricated structural elements; this phenomenon introduces the problem of spatial modulation in which "the prefabricated system puts into action the bold industrial chain of production and assembly and becomes an architectural work as a prototype of forms expressive figuration" . This operative presupposition influences the design process, forcing the designer to identify precisely the structural elements (beams, pillars, deck boards), associable to the tectonic assembly system that guarantees the expressiveness of the concrete shape. The Italian experience shows how the tendency to standardisation and cataloguing of structural elements does not correspond to the disappear of an authorial design, but that on the contrary, it is possible preserve a traditional approach on the design of reinforced concrete component, through a direct encounter with architect, engineer and producers.
Regarding the structures based on linear elements applied to reinforced concrete prototypes for industry, it is possible determine another specific quality that joins, cross-cutting, some experiences of the individual designers. As a consequence of the industrial building programme, that includes the need of a sophisticated technological system, new figurative aspects enhance the "trilithic system" of the new reinforced concrete prototypes. Indeed, there are many cases that shows that each element of construction does not depend only on structural need; it becomes an integrated element available to resolve the issue of vertical lighting, capable to both contain inside the technological systems and ensure an ease of assembly.
The solution proposed by some Italian architects and engineers includes the adoption of the hollow structural form. Hence, the hollow form optimises the employment of the concrete by making the most out of the fact that in the concrete construction only a part of the section withstands mechanical loads.
The figurative result of this practical need are substantial: the structure acquires a great thickness, its elements provides fora n internal void that in same cases hides, in other cases reveals the impressive mass of the technological systems, converting an aesthetic problem in an expressive opportunity for the design process.
The Kodak factory in Marcianise, designed by architect Gianluigi Ghò and engineer Aldo Favini between 1972 and 1975, seems to be explanatory in order to understand the adoption of the hollow concrete structural form applied to the new industrial prototypes. This factory consists of a single-storey building, ranging over 12'500 m^2 and it adopts a structural grid 15mx 15m. Some original drawings, coming from the Gianluigi Ghò's private archive, shows the system of the bay with a focus on the connection between beam and support. Therefore, the bay becomes the core generator of the whole design. Ghò begins an inverse design process, starting from the structural detail concept of the building to the develop-

ment of this detail in all factory. This is also demonstrated by some drawings coming from the executive project, in which a process of formal evolution is discernible when compared with drawings of outline proposal. The bay of this grid consists of prefabricated linear elements: a pillar, a board beam, a box section beam, a tile. Each of these elements has a specific design that emphasizes a plastic and three-dimensional character. This idea of hollow structural form responds, according to the designer, to "the need to employ for static purpose the contours coming out from technological systems (ventilation, water drainage etc.); these equipment are strictly demanding, due to specific internal needs" .
The pillar has a dis-symmetrical plan "H" shaped, this configuration permits to arrange on the one hand the strut of the water ridge, on the other side, the strut of ventilation system. The beam is shaped in section as a box girder with two shelves for the place of secondary system of coverage, such as the tile. The tile is "X" shaped, relating to the bending action, consents to improve the flow of ventilation system. The final configuration of the bay presents, in addition to the elements of the previous slide, the board beam in section double T shaped, which de-marks the structural grid and the brise-soleil system that defines the rhythmic design of the facade. Each prefabricated panel of the brise-soleil system consists of vertical plates oriented in 45 degrees and horizontal shafts. The plan sets out how the designer inflects this spatial module (Fig. 6): the facility is cross-shaped in order to isolate two core of the productive process, the laboratories to the West and the storages to the East. In the middle, a central spine separates the two cores, providing for the joint distribution, the offices and the other services.

Conclusions

The technical dimension is not subject to the architectural design or a content of a posteriori managing by the designer. On the contrary, it is one key to the design process that introduces a new figurative and spatial dictionary, contributing to create the built Form; each element of the structure has a multi-tasking complementarity that goes through a process of curving-out of the structural materials.
It can thus to concluded that the concerned reinforced concrete prototypes for industry represents a fundamental experience within the industrialisation tendency to homologate the prefabricated concrete construction. This research consents us to admit these building as Italian historical heritage; the ongoing study has the goal to recognize the specific qualities of these buildings that seems to consist of the concept of structural pattern with a pronounced architectural character. The nature of these structural patterns is fundamental in order to develop strategies of transformation compatible with their special architectural and historic merit.

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46 BUILT ENVIRONMENT VS. MIND: THE PSYCHOLOGICAL EFFECTS OF ARCHITECTURE

Keti Hoxha

Abstract

"A sick thought can devour the body's flesh more than fever or consumption." – Guy de Maupassant Architecture is a multi-sensorial and non-verbal experience that relates us to space and time. It is a tool of transmitting emotions and psychological effects to the public, while offering specific functions and services. The perception of space and its components is initiated through our sensorial system while we relate our body with this external world.
The mental state of the human being is complex and unique. It is always under the influence of places, people and details that are part of its everyday life. So, the environment he lives in is not only physical but it includes many events, interactions and phenomenon. All of these elements influence the state of mind directly or indirectly. This may bring slowly and unexpectedly the transformation of an individual. If the dialogue between the environment and the individual is harmonious, conformity is reached; if it has a negative notion, it may easily bring dispersion in the emotional state, and as a consequence, affects his behaviour and relation to the society. We coexist everyday with the built environment, and yet do not know the consuming or healing power of architecture.
This research aims to analyze the relationship: Environment-Individual and Architecture-Psychology in a place where this connection is the focus, a Psychiatric Hospital. In this paper is analyzed the importance of architecture as a psychological therapy, by understanding how people with mental disorders perceive space and architecture and proposing architectural solutions for altering architecture as a healing tool.

Keywords: built environment, healthcare architecture, environmental psychology in architecture

Introduction

"House is first and foremost a machine for health, a form of therapy" – Le Corbusier.
The built environment is an inseparable part of humans' life and it obtains meaning through the emotional responses and experiences of people. Buildings demonstrate the presence of humans by providing their needs and afterwards they start to shape the inhabitants' life in various forms, such as affecting directly or indirectly their mood and even their mental state. If this environment is damaging, it can lead to sickness, and if it provides comfort it can have positive effects by becoming a healing tool. In this case architecture gains a powerful meaning. Apart of providing services it has an additional purpose, improving individual's well-being. The best example for understanding the connection of architecture with the psychological state is a Psychiatric Hospital, which is a place that provides and offers cure for people with a specific psychological and health condition.
In this research is analyzed the importance of architecture and proposed architectural solutions as a part of therapy for people with mental disorders. Trying to understand the perceptual world of these persons, their emotional state and explaining their concept of space, is the main focus of bringing out conclusions. This can be a challenge to prove how architecture may become a form of therapy and how interactions with space influence in the way people see themselves.

Research

A Psychiatric Hospital is considered to be a permanent or a temporary residence, depending on the process of psychological improvement, for people with mental disorders, and as a consequence it is important to be in tune with their psychological and emotional needs. There are three main qualities for a place to be an appropriate environment

for the process of healing and getting the necessary cure: Being comfortable, Being in control and Feeling appreciated. These are the main principles to be provided from Healthcare Architecture, which is a form of curing health issues, such as physical or mental, using a powerful tool: Architecture.
The users of a Psychiatric Hospital are the staff, the patient and the visitors. It should be emphasized the importance of the medical staff, while without their efficiency to provide all the therapies needed, architecture can hardly play its part in improving the condition of the rehabilitated persons. Still, in this research the main focus remains the patient and architecture as a therapy, taking in consideration that the medical treatment is provided.

The patient

A person with mental disorder is characterized by disturbance in his cognition, emotions and behaviors. All of these imbalances are reflected in his psychological state, his physical state, his daily bases activities and even in his relation to the society. As a consequence, it is important for him to be detached from everyday environment and get the necessary treatment for preventing the deterioration of his condition and for it's' improvement.
If an individual changes the environment, his emotions and experiences change. The same thing starts to happen with a person that is positioned in a completely new and unknown building. This moment is crucial for him. It is a delicate part of his own identity and existence because he starts to feel different from the rest of the society, since it is being detached from it. It is important to mention that the context where a Psychiatric Hospital is situated is definitive for the patient. Firstly, if the location of the Hospital is in a secluded area, the individual will feel completely denied from the rest of the society and along the sense of being appreciated. Solitude is the emotional and mental state that will follow him throughout the entire journey of rehabilitation in the hospital. This will only aggravate his psychological condition and the steps of improvement will be quite slow or absent. Secondly, if the location of the hospital is in an urban area, too chaotic and acoustically polluted, it will become an obstacle for finding the mental peace necessary for the improvement. As a consequence, the psychiatric institution should be located in a rural area where community is present. This can be crucial for the individual to feel accepted by humanity. The presence of the community is part of the treatment of the patients, while they can contribute in this rural area through collaborating with it in various activities, for example gardening. In this form, his self esteem improves from the sense of contribution in the community and in the same time is in touch with nature. The context must be located in a site with good infrastructure, in order to provide to the hospital the needed supplies, and to make it easily accessible from the family members which are an important element in the patient's improvement.
The patient should be in continuous contact with positive distractions that elicit positive thoughts, such as nature. The window is a very important architectural element. Not only because through this opening a solitary individual finds human harmony without participating, but also as a powerful element, that connects the inside with the outside. Through the window the patient has the ability to visually distract from his mental disturbances. This distraction is even more powerful where there is a presence of a landscape. The presence of natural elements are crucial for the healing process, along with the contact of fresh air and natural light.
Natural light has been proven to affect not only the emotional moods of the patients but also the duration of the rehabilitation. A research was made in a Psychiatric Hospital in Milan, Italy, where morning sun in early summer produces an intensity of 15, 000 lux time. The patient's residences where positioned facing the east sun, which means that the process of waking up was followed with the lit from the morning sun, and also positioned in rooms facing the west. The patients with bipolar disorders rehabilitated in the east were discharged more than three and a half days sooner than the patients that were positioned in rooms facing the west. This leads to a conclusion that the patients' rooms shall be positioned faced to the east, in order to provide the morning sun, which is crucial for the healing process. Contact with light not only improves moods and make changes to the stress hormones but sunlight is scientifically proven to change the heart rhythm, the intervals between the heart beats. These intervals reflect the activation state of the nerves, such as sympathetic nervous system and the vagus nerve that speeds and slows the heartbeat and immune system.
Deprivation of stimulation, happens when such distractions are missing, and it is manifested in several physical reactions to the patient, such as nervous tension, insomnia, headaches and arrhythmia. These reactions can be prevented by offering through architecture constant stimulation.

Architecture and the patient

Architecture is a primary instrument to relate ourselves with space and time. The instrument for creating this interaction is the body. The relation of the body with the surrounding objects results to an experience. In the case of a psychiatric hospital, the architectural elements are not only space organizers, but they gain a larger meaning for the patient. The walls are no longer an element of dividing different functions and services, the doors are no longer openings connecting spaces, the corridors no longer itineraries, but they are physical resistance that make the patient aware of his own existence. To analyze this it is important to understand the concept of space in the case of a person with mental disorders. Every person feels space from his presence and allocation. The navel of all spaces is self and body. According to Heidegger there are two types of space: space in the geographical sense and personal space. Each individual is surrounded by an imaginary bubble, with his body as a center that defines his personal space. Every movement he makes, this space moves with him. This bubble defines the interpersonal communication and the relation to other people and objects. It is an important feature that defines the organization of spaces in houses and buildings, even layout of cities. The interpersonal distances between people is composed from four zones: the intimate space with a distance from the body 0 to 75 cm, the personal space from 75 to 120 cm, the social space that varies from 120 cm to 370 cm and the public space starting from 370 cm and defines the position the individual keeps within a larger public. If these zones are encroached from others, the person might have various reactions depending on his emotional and mental state, or even culture.
This type of territory is present in the animal word. Animals work with instincts, humans use logic but the reactions when their personal space is threatened is very instinctive, so there is a lot of similarity in their reactions. When another living being comes inside their territory, there are found two types of reactions: protection position or attack position. People with mental disorders have difficulty to maintain a logical balance, depending always on the level or the type of disorder, as a result they are quite sensitive to their territory. When the boundary of their personal space is trespassed, the level of anxiety increases, even aggressiveness.
Personal space in people with anxiety, schizophrenic and psychotic disorders is crucial. The boundary of their personal space has a larger diameter and larger angles compared to others. In this case personal space has a high protection function. The subject female has a more elastic boundary, and in males the boundary is more firm and constant. It is important to say that with objects the boundary remains the same. The diameter of this space can be a generating unit for the dimensions of spaces of a psychiatric hospital, especially in social areas, or areas for group therapies. The modular to be considered as a derivation of areas should be a dimension in between these diameters, 120 cm to 370 cm, which correspond to the social space zone, since is a boundary level from the intimate and personal zone.

The senses

The molecules of the immune system that are released when an individual has an illness change the ability to form memory of space and time. The sense of place is created in the brain, depending on the current conditions and on emotions experienced. The surrounding environment can change our emotional state, as a result, can indicate the level of healing process. There are nerve chemicals that dictate the velocity of immune system cells that fights an illness. Also, moods change from memories and vice-versa. This is why spaces for the patients should imply positive moods and thoughts. To experience space is to perceive it through all the senses the body has to offer. This shall be the focus on making emotions happen.
Spaces not only should provide intimacy to the patient but meanwhile should be provoking. The brain is an organ which must be stimulated continuously in order to maintain its elasticity, in contrary it responds negatively in various forms in the cognitive process or in the physical state. Stimulation happens through the body experiences, the senses.
The first type of stimulation is presenting the patient to green spaces. People have always had a tendency to be in touch with nature. The inner unexplainable desire for people to connect with plants or other living beings is called biophilia. One explanation is from an hypothesis that this necessity has been inherited from our very first ancestors, those living in caves and in wild nature. Green spaces have proved to cause an effect in the neuroendocrine and immunological system for the improvement of the condition of people with not a good health condition. This can be provided through involving green elements in the inner spaces of the hospital and most important, to offer a healing garden.

A healing garden is a sequence of green spaces, combined with passages followed by plants of different types and shapes, with presence of water and other natural elements. This type of space provokes all senses. These spaces if connected with indirect paths allow the patient to move and explore, while developing his logic.
When brain isn't stimulated it will change plasticity and shrink and in contrary it fights back through hallucinating, increment of aggressiveness, or other physical changes can be reflected.

Individuality

The residential area is the most important environment for the treatment. Mental disorders are associated with sleep deprivation and the nigh time is the moment of the regenerating the mind and body. As a result, the room where the patient is accommodated, should provide comfort in various aspects. The first condition the residential area has to provide is to be detached from the other part of the building in order to provide quite spaces from noisy areas of the hospital.
The primary mistake it is made in psychiatric hospitals is mixing patients with different typologies together. This leads to the aggravation of situations. Different disorders have different personal spaces and as a result the level of aggressiveness varies. If an aggressive patient is in contact with a patient that is more vulnerable due to specific traumas, the psychological state dispersion for both patients, especially for the non-aggressive. It is necessary to make a grouping of the residential areas depending on the type of disorders and length of treatment.
Each patient should be accommodated in a room that offers privacy and intimacy. Having these two basic things, he gains freedom of being himself and as a result, individuality. There should be two types of rooms: individual room and double room. More than two persons in a room causes irritations and lack of intimacy. If there are three persons rehabilitated in a room, from studies it has been proved that in three people, two persons become more attached to one another and the third one is left out. In this situations other emotional and psychological distress takes place that is better to be avoided. The individual room should be provided for patients that perform aggressive behaviors or other aggravated psychotic disorders. In a double room it is to be considered the strategy of putting two patients together. The patients must have the similar typology of disorders, firstly, because of the similar cognitive and behavioral performance, and secondly, because they have a similar time length of treatment. When two patients share the same room, they get used to the presence of one another. If the time of treatment has huge differences, the moment one patient leaves the hospital, the other that remains finds difficulty in customizing with the new patient. He starts to feel more pessimistic for his health condition and he finds difficulty in building relationships with others.

Conclusions

Architecture shapes the life of an individual, his personality and his perceptions. A Hospital is an environment that should be shaped in tune with the emotional and psychological needs of the patient. Architectural solutions shall provide all the necessary circumstances for the well-being and treatment of the patient, making the most use of the natural elements and light. Provoking the senses through material, shapes and volumes provide to the individual positive distraction in order to develop the cognitive process and to forget about his health condition. The most effective architecture is the one that takes responses to the user's behavior.

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47 FROM MODERN TO CONTEMPORARY TIRANA. PROJECT PROPOSALS FOR THE DEVELOPMENT AND RE-INTERPRETATION OF THE CITY CENTER

Andia Guga

Abstract

The subject of this article is part of a long and ongoing study, started over a decade ago, in the context of recognizing, interpreting and evaluating the inheritance of Italian architecture in Albania. The article focuses on the city of Tirana in particular and aims to not only continue the promotion of the city's historical values but also to give a valuable contribution in the field of contemporary architectural and urban design.
Tirana is a relatively new capital, but with a diverse history. Starting from the Ottoman period and beyond, the city has undergone radical transformations, the traces of which can be witnessed today in the urban plan as well as in the richness of the aesthetic styles. Our study includes a compositional analysis of the evolution of linguistic styles of Tirana from the period of the development of the city under the Italian protectorate to the present. The interpretation of this evolution and its translation into the contemporary architecture language are of particular interest to our work.
The Architectural Design Laboratory II course that we held with Prof. Ulisse Tramonti at the Catholic University Our Lady of Good Council, included different projects that serve this purpose. The work consisted in developing an administrative building located in the city center, on the lot from the Premiership building designed by the Florentine architect Gherardo Bosio, to the Institute of Statistics, carried out during the Socialist Realism according to the project of the architect Klement Kolaneci. The examples of the selected projects will demonstrate the presence of a harmonious cohesion between the two existing buildings and the new structure, though of different periods. Their aim is to bring elements from the previous architecture to ensure the continuity of dialogue between the historical stages: a crucial factor in ensuring the enrichment and preservation of collective memory.

Keywords: Albanian modern architecture, historical heritage, transformation projects

Introduction

This contribution is the result of a teaching experience method recently achieved in the second year Design Laboratory at the Faculty of Architecture at the Catholic University of Our Lady of Good Counsel in Tirana. Both historical and practical approaches, highlight the aspects related to the design research theme concerning the traces of Italian architecture in Albania. This subject is in continuous development and promotion by the Department of Architecture of Florence and other Italian universities. The study path started with the identification of an interesting project area in the center of Tirana where to develop a public building, able to assume its own identity in a contemporary rich and varied urban context. The study of the history of the city's architecture, the reading of the space built up over years and the knowledge of the compositional hierarchies of the various styles that characterize this context, were the three fundamental pillars on which the course was based. Therefore, after the consultation of the Architecture Studio Regulatory Plan, we chose an area that is a pivotal point between the modern architecture of the Italian style and the socialist one of the totalitarian regime. The project consists in designing an administrative office building in the lot that borders on one side with the Premiership building Uffici della Luogotenenza (1939-1941) by architect Gherardo Bosio, on the other, with the Institute of Statistics (1984) by architect Klement Kolaneci, in the vicinity of the emblematic Pyramid building (1986-1988), from the same architect. The final aim is to transmit to students and not only, a design method from large to small scale, made of new possibilities of city transformations, capable of translating in a contemporary key language those relationships between different constructive eras of the city, in order to enhance them and fatherly enrich the identity system of the country.

The relation between the city and its history

"The city does not say its past, it contains it like the lines of a hand, written in the corners of the streets, in the grids of the windows, in the handrail of the staircases, in the antennas of the lightning rods, in the flagpoles, each segment striped of scratches, serrations, carvings, commas".

(Italo Calvino, Invisible Cities, 1972)

Thanks to its geographical position and the various political events throughout history, Albania has always been considered a union point between East and West. Tirana is an example of a heterogeneous city where different cultures coexist together: alongside the Ottoman, settlements stretch the 20th-century urban models and the contemporary structures, often part of an informal growth. To understand the current urban form of the city we must take a look into the past and analyze the founding ideas over time. In fact, Tirana is the result of many evolutionary models of the so-called "stratified city" [1] that have generated remarkable urban morphological transformations. These models have in turn led to the identification of new identity systems characterized by historical references and dimensional relationships in continues evolution.

Before the Turkish domination, Tirana was a rural land with a territorial conformation the traces of which can still be noticed nowadays. The first settlements, mainly of mercantile character, stretched on a plain surrounded by a hilly system that demarcated the territory. The soil was endowed by the presence of water: an important element on the route of which, starting from the early twentieth century, will develop the new capital. Later on, the Ottoman city appeared compact and with low density, made of houses built around religious cores (mosques and minarets) or old bazaars. The residential system consisted of fenced houses, aggregated along small streets, and bounded by perimeter walls that enclosed internal green courtyards. This characteristic will lately be evoked by Italian architects in the drafting of the Regulatory Plan for the modernization of the capital and the creation of the "garden city".

The first plan drawings that map the spontaneous urban fabric of the city date back to April 1917 [2]. The K.u.K. [3], directed by Kark von Milius Rasticevo, besides the current state of the city, elaborated another map where were presented new interventions in the urban center [4]. The plan proposed Tirana as a military base, because it was more central than Durrës, and included new buildings of military and residential character. It also proposed a hospital and the expansion of the already named Skanderbeg square on the west side of the Bazar. As a result of the political vicissitudes of the early twentieth century in Albania, Tirana was elected capital (1920) and therefore required new urban interventions worthy of a new era. Given the disadvantaged conditions of the city, the self-proclaimed King Ahmet Zogu accepted Mussolini's economic aid, which, on the other hand, after the conquest of power in 1922, sought to create a Roman Empire in the Mediterranean area. The "friendship pact" between the two countries marked the beginning of a long and somehow difficult Italian-Albanian collaboration. Armando Brasini was the first architect elected to design the Plan of Tirana (1926-1927). Brasini, at that time, had already shown praiseworthy planning skills both in Rome and North Africa. The project for Tirana was associated with his Urbe Massima intervention in the planning of the Flaminia area in Rome. Brasini's idea consisted of a linear distribution of the city along a referential North-South axis as a recall of the Roman principle of Cardo Maximus. Its monumental and scenographic architecture was well supported by the informal context of the new Tirana, which aspired to have an appropriate architectural style that reflected the zeitgeist [5]. Brasini's new city was magnificently elegant and baroque, but it was distinctly detached from the Ottoman presences and neither reflected any relationship with the cultural traditions of the country.

On the contrary, Florestano Di Fausto's approach towards the city was a bit different. Di Fausto, the architect of the Mussolini court, replaced Brasini in 1927 in order to complete the regulatory plan. At that time, he had designed the plan and had realized the main buildings of the new Predappio, Mussolini's hometown. Contemporary, he had worked in the Dodecanese islands in the Aegean, constructing a series of important works of a vernacular taste and oriental influences. For the new Albanian capital, he proposed the same eclectic principles of his architecture in Rhodes, evoking different or sometimes hybridized aesthetic styles, as can be seen in the Ministries buildings of Skanderbeg Square. From an urban point of view, Di Fausto recovered the integrated work of the Albanian, Austrian and Italian architects and developed in the specific several variants for the central pole. In contrast to Brasini, Di Fausto's intervention for the main square of the city was located in the vicinity of the historical nucleus, integrating it and making it a participant of the new history.

The Ministries style evoked a return to the Roman courtly system, made up of giant orders, spatial rhythm, chromatic decorations and symbolic hybrid references of local history [6].
Due to the fascist occupation in Albania in 1939, a Technical Office for Building and Urbanism was established in Tirana headed by the Florentine architect Gherardo Bosio. Bosio, together with his collaborators Ferdinando Poggi and Ivo Lambertini, worked over Di Fausto's ideas for Skanderbeg square and completed the entire city plan with numerous plan drawings and building regulations. Structure of the capital was composed of directional axes and convergence nodes towards the old urban nucleus, around which was developed the garden city. The urban models proposed by Bosio fitting in the Albanian environmental and cultural dimension gave rise to new interpretations of the historical context. His monumental rationalist imprint has contributed to give a modern image to Tirana, developed simultaneously with the esprit nouveau of the European avant-garde of the third decade of the twentieth century.

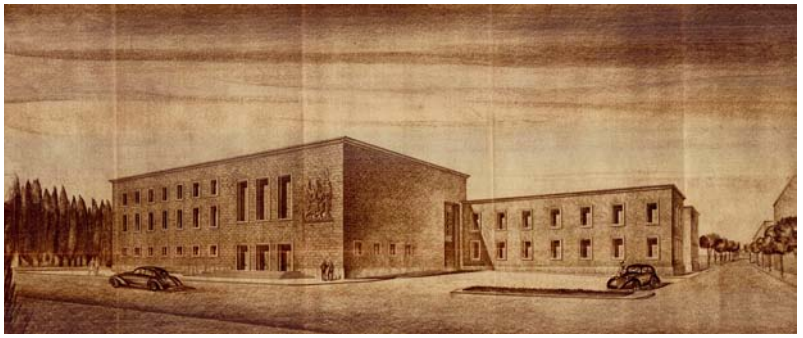

Figure 1: Heliocopia of a pencil drawing of the Premiership Building, Gherardo Bosio, 25 August 1939, Tirana. AQTN.

After the Second World War, and the following change of the political regime in the country, the tormented history of the capital still undergoes identity language transformations. The new architectural style, socialist realism, was opposed to all previous past repertoires and finds new symbolic references capable of representing the greatness of another totalitarian regime.
The concept of the fragmentary stylistic history is the engine that generates the new contemporary architecture of Tirana, that doesn't follow the specific reference. The city of the last decades, like other contemporary metropolises, is spreading in a frenetic and often uncontrolled way, favoring the immeasurable development of the vertical city.

New language styles proposals in relation to the pre-existence

After the synthesis of historical-design analysis on the cultural heritage of Tirana, we propose below one of the works carried out during the Design Laboratory course that mostly reflects the compositional principles of the reinterpretation of the past. According to the Architecture Studio master plan, taking place at that time, the chosen area was intended for administrative use and therefore indicated the urban shape of the new building. It was a regular volume of a parallelepiped form placed centrally to the lot and parallel to the two neighboring buildings: the current Premiership and Institute of Statistics. Furthermore, other lateral volumes were planned, orthogonal to the first, which had to connect the two adjacent existing buildings. Shaping and giving life to this volume was certainly a challenge, given that the context in which it was inserted represented different aesthetic repertoires, coming from different eras: the first from Italian dominance in the country, and the second from the late communist period. Therefore, the new building was supposed to have conceptual references to the context where it would be inserted, but at the same time, it did not have to fall into historicism. After carrying out the historical research, the students proposed the external urban layout of the lot starting from a study of proportions. In addition to the design cant for the two sides "bridges" that connect the adjacent buildings, the students developed a series of internal gardens that accentuate the dialogue, so far missed, between the interior and the urban exterior, just as in Bosio's design philosophy [7]. This interaction between public and private space is further strengthened by the functional distribution of the central body: the ground floor is entirely dedicated to an exhibition area open to the public, as well as the third and last floor used as a 360° panoramic bar on the city center.
Regarding the composition of the main volume, it is the result of many architectural references present in the lot and more extensively along the monumental axis of Tirana, as well as of personal considerations that have fatherly enhanced their work.

- The ground connection on the new building is realized through the use of a raised basement of 2.10 meters, an element recalling the architecture of Bosio and Kolaneci. The presence of two staircases with convergent and

perfectly symmetrical access ramps along the main side of the building reinforces the classicism imprint of the pre-existing buildings.
- The rhythmics of the openings is punctuated according to a repetition of 1.5 meters of void interspersed with two meters of solid. A slight rotation given to the openings contributes to giving dynamism to the facades. The three-dimensional effect is also obtained by the interesting trick of lights and shadows.
- The jealousies: small slits of light in the masonry, present both in the Premiership building and in Institute of Statistics, that define the transverse facades of the new project and not only. We can also notice their presence on the slab

Figure 2: Plan of the new intervention and longitudinal section of the lot. Students: Kristiana Kumi, Bruno Surfaro, Tirana, June 2017.

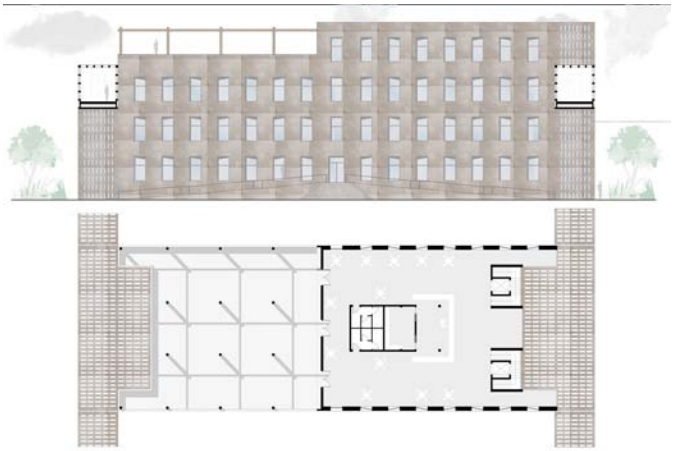

Figure 3: Plan and longitudinal section of the building. Students: Kristiana Kumi, Bruno Surfaro, Tirana, June 2017

of the top floor which undergoes a slight recess in the main volume. It corresponds to the final horizontal closure that borders the two halls.
This space, being at full height, is configured by the presence of light obtained between the jealousies, perceived in their entirety.
- Materials and colors: The facade cladding is designed in slightly inclined concrete beige slabs that recall the Bosio's travertine at a chromatic level, but at the same time renew the compositional language with a contemporary choice.

Conclusions

From the 1990s to the present, Albanian architecture has faced different problems related both to the fragmented identity heritage in the course of history, to radical transformations of the society after the change of the political regime in the country. Regarding the collage cities in the transformation of the existing heritage, the sociologist Giandomenico Amendola says: "The new action of transformation of the city, enhancing, excluding, emphasizing, recreating, takes place by constructing a story and an image of the city - a canvas or a narrative network - within which the individual episodes - the so-called urban oases - acquire meaning and, above all, value. Under this pressure, the city splits and sweeps away"8. It is difficult today to think about a unitary Tirana in the collective imagination. Today's architecture is devoid of memory and local stylistic references and often finds its depiction in the boundless and megalithic models of the contemporary metropolises. The numerous conferences that take place regarding the theme of preservation and enhancement of the cultural heritage, in addition to the teaching process in architectural laboratories, play a very important role in determining the present and in passing on the acquired knowledge to the future generations.

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[2] Posca, Luciana(2013). Architetti italiani in Albania. 1914-1943, 49-51.Roma: Clear.
[3] K.u.K (Kaiserliche und Königliche) Kriegsmappierungs, detached structure from the Military Geographical Institute of the Austro-Hungarian army.
[4] The maps can be consulted in AQTN as well as in the publications listed in the bibliographic references.
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48

MEMORY OF PLACE:
THE REPRESENTATION OF IMMACOLATELLA VECCHIA IN THE PORT AREA OF NAPLES

Carla Mottola

Abstract

After a long period of neglect in the western port area of the Naples, starting from 1738 Carlo III di Borbone wanted to intervene with works to recover the area, significantly altering the relationship between the city of Naples with the sea.
There were a sequence of reordering actions that regarded the construction of Porto Nuovo from Porto Piccolo, "rimasto rinchiuso dal magnifico ponte, che, sorto sul mare dappresso al palazzo della Conservazione della farine, tirava innanzi verso oriente. A destra del ponte un'ala di terra s'inoltrava nel mare, sulla quale elevavasi quell'edificio di forma ottagona, addetto per residenza del Tribunale di Salute" , another name identifying the building of the Immacolatella Vecchia.
The building is Pompeian red and was originally an octagonal shape. It was "deturpato dalle molte ampliazioni" over the years due to the various successive uses that inexorably transformed it from the configuration designed by Vaccaro. Originally, the building built to accommodate the Milizia del Re and, since the early years of its construction the Deputazione della Salute, a health checkpoint both for the goods and the emigrants leaving South Italy for new lands as well as the immigrants who arrived in Naples. The Immacolatella became an icon of migration into Neapolitan memory, with it now being in a state of total neglect.
The building of the Immacolatella Vecchia is impregnated with tangible and intangible traces, with it also being a cultural asset of identification charge due to its role in the past that cannot be ignored in this precise historical moment. The eighteenth-century building has to be retrieved so as to both meet the restorative needs as well as the absence of a function compatible with conservation claims, which should first be considered, to restore life to a cultural asset that is waiting to be put into the network of tourist attractions.

Keywords: survey, representation, heritage architectural, memory, waterfront

Introduction

The port area was affected by reorganization works starting from 1738 and the works were planned to be divided into two phases. The source that describes the state of the port area in question, before reorganization works, is the table of Alessandro Baratta entitled "Fidelissimo urbis neapolitanae cum omnibus viis accurate et nova delineatio ..." of 1627.
From the situation narrated by the bird's eye view on the city of Baratta, they proceeded to the enlargement of the Molo

Figure 1: Fidelissime urbis neapolitanae cum omnibus viis accurate et nova delineation... - A.Baratta,1627

Grande, extended beyond the Lanterna and, later, to the connection between Via del Piliero (which takes its name from the proximity to a church dedicated to Santa Maria del Pilar, then it destroyed to beginning of the nineteenth century) and the new coastal road through the construction of the Ponte Nuovo that with its two arms encircled the basin of Mandracchio, allocating its to the function of a mercantile port. In the east direction, the port closed with the Mandracchio because it was the last infrastructure built in the direction of San Giovanni a Teduccio, after that the coast was not urbanized yet.
From the table of Giovanni Carafa as well as Duca di Noja, entitled "Mappa topografica della città di Napoli e dè suoi contorni" of 1775, we can see how the reorganization works modified the area of Porto Piccolo, or also called Arcina, which was formed following the progress of the coastline. Carlo Celano, the lawyer, writer and religious wrote a census of the monuments of the city of Naples entitled "Notizie de bello, dell'antico e del curioso della città di Napoli…" of 1692, and from which we read as, from the two arms of the Ponte Nuovo, a third arm was built towards the sea on which was built the building of the Immacolatella Vecchia.
In fact, Carlo Celano writes: "Alla punta di tal braccio meridionale del ponte si alzò un discreto palagio di pianta ottagona per l'ufficio della Deputazione della salute e del magistrato del mare. Il qual palagio coronar si volle col simulacro in marmo di Maria SS. Immacolatela, la quale in compagnia di San Gennaro, che l'è di lato all'altro lato del Molo fu salutata guardiana del porto."

Figure 2: Fidelissime urbis neapolitanae cum omnibus viis accurate et nova delineation... – A. Baratta, 1627.

Figure 3: Cartografia della città di Napoli – L. Rocchetti, 1627;

Figure 4: Napoli e il Risanamento. Recupero di una struttura urbana – G. Alisio, tav. foglio n°16 .

The name "Immacolatella" derives from small dimensions but nevertheless, it is still there that dominates in the facade. The author of the statue of the Virgin, of the stuccos and of the sculptures is F. Pagano. The building, built to house the Militia del Re, welcomed also the Deputazione della Salute since the early years of its construction, designated with this name in the table of Rocchetti Luigi of 1860 while in page 16 of the book "Napoli e il Risanamento. Recupero di una struttura urbana" by Giancarlo Alisio (1980) is indicated as the Deputazione di Sanità. For the twofold function of an office for

Figure 5: Photo by d'Amato e Alitari-Historical context before 1882

military and health control, the Immacolatella preserves the memory of the emigration phenomenon that has strongly marked the history of the city and of the South of Italy. Between the end of the nineteenth century and the first decades of the twentieth century, the palace was the symbol of the passage for the thousands of emigrants who arrived in the city from different regions of southern Italy, that they underwent health checks before embarking on new countries.
Mainly the emigrants were adult men and children, who only later were reached by the rest of the family, in short, only when they were an adequate condition such to accommodate the whole family. The building of the Immacolatella, destined to this function, was and is, always remembered with a large presence of people who crowded it with long lines to undergo checks. It is an image imprinted in the collective memory of the Neapolitan people, even if the number of Neapolitans emigrants found, was lower than all the other southern ones departed from the building of the Immacolatella.
Considering the above, we understand what comes from to the Immacolatella the role of living heritage, testimony to the passage of men who have crossed its thresholds hoping to find their fortune elsewhere.
In the memory of the place, there are contrasting values: negative values of the poverty and of the distance from the homeland, and positive values placed in dreams and hopes. Today positive values are only a "memory" because they are hidden by decay and abandoned. Moreover, this state of negligence has expanded and today affects the ex-area of the Mandracchio basin which, over time, before it was reduced with enlargement works and then finally filled by the work expected by the Reconstruction Plan in 1946. The building of the Immacolatella Vecchia undergone continuous transformations and inappropriate uses fact also its position on the sea and for this reason that it is currently the subject of debate. An active debate on what to do that involves many subjects belonging to the port authority and not only, to avoid that we arrive at a point of no return.

Figure 6: Photo by Carla Mottola-Sculpted group of the main facade by F. Pagano

Materials and methods

If the ancient iconography sources have come to us in significant quantities, instead of the archival and bibliographic sources that report information is rather limited.
For this reason, the most efficient method of investigation and knowledge is a direct survey. The methodology performed was based on surveying campaigns, allowing to discretized the Architectural Asset, eviscerating in all its parts.

Figure 7: Napoli por ticciolo del Mandracchio - G.Ricciardelli, 1741-1777

During the site-inspections, the eidotypes were obtained in an initial phase, analyzing the architectonic typology, and metric information was obtained at the same time through the use of suitable equipment, laser-meter and photographs with known point previously measured. Below, in the second phase of the study, a graphic and critical representation of the state of affairs is obtained through the digitization of the metric data acquired during the site inspection. The representation reveals the knowledge of the Asset through the architectural survey of the area, with a direct methodology and comparison with the iconographic and cartographic sources.

Results

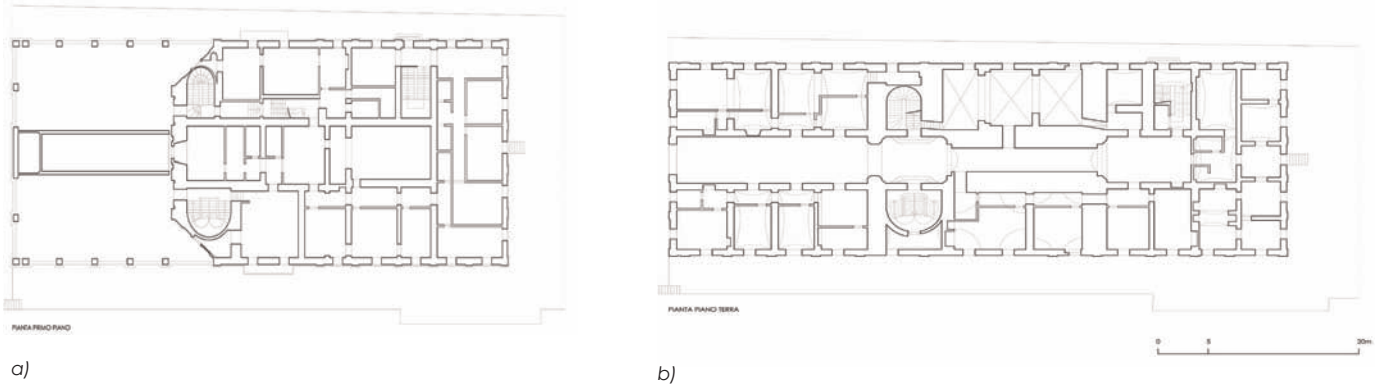
Today the building is completely modified longitudinally, as that it is stretched to north and south respect to the original design by Domenico Antonio Vaccaro. This is due to the stratification that in the years has altered and increased the volume with additions in relation to changes in use. Until the mid-nineteenth century, the building of the Immacolatella remained unchanged. It had an octagonal plan and a system of arches on the façade that allowed to see the sea from the basin of the Mandracchio. The first transformation there was with the enlargement of 1864 when works were carried out to house the Stazione delle Guardie della Sicurezza Pubblica. The consultation of iconographic documentation has shown that in the eighties of the nineteenth century an attic was obtained in the greater height of the main floor and from photos of the early twentieth century is evident an expansion of the southern front.

Figure 6: Naples from sea with Immacolatella and S.Elmo and the Certosa di S.Martino-J.M.W.Turner,1819

From a study conducted by the Università degli Studi di Napoli Federico II, intertwining information on the derivation of the material and the construction techniques used has shown that the process of transformation of the building of the Immacolatella has had four phases:

- Phase I (1748-1753) project by Domenico Antonio Vaccaro and direction of the work by Giovanni Bompiede made of Neapolitan yellow tuff with brick facing and plaster, it was destined to the Milizia del Re and from 1751 also to the Deputazione della Salute;

-



a) *b)*

Figure 9: a), b): Drawings, ground floor plan and first-floor plan of the building of the Immacolatella Vecchia.

Phase II (1864-1872) significant alterations concerned the extension to north and south to house the Guardie della Sicurezza Pubblica;
- Phase III (1884) significant alterations concerned the construction of the attic in the main floor and the structural strengthening of the vault in the atrium and the use of chains for further consolidations;
- Phase IV (about 1900) significant alterations concerned the extension to the south of the ground floor and the first floor to accommodate the offices of the Autorità Portuale.

Conclusions

The research and the study of this building with the consequent digital representation aims at spreading the knowledge of the Cultural Asset and at esteem a crucial symbol of Neapolitan history, hoping for a chain regeneration project of the Neapolitan waterfront. As is known, the main causes of the state in which the building is today are due to the absence of a function. But there are many needs encountered in the port area that could find a solution and be hosted in this building.
Moreover, it would be appropriate to recover the eighteenth-century building to comply the restoration needs of the Cultural Heritage that is waiting for nothing that to be put away safely in the network of attractions points of tourists and curious of its history.
Finally, sight of the sea from the Molo of the Piazzale Immacolatella Vecchia with the revitalized and recovered eighteenth-century building would mean bringing to the memory and under the eyes of those who cross the via Nuova Marina an important road for those entering the city of Naples, a Cultural and Architectural Heritage intrinsic of memory of the place and the community. Although the non-patriotic spur because it represented the gate, the door to escape from Italy, the building of the Immacolatella Vecchia has helped to make the city of Naples a nerve center of the whole Southern Italy as a place in which hopes of who left Italy were concentrated.

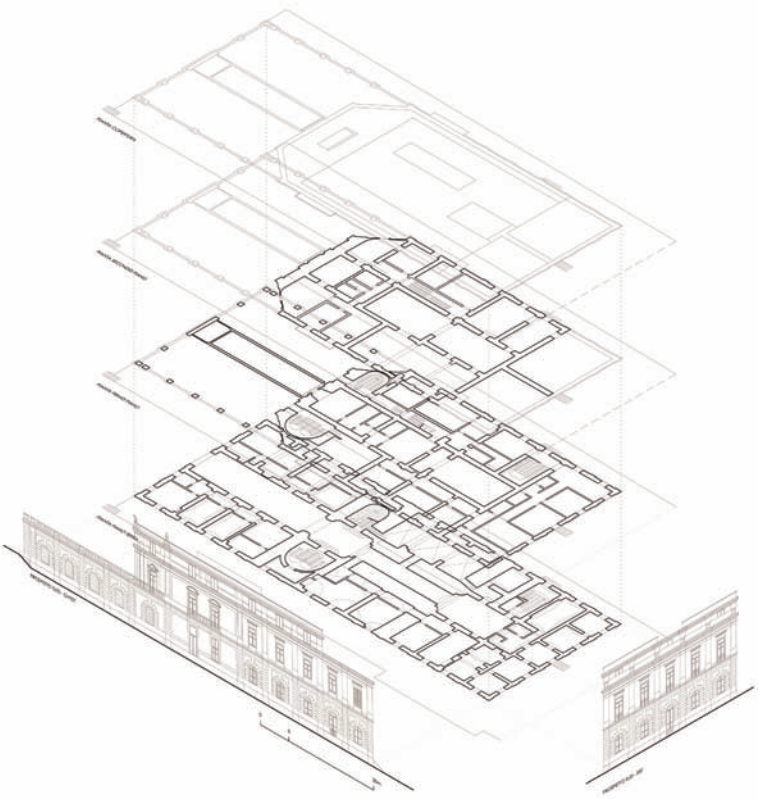


Figure 10: Graphic chart,plans, and elevations of the building of the Immacolatella Vechia.

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Notes

[1] *"it was locked up by the magnificent bridge, which, rising on the sea near the Conservation's flour building, that it extends eastward. To the right of the bridge a land wing was moved to the sea, on this elevated that form of octagonal shape, serving as the residence of the Tribunale di Salute."*

[2] *"overwhelmed by many expansions."*

[3] *"At the tip of the southern arm of the bridge it stood up a discrete building with octagonal plant for the office of the Deputation of health and the magistrate of the sea. This building was crowned by a simulacrum in mar-ble of the statue of Maria SS. Immacolatella, who in the company of San Gennaro, who is on the other side of the pier [Maria SS. Immacolatella] was designated as the guardian of the port."*

49 REGENERATION OF INDUSTRIAL HERITAGE SITES A POTENTIAL FOR SUSTAINABLE DEVELOPMENT

Florian Nepravishta, Ledita Mezini, Xhejsi Baruti

Abstract

Industrial heritage sites are an important part of the built environment. They serve as tangible and intangible links to the past and have the potential to play an important role in the future development of the cities in transition. The transformation that the Albanian economy after the 1990s has resulted in a large number of unused, abandoned, degraded industrial buildings and sites, where many of them are in inappropriate environmental conditions. Nowadays, the phenomenon of industrial heritage that precedes the social and economic development of the country is not fully explored or neglected.
This article aims to introduce the regeneration of industrial facilities as a measure of sustainable urban development. The goal is to highlight the adaptive re-use and redevelopment of industrial zones as a strategy for alleviating the adverse effects of climate change. The analysis of four case studies is focused on the industrial heritage of the communist dictatorship period in Tirana. Emphasis has been put on the new concepts of regeneration of industrial areas, which include land recycling, the application of ecological and sustainable solutions.
It is concluded that industrial areas contain the potential to become important elements of the cities' sustainable, economic, social, cultural development. The industrial heritage buildings do not deserve to be destroyed, but through adaptive re-use projects with economic, social, and environmental care must be transmitted to other generations.

Keywords: industrial heritage, regeneration, adaptive re-use, sustainable development, Tirana

Introduction

Tirana has inherited some industrial facilities, which have functioned until the beginning of 1990, period of changing the economic and political system, which already have lost their productive destination, a result of technical and economic factors, in front of the regional free market competitiveness. Although industrial heritage is an important proof of the economic, social and architectural development of the city, nowadays this heritage is forgotten and in risks of extinction. These peripheral sites surrounding Tirana city are now located in the middle of developed and very vital areas for building constructions. As the times had changed preservation of these neglected and dessert spots is not the best solution but adaptive reuse and rehabilitation is a more contemporary alternative. A group of students in the Master course in Faculty of Architecture and Urbanism, Polytechnic University of Tirana, suggested some scenarios for four case study of industrial heritage sites in the city of Tirana. The proposals presented in this paper take into consideration the old structures of industrial heritage and the possibility to convert these nonfunctional structures in new cultural, social and economic hubs.

Industrialization during the centralized socialist economy 1945-1990

After the Second World War, Albania entered the path of building a socialist society. With the Law on the seizure of state assets of Italy and Germany in Albania, industrial companies, mines, oil extraction enterprises, construction, agriculture, transport, etc. were transferred to the state (Banja & Toci, 1979: 27-30). The nationalization of industry and other branches of the economy developed rapidly even through seizure, without the reward of the previous owner, and without any kind of state-capitalism co-operation. The nationalization of heavy and medium industries started in 1945 and ended in 1946. With the completion of the process of nationalization of factories and foreign companies in 1947, the country's economic

development plans began, which were initially one-year and two-year plans, and then moved to the five-year plan. During the period 1947-1948 (one-year plans) under the influence of Yugoslavia, state-owned enterprises were established, organized in a centralized management base. Because of the reconstruction, small embroidery units, textiles, cigarettes, olive oil, shoe factories, and printing presses were merged into large units and factories.

In November 1948, in Tirana, production began at the factory "Enver", a veteran of Albania's mechanical engineering industry. During the two-year plan 1949-1950 the construction of the hydroelectric station "Lenin", the Selita aqueduct and the textiles "Stalin" began. (Banja & Toci, 1979: 64-66, 68). The two-year plan's achievements were a positive experience that paved the way for the Fifth Five Year Plan (1951-1955), which would now be developed under Soviet influence. The main purpose of the plan was to transform Albania from an agrarian-agrarian country. Priority was given to heavy industry branches for whose development there was natural resources and had economic advantages. These were the mines, the mechanical, electrical and building materials industries (Banja & Toci, 1979: 70-71).

The main economic task of the second five-year plan (1956-1960) was the development of the industry, especially the mining industry, mainly based on the full use of existing production capacities and the use of internal reserves (ISTML, 1970: 467). Were built and used 250 great economic and socio-cultural works, a good part of which was factory, mining, and mining. Industrial constructions focused more on Tirana with works such as Glass and Porcelain Factory, "Ali Kelmendi" Food Combination, Brick Factory and Expansion of Stalin Textile Combinations. In November-December 1959, works for the construction of a Bread Factory and the Meat Processing Process were started in Tirana (Toci, 1989: 26-28). Work was also done to increase the production capacity to improve the technological process in a number of industrial works such as the Shoe Factory in Tirana, the Beer Factory and the Olive Oil Factory (1960) in Ndroq (Zëri i Popullit, 1960).

Following the collapse of relations with the Soviet Union, the communist leadership decided to continue the road of industrial development with the support of the socialist China of Mao Tse-Tung. Chinese investments were comparable to Soviet ones and focused on building large, but expensive, complexes such as the Tirana Auto-Tractor Plant, and so on. The third fifth-year plan (1961-1965) aimed at further industrialization for the transformation of Albania from an agro-industrial country into industrial-agrarian. Priority was given to the extractive industry, power generation and heavy processing industry. While in the fourth five-year plan (1966-1970), new industrial plants were built to ensure the further development of productive forces (Banja & Toci, 1979: 46-47). During this period, the basics of heavy chemical industry, building materials industry, light industry, and knitwear were laid out in several cities including Tirana.

The fifth five-year plan (1970-1975) was developed the electrical and mechanical industry, and in particular, the processing industry. In Tirana, and in some cities in the country, plants for the production of petroleum products, electric motors, transformers, electro-household articles, radios, and televisions were erected. At the beginning of the five years plan, the Fabric of Production of Slim Coating, in the Textile "Stalin" in Tirana, was used.

In the six-year plan (1975-1980), the work on industrial exploitation of the coal-fired basin of Tirana was concretized. New mines of industrial importance were discovered, among which a special place is the mine of Valias, which is the largest coal mine in Albania. An important and modern base of the mechanical industry, which entered into use in the sixth year, is the construction of the Mechanical Plant, part of the Auto-Tractor's Plant in Tirana.

The disruption of relationships with Communist China in 1978 brought a slowdown in the realization of planned works with Chinese aid. As a result, it was important to organize and further perfect the study-design work. In the seventh and eighth five-year plans (1980-1985, 1985-1990), despite the efforts of the communist leadership to create an independent economy, this was not achieved. In this period, as in many other eastern countries with a socialist economy, the beginning of the rapidly declining growth rates in Albania was recorded and the country fell into a deep economic and financial crisis. In a broad sense, despite some attempts to modify economic policy and allow some elements of "capitalist economy", this was a crisis of the socialist system itself and consequently could not be resolved without changing it (Civici, 2012).

The collapse of the communist system in the early 90s slows down production in almost all industrial facilities. The industrial sector was a self-skeleton of its former, beyond any technological standard and competitive in a free market economy (Parangoni, 2010). After 1992, economic reforms were undertaken. In this stage began the privatization of the large former industrial facilities. In the first decade of transition to the market economy, the industrial heritage has lost its primary manufacturer destination. Nowadays the ex-industrial sites are deteriorated and in very bad conditions. Economic analyses carried out in Tirana show that the city has the potential for sustainable regeneration of these industrial structures.

The role of industrial heritage adaptive re-use and regeneration in sustainable development

Many discussions in the field of cultural heritage and sustainable development are related to the role of industrial heritage adaptive re-use and regeneration; mostly they are developed in theoretical level. It is presented in different documents produced by international organizations as UN, UNESCO and ICOMOS. The UN (2016) in New Urban Agenda (or "NUA") recognizes cultural heritage as an important factor for urban sustainable development. Culture heritage can play an important role "in rehabilitating and revitalizing urban areas, and in strengthening social participation and the exercise of citizenship" (UN, 2016; point 38). UNESCO and ICOMOS (International Council on Monuments and Sites), highlight the key role of culture in the achievement of sustainable development (Hosagrahar et al, 2016; Potts, 2016).
Industrial buildings are valuable heritage structures that should be protected as preserving traditional values is important for the continuity of culture. According to the TICCIH (The International Committee for the Conservation of Industrial Heritage) (2003), the motives for protecting the industrial heritage are based on the universal value of this evidence, rather than on the singularity of unique sites. Continuing to adapt and use industrial buildings avoids wasting energy and contributes to sustainable development. Industrial heritage can have an important role in the economic regeneration of decayed or declining areas. The continuity that re-use implies may provide psychological stability for communities facing the sudden end a long-standing sources of employment (TICCIH, 2003).
Adaptive re-use of industrial heritage buildings and regeneration of industrial sites is preferred because of being economic, proving cultural and historical sustainability, using manpower instead of energy, reducing energy consumption, and being ecological. When speaking of adaptive re-use and regeneration of abandoned industrial sites, the social dimension is the one that is particularly relevant from several aspects, if not the most relevant one. The industrial restructuring processes are mainly accompanied by major economic and social problems of whole areas and distress of many individuals (Ifko, 2016). Adaptive re-use can foster the economic regeneration of industrial areas by creating and establishing cultural values of obsolete spaces and their social recognition and viability of the heritage sites (Nepravishta, 2013).
Adaptive reuse contributes to economic, environmental, and socio-cultural sustainability (Günçea & Mısırlısoy, 2015).

Former Industrial Areas in Tirana

Tirana has inherited a large number of industrial objects, which operated until the early 1990s of the 20th century, a period of economic change in Albania. Enlargement of the city's boundaries has made the former industrial zones into the interior of the city and lose connection with its urban structure. Industrial facilities are currently untapped for the functions for which they were built and are in a state of complete degradation, creating problems for the protection of the environment and the health of the population.
The most widespread industries in Tirana have been the light and food industry, the mechanical industry, and the construction industry. The areas with the largest concentration of industrial sites are the north-eastern and north-western part mainly on the outskirts of the city. Nowadays, most of them are privatized and used for various private businesses; some are used as residential objects. However, there are many abandoned industrial complexes, which are degraded and have immediate need for regeneration. The environmental consequences for Tirana are inevitable, seeing and the wide spread of industry in this city. Some areas like that of former "Kinostudio e Re", the former Textile Plant and the former Auto-Tractor's Plant are among the most problematic in terms of pollution levels.

Figure 1. Existing situation of industrial areas in Tirana. Source: DA archive.

Proposal for industrial regeneration and adaptive re-use in Tirana

Adaptation of the former Institute of Building Technology and Construction Laboratory

The Institute of Construction Technology (ISCT) and the Construction Laboratory together with the Faculty of Civil Engineering (FIN) belong to a complex that developed their activity in the field of construction.
Currently, the Institute of Construction has been relocated from existing buildings where offices are located for different institutions. The construction laboratory because of malfunction is in a degraded condition. Bursts, with broken glasses that have not been replaced or repaired, wooden windows rotting as a result of time-scale degradation, old age or lack of maintenance of the building in the long term are the object's image today.
Due to the vicinity with Faculty of Architecture and Urbanism and the increasing number of students, the need for more spaces, as also the isolated position inside this block area, the proposal suggests incorporating and adapt the new architecture faculty working spaces inside this structure. The big spaces inside the warehouse permit to have flexible classrooms. The new bridges which main functions are to connect the existing buildings are also places of socialization and represent a new type of architecture, with new materials and technologies (Fig. 2).

Figure 2. Adaptive re-use for Architecture and Urban Planning Faculty. Source: DA archive

Adaptation of the former Pipes Factory

The Pipes Factory has a 2.6-km-long distance from the city centre. It has been part of an industrial building complex (the factories of Ceramics, Porcelain, Refractory Brick and Pipes) during the communist era and was designed in the years 1954-1955 with the assistance of the USSR specialists (Paragoni, 2012).
It has not stopped production since the day it was built. The old structure with its "L" shape is positioned along the main street which gives to the building, access only from one side. The object has a horizontal extension and is developed in four volumes that have hierarchical links to each other. The plans are rational they follow a certain pace. Interestingly carved roof in the highest volume, they are associated with some striking structures in the form of 'brise-soleil'. The windows are replaced with plastic, as a temporary substitute and cheaper.
The new proposed function is a centre for physical rehabilitation and the existing areas are not sufficient for the new program.

Figure 3. Adaptive re-use for a physical rehabilitation centre. Source: DA archive.

On this purpose, the new structures are attached to the existing one creating an almost closed and private courtyard which will represent an outside space for rehabilitation and also recreation. Regarding the facades, the old and the new structure are treated with the same refinishes respecting the proportions, rhythm, dimensions, and scale of the old building being in symbiotic harmony with the existing building and its site (Fig.3)

Adaptation of the former Ceramic Factory

The Ceramics Factory is located in a complex with the Refractory Brick Factory, Porcelain Factory and Leaf Factory. Today, residential buildings surround the former Ceramic Factory.
The technological process and the field configuration have influenced the floor plans and the development of the factory. The former Ceramic Factory has passed through several transformations during several years and adjacent structures which frame the projected factory have changed its primary configuration and morphology. After a long analysis of the surrounding existing functions around the area, and the new propositions of the Municipality of Tirana, the existing structures have been proposed to be transformed in a sportive center which will combine the natural landscape with the new park proposed in the south side with the built landscape in a more public, social, cultural environment. The proposition took in consideration the projected plans which represented more historical, cultural and architectural values and suggested to remove and free the existing building from its adjacent additions and to add new modern structures mostly of glass and steel. The new Sports Center will function as a central point of leisure, recreation, and activities creating a boundary between the chaotic city's sprawl and the natural background (Fig.4).

Figure 4. Adaptive re-use for the sports center. Source: DA archive.

Adapting the former Automotive Park for Travellers

Former Automotive Park for Travellers in Tirana is constructed by two horizontal lies down objects, and beams form the constructive system and columns made of reinforced concrete covering 15 m long spaces. The 60 ° slope glass diffusers are made with prefabricated concrete - armed elements, with three - angular shape.
Lack of maintenance, unmoved modification from the technological point of view, and exposure to atmospheric agents has led to severe damage to the masonry and especially to its outer and inner clothing. In addition to the aesthetic side, which includes the alienation of colour and material, the masonry also exhibits hygiene problems associated with the various organisms that carry out their life activities on these surfaces.
The existing structures are in good constructive condition and the distances between the columns as the altitude of the beams and shelters permits to host several functions inside these facilities turning an isolated, neglected and abandoned area in public, cultural, social as also an economic attraction. The pedestrian road, which passes through both buildings, is a way of connections and a magnetic resource for people to enter and use the new structures.
The new function compromises recreational, cultural, sports spaces and a business hotel. The links between public and private will create the prospect to turn the area in a central pole for this ex-isolated site (Fig.5).

Figure 5. Adaptive re-use for a business and hotel center. Source: DA archive.

Conclusions

The social, cultural, environmental and economic potential inherent to some of the industrial heritage sites in Tirana indicates their importance for the urban community and points out the necessity for their regeneration.
The assessment system can be applied by heritage institutions (Institute of Cultural Monuments, Ministry of Culture) to suit the needs of the industrial heritage preservation in the wider context of Albanian to better manage the entire built heritage resources. Preservation of industrial heritage needs to be an important part of the local and the national planning policies.
The analysis of four case studies has brought to the conclusion that such industrial areas offer great potential for adaptive re-use. These potential and development opportunities compared with different concerns of the site, such as pollution, degradation, and informality. It can be seen as a new opportunity for the overall economic, social and environmental friendly development of the entire city.
The adaptive re-use of industrial heritage buildings can be successful for mixed-use developments, for small businesses especially creative industries, and for the adoption of a minimalist approach by respecting the original structure and retaining its industrial character.

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THE LAKE OF THE ENGLISH GARDEN OF THE ROYAL PALACE OF CASERTA IN THE URBAN AND NATURAL CONTEXT OF THE CITY

Ilenia Gioia

Abstract

The research concerns the naturalistic complex, designed in 1785-1786 by Carlo Vanvitelli on an area of approximately 2500 m^2, in the city center of Caserta, also known as the Anglo-Chinese garden. It is born from the harmonious combination of elements with different characters, if not opposed; it's based on principles such as the curved line and interpretation: blocks of plants seem to penetrate one another or emerge from each other. It includes a small hill to the entrance and a flat land that extends for 23 hectares with quota jumps; is dotted with real buildings that provide an articulated sum of images, marked by deep knowledge and refined taste for the ancient that Carlo has absorbed from his father, his first mentor. This set is considered to be a true open air museum of architect's works. The garden follows a completely free design, the ideal axis of which is a stream that stretches for a long time to become a lake, where two richly vegetated islands appear: the first, the largest, houses a Corinthian prostilo temple; the second one is characterized by a pavilion intended for the refuge of ducks, swans and other water birds. The Corinthian temple with false ruins pronao was made in 1792-1798 in two phases corresponding to a circular system with a dome, then embedded in the quadrangle-shaped temple; the structure is also called "barn" for the cover in shiny straw that spread a warm yellow reflection. Capitals and rows of ancient columns in dolomites, from Pompei, and oriental granite were used; the architrave placed on the columns is in stone. The imitation of constructive and decorative techniques of roman architecture is here combined with the fake signs of time disintegrating and ruining. This structure represents a true naturalistic heart for the city of Caserta.

Keywords: English Garden, Royal Palace of Caserta, fake ruins

Introduction

The naturalistic complex examined was designed in 1785-1786 by Carlo Vanvitelli, commissioned by King Carlo di Borbone, in the center of the city of Caserta. The amenity of the place, the absence of important historical pre-existences, the right distance from the city of Naples and the strategic position in the hinterland are the characteristics that alone explain the success of the project for the Royal Palace of Caserta and its gardens. The Caserta center is in fact located in the middle of the area called 'Campania Felix', an extremely fertile land in which the roman centuriation of the ager publicus, probably carried out around 165 b.C., still perfectly legible in the territory, it is the first direct evidence of the agricultural vocation of this area that owes its source of wealth to the land. But next to the fertile countryside we must remember the other elements that have contributed over the centuries to give the site the character of a locus amoenus: the lush nature of the mountains, the mild climate, the presence of the sun for many days during the year, the proximity of the sea.

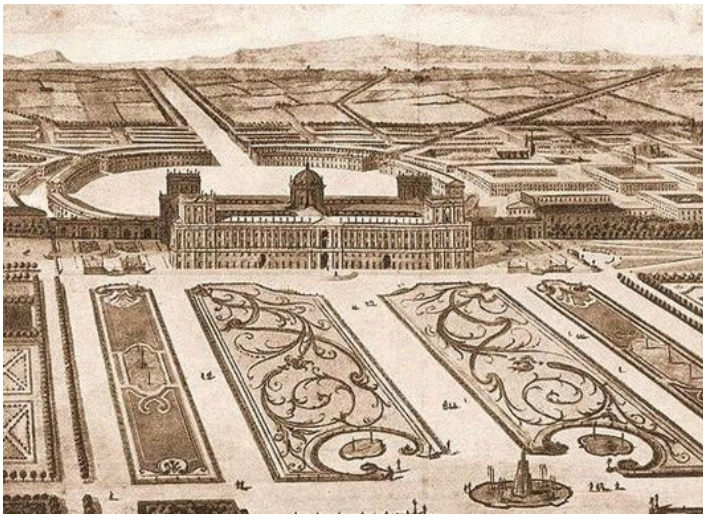

Figure1: Original project of the Royal Palace in Caserta bz Luigi Vanvitelli.

The English Garden: Nature artifice

In 1786 Wolfgang Goethe describes the plain on which stands the Royal Palace of Caserta as a place of exceptional beauty and the most fertile in the world. He writes about The Royal Park: "the gardens are beautiful, in perfect harmony with a strip of land that is all a garden". The ancient and lush land of fragrant essences and the 'tamed' elegance in the geometric design of the Borboni's garden create a perfect balance. An integral part of the Caserta Park is the English Garden. In 1785-1786, on an area of about 2500 square meters, the English Garden, also called Anglo-Chinese, was planned according to a completely free and very irregular design, whose ideal axis is a stream that for a stretch it widens until it becomes a small lake. Strongly desired by Queen Maria Carolina, at the suggestion of Sir William Hamilton, English plenipotentiary minister at the court of Naples commissioned by the Queen to take care of the project, she turns to Sir Joseph Banks, distinguished botanist and president of the Royal Society of London, willing to move to Italy to take care of the training and care of the new garden. The choice fell on John Andrew Graefer of Worcester in England, a skilled gardener with considerable experience in the field of botany. He arrived in the kingdom of Naples in April 1786 and, already in August, teams of workers begin to build the fence wall of the area on which the garden will develop. In carrying out the project, the English gardener is joined by the architect Carlo Vanvitelli, who took care of the construction of the architectural emergencies of which the garden needed. Peculiarity of the area was the abundance of water guaranteed by the supply pipe of the royal park, a characteristic that allowed Graefer to express at best the compositional principles, in full respect of the rules of the landscape movement. It is precisely the water, in fact, that determines, with its path, the design of the garden and to guide the visitor in the distance; here it is nature itself that is transformed in an "architectural" manner, according to the designer's will, to assume forms and to represent pre-constructed images. The naturalness that is observed is, in short, the result of an accurate artificial transformation of the place.

Figure 2:The English Garden in Caserta.

The knowledge of the Lake and the fake ruins

The English Garden is strutted with various buildings that provide an articulated sum of images, a sign of deep knowledge and refined taste for the ancient that Carlo Vanvitelli absorbed first of all from his father Luigi, his first mentor. This combination, apart from the botanical and naturalistic solutions set on irregular shapes and plants, should be considered a true open-air museum of the architect's works. The winding avenues are held between masses of exotic trees and rare plants; then there are the stairs, the canals, the pools, the small bridges. All this connects numerous episodes between nature and artifice, but next to the natural elements there is a great variety of architectures. Besides the theatrical arrangement of the vegetation, peculiarities of the English garden are the disposition of ruins and fake ruins. Along the way the water makes

two height jumps: the first, a waterfall of modest size, near the Bath of Venus, almost to complete its picturesque image; the other, more decisive, just before reaching the lake located downstream. It is a particular form of water jump, whose characteristic is that of being unexpected and violent, because it is generated by a sudden fracture of the ground. Two islands, on which stand the "remains" of a temple and other small service buildings, embellish the lake that occupies the valley floor, the largest in the center, the smaller one moved to the east. The concept of a lake-island system, designed by Carlo Vanvitelli, dates back to Jean-Jacques Rousseau (1712-1778) who, in Julie ou la nouvelle Heloise, defends the "state of nature" against the "geometries" of the absolutist power. His autobiographies document his love for the aquatic and plant environment; in 1765 he took refuge in the lonely island of Saint-Pierre of the Swiss lake of Brienne, living in contact with nature. In his interpretation of enlightenment thinking, he supports new educational principles inspired by nature, so as to influence cultural groups in various countries and among them the Wörlitz circle, whose park at Dessau is one of the first examples in Germany of the English landscape garden. From 4 July 1778 the tomb of the philosopher is instead on the small "Poplar Island" in the park of Ermenonville (Senlis, Oise), according to the English taste of his friend Marquis Louis René de Giardin. Here he realizes the unfinished temple of modern Philosophy. Since the summer of 1786 in Rome, in the garden of the Borghese, the excavation of a lake with a rectangular shape, done at the end of the year, is started; and on a small island a temple is built. In March 1787 Prince Marcantonio IV Borghese (1730-1800) intends to change the shape of the lake, which will assume an irregular perimeter, and calls the Scottish landscape painter Jacob More to direct the works. Later the Prince decides to create an "English" garden around the lake, called "Giardino del Lago"; here in March 1789 a circular marble temple was built "which acts as a façade to the Temple of the Lake", dedicated to Esculapio, on a project by the architect Antonio Asprucci.

In particular, on November 3, 1792 the excavating for the foundations of the island in the artificial lake of the English Garden of Caserta begins; on December 4, the sculptor Pietro Laudato is compensated for a model of the lake with two islands. The fake ruins of the Roman temple on the main island, constitute a fundamental element of the composition of one of the most suggestive scenarios of the garden. From the calm waters of the sinuous artificial lake emerges the island with its enigmatic remains of a Roman temple, distinguished by the columns, partly cut off, which allude to a partially disappeared pronaos.

Figure 3: The lake and the fake ruins.

The construction, built starting from the beginning of 1793, is distinguished by the particular verosimilitude of fiction, obtained through the reuse of ancient capitals and columns from the excavations of Pompeii, the adoption of a finish of plaster that imitates travertine slabs , in the parts that pretend to be preserved, and the reproduction, always plastered, of a wall with "opus reticolatum" listed, in areas that had to appear to be ruderized and, therefore, deprived by the time of the original stone cladding. In September 1798 the stone architrave of Mondragone was built to be placed on the columns; on 6th October, the Antonio Retrosi stonemason is paid for the covering of two bases and four bases of the same stone, and for having worked two columns of oriental granite. To the careful imitation of the constructive and decorative techniques of the Roman architecture is associated the artificial reproduction of the signs of the disintegrating action of time, obtained with very serious faults in the architraves, false damage to walls and claddings, shaping of columns and perimeter walls. The importance attributed to the fake ruin of the temple inside the main picture of the garden is also evidenced by the existence of two construction phases: the first is to be attributed to the circular dome-covered organism, still preserved inside, while a subsequent reconsideration of the composition is due to the addition of the quadrangular envelope, placed, for reasons of composition as a set, in an asymmetrical position with respect to the

pre-existing volume. On the right side of the temple you can see a large gap between the perimeter wall, with imitation cladding of the travertine, and the circular masonry of the central body, while on the opposite side the quadrangular wall masonry directly incorporates a part of the elevated circular of the internal compartment. It is possible to deduce from documents dated December 4, 1792, that the project foresaw an architectural fake ruin to be used as a "straw", an arcadic "hut" intended for the "pleasure" of the King. Another real hut existed in Torre del Greco and Torre Annunziata, near Capo Bruno, inside the real hunting of the Mortelle. The construction also marked on the Rizzi-Zannoni map, was described by Sir William Beckford: "... in the middle of the thicket of the bush, surrounded by a garden with bushes of luxuriant jasmine, stands the king's straw. [...] the hut seems to have been built in the Arcadian era, for its simplicity is delicious. The floor is covered with polished tiles, while the walls are made of straw. At the center of the room there is a table [...], and within a wall are four alcoves with silk mattresses where the king rested after lunch. On the other side there is a white marble basin. Going up a ladder you reach another room covered by the roof which, being entirely in shiny straw, spreads a warm rooster reflection. From the windows you can admire the garden [...]. The "pagliaro" of the Swan Lake probably became even more pleasant. "The restoration work of the fake ruin, led by the Superintendency, was oriented to rebuild, according to the information inferable mainly from a careful reading of the factory and of the analysis of its conditions of visual perception, what was considered the original effect of fiction, largely compromised by the loss of part of the original plaster in imitation of stone cladding and ancient walls, which had rendered ineffective or short-lived optical deception, due to the emergence of the modern tuff walls or the brick structure of the false stone architraves. From the examination of traces left on the structures by the original imitation plasters, however, the conviction that the fiction was intentionally limited to an overall landscape vision was derived. From this point of view, the restoration of the imitation of the old coatings in the parts of the structures visible from the shores of the Swan Lake has been restored.

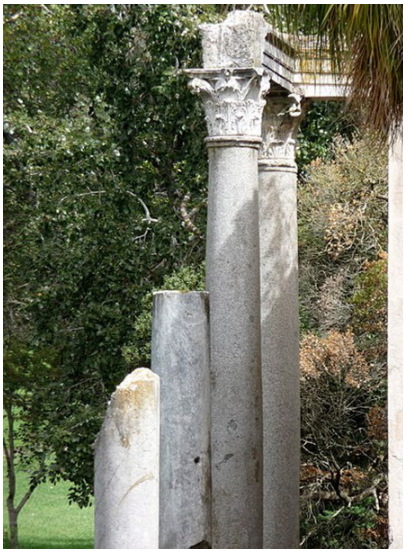

Figure 4: The fake ruins. Figure 5: Particular of capitals and columns.

Tools and methods of research

The methodology used in the research in order to obtain information was the architectural survey, an instrument of knowledge of the organism examined and of a graphic transcription of all its components. The survey must be understood not only as a collection of dimensional data, but in a broader sense, as a collection of all the identification data that intervene in the definition of the product. Therefore the information obtained is the basis for the documentation, study, conservation and intervention operations on it. It is from the type of information that is wanted to be obtained through the survey, that the choice of one method of relief with respect to another will descend; it is therefore possible to choose between: direct relief (longimetric), instrumental relief (topographic) and indirect relief (photogrammetric).

a) b)

Figure 6:a),b): Some example of the relief using the ryobi technology.

The first type is used in most architectural surveys and proves indispensable in the study of plants and sections of buildings, where the other methods can not be used, except in particular circumstances; the second one is used only in particular circumstances and, rather than an autonomous method, must be considered as complementary to the direct and the photogrammetric one; it is used for precision surveys, to detect large planimetric trends and especially when inaccessible points must be detected; the third type is used in particular in the detection of flat facades, in particular in the relief of urban fronts. It can be useful, if integrated with the direct survey, for the survey of the elevations of a building, where some points to be measured are not accessible. In making the survey using the indirect method, data were acquired with the aid of simple measuring instruments such as the meter, metric rods, plumb line, etc ...; tachometers, levels, distance meters, etc ... were used for topographic surveying; finally, for the photogrammetric survey, a simple photographic camera and the Ryobi technology were used, a laser distance meter that allows to obtain information that is difficult to find through a digital photo on which data acquired through a remote laser pointer are transcribed.

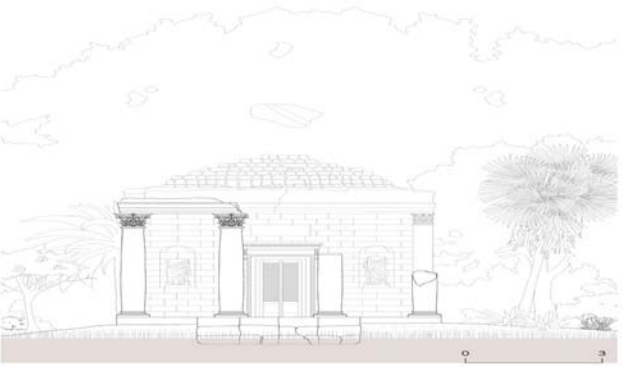

Figure 7: Relief of the main facade.

The measurements made required different methodologies according to the type of plan presented. Information on the horizontal section of the circular organism was obtained using the orthogonal coordinate method. This measurement scheme starts from the knowledge of the Cartesian coordinate system, in which the axis of the ordinates and the abscissas are orthogonal to each other; a straight line (abscissa) is fixed, called base, possibly parallel to one of the sides. On this straight line all the points to be detected are projected perpendicularly, obtaining the corresponding projected points. To make the projection of the points on the base, it is necessary to make sure that it happens perpendicularly through the use of levels or set square. The problem of the irregular arrangement of the openings has been dealt by the trilateration method, a technique that allows to calculate distances between points by exploiting the properties of the triangles; from a basic segment it is possible to identify the position of the vertex of the triangle which, if returned in scale, is able to represent a relief on a reduced scale preserving the position of the points detected in a reciprocal and certain geometric relationship. The method of partial and progressive measurements was used in the survey of the facades: the distances between the individual measured points are partial measurements; on the other hand, progressive measures refer to the distances of the individual points from a reference point (0). The study of detail has assumed considerable importance in this case, as it is a constituent part of the whole and contributes significantly to the determination of the character of the building. In some cases, where the artefact's presents complexity of shapes, the overall relief can not return the specificity of the detail, which is instead of great importance as the different moldings and the articulation of the profile are the expression of precise linguistic choices. In this case, the relief of the detail provides for the return of particular measures that in many cases contribute decisively to defining the linguistic scope of the product. At the end of the measurements, the architectural survey provides for the return or the translation of the mark in conventional graphic signs; the technical drawing of the measurement system was therefore carried out so as to obtain the plan / section / elevation of the building under consideration for geometric construction.

Figure 8: The lake and fake ruin

Conclusions

The work of relief on the fake ruin, has allowed a careful reading and a study of the factory in order to acquire the necessary elements to the knowledge of the state of art, essential to move on to the phase of elaboration of a restoration-maintenance project. The lake with the islands and the fake ruin is a rather common typological element of the English Garden, which is the end of the path, opening the look again on a scene with carefully studied emotional characteristics: ranging up to the dense vegetation that delimits the garden, the observer suffers the illusion that his sight is lost in the surrounding wood. The final phase of the study is aimed at reconstructing the effect of scenic illusion, in the distant vision of the landscape, and the preservation of the readability of the techniques of artifice and its different phases of transformation.

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51 MEMORIES OF AN URBAN LANDSCAPE. THE AURELIAN WALLS BETWEEN SAN GIOVANNI IN LATERANO AND SANTA CROCE IN GERUSALEMME

Sara D'Abate, Paola Porretta, Adriano Tasso

Abstract

In 2018, the new metro station of San Giovanni will be inaugurated, creating an important hub of the contemporary Rome in a significant spot of the historic center: between the basilicas of San Giovanni in Laterano and Santa Croce in Gerusalemme and adjacent to an important segment of the Aurelian Walls along Viale Carlo Felice. In the light of the works surrounding the station and according to a comprehensive (and desirable) rethinking of the whole area, the paper proposes a holistic reading of the various transformation phases of this portion of the city, place of stratification of numerous past infrastructures.
This segment of the Aurelian Walls, built in the 3rd century, has a distinctive configuration with a double gallery in order to overcome the orographic depression between the Celio and Esquilino hills; on these hills the two Christian Basilicas were built during the following century; in the sixteenth century Pope Sixtus V included them in his urban plan, but only during the papacy of Benedict XIV, in 1748, the two religious poles were connected by the first public boulevard in Rome, a tree-lined axis sided by black mulberries.
The most radical transformation of the area occurred between the 19th and 20th century after the proclamation of Rome as the Capital, when the urbanization of the Esquilino neighborhood caused the complete filling of the ancient valley and the destruction of the papal boulevard; furthermore, first public tram warehouses were built adjacent to the Walls. In 1926 Raffaele De Vico, the most renowned garden architect of the fascist regime redesigned the entire area retracing the boulevard axis but in complete disregard of the original eighteenth-century asset.
Before today, the latest great transformation happened during the "Great Jubilee" when the whole area has been cleansed by improper and damaging elements - tram warehouses and the dirt filling the ancient depression – leaving unresolved the relation between the past and contemporary identity of the area.

Keywords: Urban landscape, Aurelian Walls, Viale Carlo Felice Roma

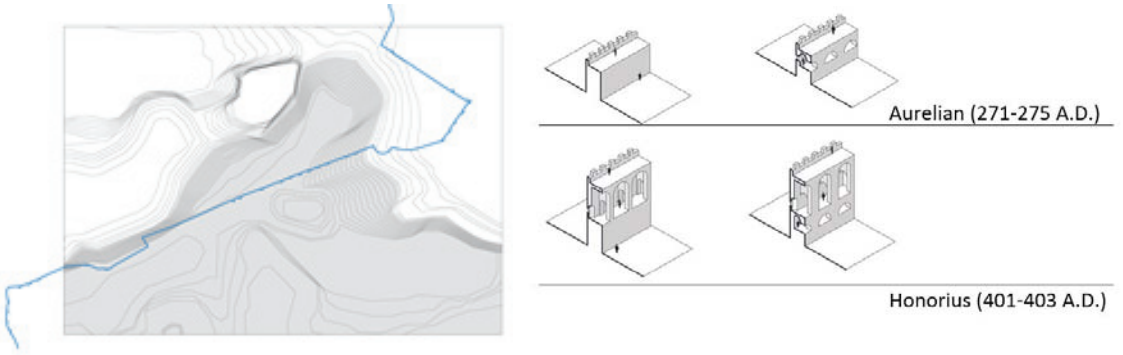
Introduction

The new infrastructural identity of the study area is the last of numerous past ones whose traces are still visible: the ancient Aurelian Walls defined the area as a border territory; the Christian Basilicas of San Giovanni in Laterano and Santa Croce in Gerusalemme converted it into a religious site, still capable of attracting a great number of pilgrims; the current gardens of Via Carlo Felice are a memory of a historical vocation as public space. These elements help us today to identify the area: the two churches occupy the eastern and western borders, to the south the Aurelian Walls separate it from the Appio neighborhood, to the north the tree-lined street of Viale Carlo Felice borders the Esquilino neighborhood.

Figure 1: a satellite view of the area.

Imperial Rome: The area as a boundary

In the pre-anthropic time, the territory was characterized by two tablelands, ramifications of the Esquilino and Celio hills, respectively on the eastern and western borders. The valley in between was prone to flooding due to the presence of a creek, later called Marrana di San Giovanni. In 270 d.C., when Aurelian ordered the construction of the new defensive walls of the city, the area was already anthropized despite its great distance from the Urbs. Recent studies of the Soprintendenza Speciale per I Beni Archeologici di Roma have discovered traces of agricultural uses dating back to the 2nd and 3rd century A.D.



Figures 2-3: Orographic plan of the area, III cent. B.C.; sections of the Aurelian Walls and of the later Honorius' elevation (common segment on the left; a segment of interest on the right) [drawings by the authors].

The project of the new defensive circuit had to follow the particular orographic structure of the area. The segment crossing the valley was built using a distinctive and specific feature: a covered walkway roofed with an arched gallery. To the east, the walls included in their perimeter the Amphiteatrum Castrense cutting all the structure of the Domus of Elagabalus (part of a broader suburban complex) and to the west the Porta Asinaria represented the access to the city. Two centuries later, frightened by possible barbarian attacks, Emperor Honorius elevated the whole circuit creating a two-level gallery in the segment of interest.

Papal Rome: The area as a linking axis

San Giovanni in Laterano and Santa Croce in Gerusalemme Basilicas

During the 4th century, Christians converted one of the aulas of the imperial complex on the eastern tableland, the so-called Sessorium. The expansion of this first settlement is the foundation of the Basilica of Santa Croce in Gerusalemme while on the Lateran tableland the first structures of the Basilica of San Giovanni in Laterano were built. Thus, it started the process of Christianisation of the area. Even though the foundation of the two churches continued the progressive filling of the valley started with the construction of the Walls, the two religious buildings were connected with each other only by an informal and spontaneous path along the walls. Furthermore, the two new Basilicas were far and isolated from the rest of the city, which was expanding in the meander of the Tiber.

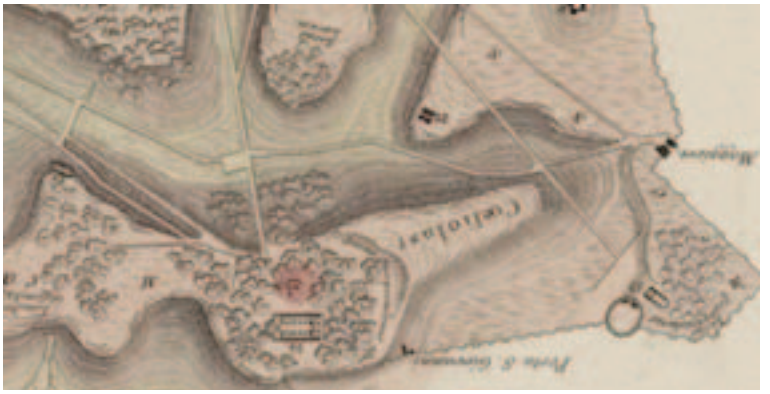


Figure 4: G.Brocchi, Carta fisica del suolo di Roma ne' primi tempi di construyione di questa citta, 1820

Sixtus V: a new urban plan from Rome

The isolation of the two Basilicas from the rest of the city ended at the end of the 16th century, a thousand years after their edification, thanks to a general urban plan promoted by Pope Sixtus V. San Giovanni was connected to the Colosseum through the later called Stradone di San Giovanni and to Santa Maria Maggiore through the actual via Merulana; on the other hand Santa Croce was linked to the city center through the Strada Felice, which crossing Santa Maria Maggiore reached Santa Maria del Popolo.

Figure 5: A. Tempesta, Pianta di Roma, 1593

Furthermore, the papal plan also connected the main entrances of the city: Porta del Popolo (North) with Porta Maggiore (East) and Porta San Giovanni, recently opened due to the abandonment of Porta Asinaria and most important gate from the south. The short papacy of pope Peretti left part of the general plan unbuilt: the construction of a proper connection of the two basilicas had to wait for another hundred years.

The boulevard of Benedict XIV

The renovation of the facade of San Giovanni in Laterano in 1732, under the papacy of Clement XII and the project of Alessandro Galilei, reopened the discussion on a general plan of the area and the connection with the Basilica Sessoriana. Pope Benedict XIV, the successor of Clement XII and former Cardinal-Priest of Santa Croce in Gerusalemme, promoted a complete transfiguration of the area through a series of different projects. One of his first initiatives was the renovation of the Basilica Sessoriana and its facade, designed by Domenico Gregorini and Pietro Passalacqua. Alongside, he ordered the construction of a large tree-lined boulevard to connect Santa Croce with the Lateran Basilica.

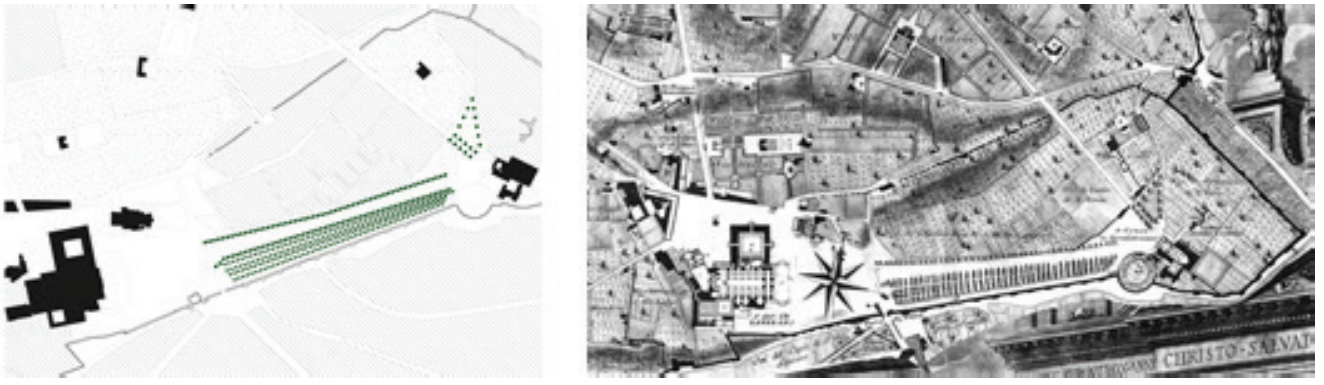
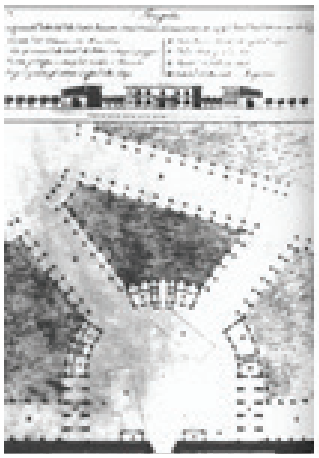


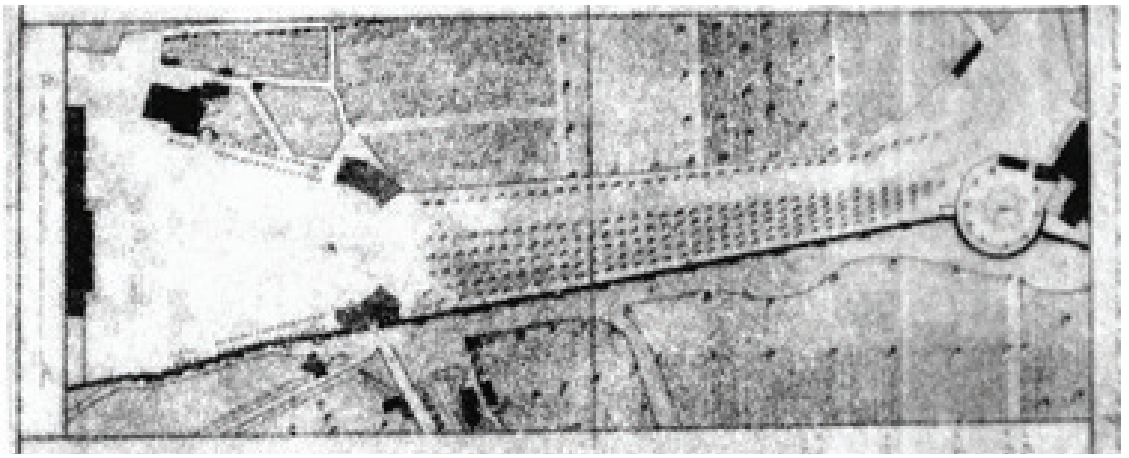
Figure 6-7: plan of the area,1748 (drawing by the authors);G.B.Nolli,Nuova Pianta di roma, 1748

In September 1741, the pope donated the boulevard to the Cistercian monks. The official document described the project: "uno stradone [...]di circa tre quarti d'un miglio, di larghezza verso la Basilica Lateranense di palmi 150, e verso quella di S. Croce di palmi 110, nel quale fece piantare n. 572 alberi di moricelsi e n. 64 di olmi divisi in sei filari dall'uno e l'altro lato di esso stradone" (motu proprio by Benedict XIV, 1744). Although it seems to belong to the Sixtus plan logic of straight axes, the boulevard offered a modern urban space.
Along with the direct path between the churches, the Stradone tried to bring them closer perspectively through geometrical features. The two rows of elms were planted following a specific layout: the southern row linked the south corners of the churches with a straight line, while the northern one followed in its central part, the direction of the portals and at the extremities, it diverged in order to point to the north corners of the churches. Thanks to this perspective device, the two appeared to participate in the same great urban system. The project was also an economic resource for the Cistercian monks who, thanks to the production of the silk from the black mulberries planted between the elms and the walls, could afford to maintain and preserve the Basilica of Santa Croce. Due to these reasons, the monks had the possibility to eventually close the boulevard and to forbid the entrance of animals; as reported in the chronicles the area was used also as a place to walk in the summer season by the aristocracy. The new configuration of the area, clearly represented in Pianta di Roma by Giovan Battista Nolli, was considered a modern urban space who kept together many functions, from economic matters to leisure activities.

The nineteenth-century transformations: the projects of Giuseppe Valadier and Pio IX

The two projects for the square in front of the Basilica of San Giovanni elaborated by Giuseppe Valadier, as architetto camerale of the papacy, date back to 1831.





Figures 8-9: projects of San Giovanni in Leterano's square, by Giuseppe Valadier, 1831.

The first proposal included the construction of a hemicycle, composed of residences of the custodians, facing the inner side of Porta San Giovanni; from the resultant semi-circular square two tree-lined paths conducted to the Lateran Basilica and to the 18th century Boulevard. Instead, in the second proposal, the hemicycle was aligned with San Giovanni and emphasized the access to the boulevard, defining the enclosed space of the square. As it is known, the proposals remained unbuilt, but all the drawings by Valadier are a valid confirm of the intact presence of Benedict XIV project after a century.
In 1849, during the resistance of the Roman Republic, the asset of the area had been completely altered. As Nicola Roncalli reported in his Diario, the trees of the stradone "si lasciarono in terra incrociati per barricate" (Roncalli, 1849). After the defeat of the Republicans, Pius IX ordered the planting of 84 elms and 256 ailanthuses; the accessibility of the area was possible by two minor divergent paths, one parallel to the walls and one parallel to the adjacent fields.
The new configuration did not respond to a comprehensive urban project, but more to a rapid solution to compensate for the problems of a wide urban and public space.

Figures 10-11-12: plan, after 1849 (drawing by the authors); photos of theStradone in the same period.

Capital Rome: the area as an infrastructure pole

The urbanization of the Esquilino

The proclamation of Rome as the state Capital of Italy reshaped completely the image of the whole city, and the study area was part of the process. The 1883 General Plan of Alessandro Viviani considered the stradone a public boulevard and in line with the Sixtus V streets and the new via Emanuele Filiberto. Although all the prescriptions of the General Plan, a few years later the erection of the Esquilino neighborhood altered permanently the area.
The construction of the buildings, included between the actual Viale Carlo Felice and Villa Wolkonsky, caused the leveling of the Celio's slopes and the consequent carriage of the soil on the area along the Aurelian Walls. The process of urbanization of the area brought to the complete filling of the ancient depression and the total obliteration of the botanic elements. What it was once identified as the Stradone di Santa Croce, later became Piazza di Santa Croce, due to its lack of features and defined the structure.

Figures 13-14-15: A. Viviani, Piano Regolatore di Roma, 1883; plan, end of the 19th century (drawing by the authors); photo of via Carlo Felice, 1900.

The municipal tramway lines

After the urbanization of the Esquilino, the area was provided with infrastructural investments, mostly the tramway lines. It was later intensified after the construction of the Appio neighborhood outside the Aurelian Walls, after the 1909 General Plan of Edmondo Sanjust di Teulada. In 1911, the terminuses in Porta San Giovanni were three: lines 4, 8 and 16, which connected to, respectively, Piazza Venezia, Piazza San Silvestro, and San Pietro. In the same year, the first three public tramway lines appeared in Rome, and the line III from Piazza Colonna had piazza Santa Croce as a terminus.

As a response to the emergent need of warehouses and support spaces for the tramways, a big depot was built adjacent to the walls exploiting the wide free space left. In 1912, the Deposito Santa Croce was inaugurated.
The new infrastructure made worse the condition of the monument: what was built as a border wall, free on both sides, became a retaining wall compromising its static safety and its conservation. These are the years of the first collapses, a process that lasted the whole 20th century.

The garden of Raffaele De Vico

In the 1920's the tramway line had been implemented and invested also the ancient Stradone. Due to the infrastructural alterations, the two Basilicas had lost their physical and visual relationship grown during the papal projects and their parvises were wide undefined spaces. In "Capitolium" the area was described as "una specie di fiera permanente [...] un agglomerato incomposto di casotti [...]e più indietro, addossata alle mura della città la miseria di una fila di luride baracche dei senza tetto"(B. M. 1925)
Thus, as a solution to this demanding problem, Raffaele De Vico, architect of the Comune di Roma and later an artistic consultant for the gardens for the Governatorato, was commissioned the enhancement of the urban space facing San Giovanni in Laterano. The project included the construction of two triangular and symmetrical grass fields separated by a central path. In 1925, De Vico reshaped the whole area through the design of a garden which embraced the Deposito Santa Croce and redefined the new passable street of Viale Carlo Felice.

Although De Vico's intervention kept the past urban function, he ignored the previous configurations, proposing solutions used in other contemporary projects. A central path. Surrounded by square grass fields framed by hedges of buxus, was highlighted by the presence of parallel rows of pomegranates, of spiraea and of "piante con fiori di colori vivaci" (De Vico Fallani, 1985). Two divergent paths allowed the access from the San Giovanni side, of which one was aligned with the axis of the portal of the Lateran Basilica. Both the paths and the clearing were bordered by cypresses. The whole system was replicated along the side of the depots, allowing in a few spots the crossing of the trams. Moreover, De Vico

Figures 16-17-18: plan of the area, 1925; the garden by R. De Vico.

reshaped the new street of Viale Carlo Felice by planting Platanus, a renowned system of the Roman architect to place side by side tall trees for the passable streets and small ones for the pedestrian lanes. The intention is to diversify the natural elements according to the relationship between the velocity of the viewer and the visual perception of the vegetal elements. In 1930, due to the new policy of decentralization of the tramway depots, the building changed its function to the warehouse for the vehicle's maintenance, active until 1992. In 1935, the new Santa Croce station was inaugurated in one of the spaces adjacent to via Nola in the presence of Giuseppe Bottai, Governatore of Rome, and of Antonio Muñoz, Ispettore Generale di Antichità e Belle Arti of the Governatorato. In the subsequent decades, the station was closed and the warehouses remained a bulky weight on the ancient structure of the Aurelian monument, hiding the view from via Carlo Felice.

Conclusions: contemporary Rome, the area as …?

The unstable static condition and the emergent conservative problems of this segment of the walls led to the demolition of the warehouses. Thanks to the public funding for the great Jubilee in 2000, it was possible to excavate the soil insisting on the side of the monument that throughout the centuries filled the ancient depression. At the same time, it was realized a garden which inherited some of the features of De Vico's project.
As of today, the relationship between the various phases of this area with the contemporary city remains unsolved. The incumbent opening of the new metro station reaffirms the urgency of a global rethinking and synthesis of all past and modern experiences. The stratification of the precedent ages is visible in an improper way, demeaning the importance of this place. In the light of the analyses proposed by the paper about this historical landscape, the religious, infrastructural and monumental components of the area must lead to a holistic reinterpretation in the frame of a unitary project.

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ARCHITECTURAL STRUCTURES IN BOTANICAL COMPLEX ADJACENT TO THE SALA VILLAGE IN CASERTA

Adriana Trematerra

Abstract

The research proposes the study of the architectural solution, conceived to host the botanist John Andrew Graefer in the English garden of the "Reggia di Caserta", a surface of 23 hectares consisting of exotic plants, tree-lined roads, and buildings inspired to the classical world. Wanted by Queen Maria Carolina, the garden born in 1786 from the cooperation between the architect Carlo Vanvitelli and the botanist John Andrew Graefer, came from England on the invitation of the British ambassador Hamilton, a friend of the Queen. In the beginning, Graefer lived in a small house of the adjacent Sala village; in 1789 the King decided to allow him an accommodation inside the garden itself, getting to the realization of "Casino all'inglese". The works ended in 1793, leading to an imposing building composed of a basement floor, a ground floor, and an upper floor. The architectural solution conceived by Carlo Vanvitelli consists of a continuous stylobate that wraps the openings of the ground floor and a succession of twin columns that consists of the second level. The stylobate consists of a fake "bugnato" that wants to imitate the porosity of the bushhammered stone; a Doric columns order consisted of an irregular opus incertum weaving and its cornice, embellished with medallions, leans on the stylobate. The ground floor and the upper floor are composed of eleven living rooms, leading directly from arced rooms. A covered stair leads to the upper floor and to another floor, the one of the attic. The research proposes the relief of the structures in the landscaping and urban context of the city.

Keywords: history, cultural heritage, landscape, garden, architecture

The English Garden of the "Reggia di Caserta"

The English Garden of the "Reggia di Caserta" was born according to the English taste that, especially in the eighteenth century, began to spread throughout Europe, leading to the rediscovery of interest in the natural element. In fact, the English garden or "landscape" garden provides spaces that are as faithful as possible to nature, while the architectural element is destined to play a role subordinated to the enhancement of the natural element.
The idea of giving life to the English Garden in Caserta was of Queen Maria Carolina, wife of Ferdinand IV of Bourbon, who was kidnapped by the idea of being able to boast a "garden of delights" in competition with her sister Maria Antonietta of France; so he decided to build a "landscape" garden in Caserta, thanks also to the suggestion of his British friend Sir William Hamilton. So the Queen instructs Hamilton, plenipotentiary minister of His Britannic Majesty in the Kingdom of Naples, to take care of the project. In this regard, Hamilton turned to Sir Joseph Banks, a distinguished botanist, and president of the Royal Society of London of which Hamilton was a partner too.Sir Banks, driven by great interest in botanical-naturalistic studies, had made a tour of the globe collecting seeds and seedlings of exotic places. In February 1785 Hamilton asked Banks to find a gardener willing to move to Italy to take care of the care of the new garden. The choice fell on John Andrew Graefer, a skilled gardener with considerable experience in the botanical field, already known in the environment for having introduced many exotic plants in England. Graefer immediately accepted the proposal that was put to him, declaring that he was ready to leave immediately to Naples with his sons Giovanni, Carlo, and Giorgio. Here Graefer arrived on 18 April 1786 and, the next day, he and Hamilton went to Caserta to inspect different areas of that land, with the purpose of deciding where to realize the new garden. In August 1786 the construction of the boundary wall was begun under the direction of the architect Carlo Vanvitelli, who would assist the English gardener in the realization of the project, taking care of the construction of all the architectural artefact's. The construction of the boundary wall was completed on 7 April 1787, and, in the same year, about fifty-four acres were fenced and the installation of a botanical garden and an orchard was planned.

Figure 1: Historic "Casino all'inglese" image. South elevation.

Unfortunately, however, in 1788 the garden project entered one of its worst crises; in fact, the year ended for the royal family with an avalanche of mournful events: on November 25, Prince Gabriele died of smallpox, a few days later he was followed by the King of Spain, Charles III. Thus, The Queen lost all enthusiasm and decided to give the garden project to King Ferdinando IV, who initially did not care about the project. The Sovereign, however, began to sympathize with Graefer by walking with him in the garden. On those occasions, Carlo Vanvitelli explained to the King the garden project and the works to be done. In this way, King Ferdinand IV, after having checked the architect's project, began to take an interest in the garden and assumed the burden of expenses. The program included: completion of already started water courses; the realization of a "practicable cave" covered with volcanic stones; the construction of two walls, one in the "herbals" garden and one in the "botanical garden", with a pond of water for aquatic plants; the building of a "Caffeaus" for the Queen.

From the collaboration between Carlo Vanvitelli and Graefer, not always peaceful, the English garden of Caserta was born, certainly among the first landscape gardens in Italy. The task of the architect Carlo Vantitelli was to create fake ruins and to distribute them in strategic points of the garden. The intention of the landscape gardener John Graefer, instead, according to the will of Queen Maria Carolina to contrast the landscape garden with the Italian garden according to English culture, clashes with the classical culture and the in-depth knowledge of the ancient transmitted from the architect Luigi Vanvitelli to his son Carlo. As a result, the memory of the ancient architectural ruins and sculptural findings of the garden can be glimpsed among the most diverse specimens of tropical flora, English lawns, and water mirrors. Thus, the architectural tradition of the rationalist classicism of the eighteenth century is influenced by the new sense of the fusion between architecture and nature.

In December 1798 Graefer moved to Sicily with his wife and his daughter but left his sons Giovanni, Carlo, and Giorgio to Caserta. He decided to follow the Bourbon court which left Naples because the city fell into the hands of the French troops; on the island, John Andrew Graefer remained until his death, occurred in 1802. Permanence of the Graefer was an element of stability for the Garden during a rather stormy period, characterized by tormented changes of governments and rulers: the Parthenopean Republic, the return of the Bourbons, the French government, the Bourbon restoration. During entire French decade, the works continued in the garden, both for ordinary maintenance and for completion of the original project. Graefer's sons will remain in charge of the Garden until 1839 when Geremia Ascione is appointed gardener and his son Francesco as a helper for the botanical section. Gardeners will change over the years and some renowned botanists, such as Giovanni Gussone and Nicola Terracciano, will follow each other on the direction of the Royal

Figure 2: Entrance to the English Garden

Figure 3: Driveway of the English Garden

English Garden, increasing its botanical heritage, introducing new species and adopting new cultivation techniques. At that time, the path begun in 1786 by the English gardener and continued above all by his son Giovanni was completed in perfect coherence with the project set out by Carlo Vanvitelli in 1787 and with the eighteenth-century taste of the "landscape" garden.

From the "Landscape" Garden to the "Botanical" Garden

In Italy, the interest in the informal garden was overcome by the Italian tradition of the "botanical garden". This interest was aroused throughout the eighteenth century by the numerous scientific expeditions that departed from Europe for distant lands. So, the English Garden of Caserta turns out to be a real botanical complex that for over a century has evolved in the research and acclimation of exotic plants, thanks above all to the presence of great gardeners, like the Graefer, and of great scientists and Neapolitan botanists. Graefer was the interpreter of this new conception and of this new interest in botany; in this regard, it is widely documented its botanical excursions in various places of the Kingdom to know and research plant species to study and plant in the garden. The latter is therefore born as a walk through the botanical rarities and becomes, instead, a real botanical garden with the name of "Real Botanical Garden of Caserta". Inside the garden was born a real laboratory of experimentation to acclimatize, study, research and eventually produce plant species that would then spread to the numerous royal sites of the Kingdom and in the public nurseries. The new imported or reproduced essences were promoted through a periodical catalog, the oldest number of which was drawn up and printed in 1803 by Giovanni Graefer. A lot of buildings were therefore built, useful not only for the entertainment of the royals but also for the maintenance and use of the garden, as well as for the reproduction of the plants. The English Garden of Caserta can, therefore, be considered not only a place of Real "delights" but also a center of botanical experimentation and economically productive activity.

The "Casino all'inglese"

The first and most substantial architecture built for maintenance and use of the garden is the home of the gardener Graefer and his family, called "Palazzina" or "Casino all'inglese". The building, object of study and research, was built starting from 1790 with the aim of containing on the ground floor service areas for social activities connected with the use of the garden by the Bourbon Court and, on the upper floor, the gardener's home.

Figure 4: South Elevation "Casino all'inglese"

Figure 5: Nord Elevation "Casino all'inglese"

The architectural solution conceived by Carlo Vanvitelli, while inspired by the eighteenth-century classicism of rural residences, reflects the need to incorporate the functional building into the picturesque landscape of the garden thanks to the use of plaster finishes in the columns and into the stylobate of the ground floor, with the aim of giving to the structure a rustic appearance. This effect attenuates the rigidity of the geometric composition of the architecture and inserts the building into the variety of colors and textures of the garden landscape. Outside there is a garden in which there are numerous palm trees over a hundred years old including many Phoenix dactylipses. Then, in this garden lives the first specimen of Taxodium mucronatum, arrived from the highlands of Mexico. Among the other most important plants, live in this area the Sequoia sempervirensn and Taxus baccatafastigiata, of probable eighteenth-century introduction.
The Casino, however, remained unfinished due to the economic crisis of the monarchy, and never came to assume its original function of hospitality; in fact, it was used exclusively as a dwelling and winter shelter of exotic plants.

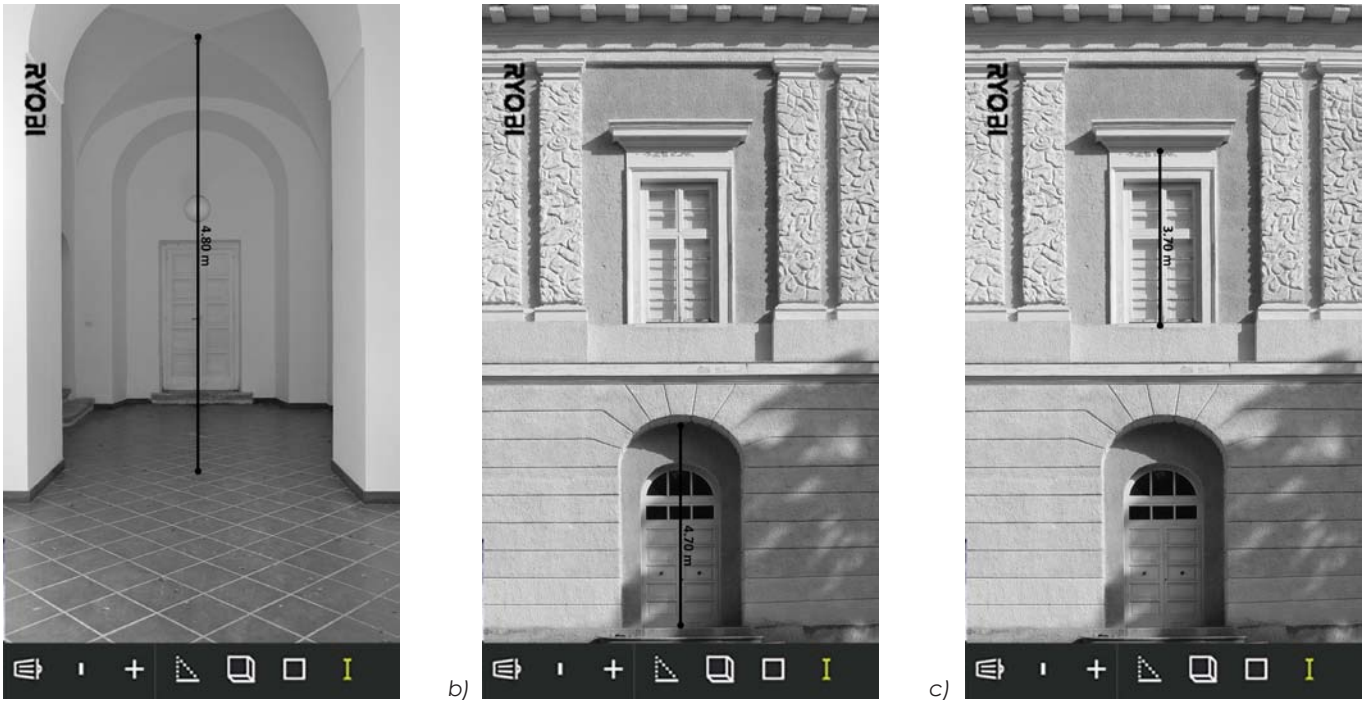
a)

b)

Figure 6 a), b):In the images, two views from the top of the garden in front of the "Casino all'inglese"

Instruments of knowledge of Architecture and Landscape

To perform documentation, study and conservation operations on the "Casino" and to individuate the most appropriate intervention to be carried out on it, a relief of the building was carried out. There are three types of relief: direct, instrumental and indirect. Direct relief is carried out in the case where there is a direct access to the object to be detected and involves the use of simple measuring instruments, such as the meter, the plumb line, and the metric rods and so on. The instrumental relief is performed in the case where there is a perfect visibility of the points to be detected and involves the use of topographic instruments, such as the laser meter. The indirect relief is a type of relief that is realized in the case in which it is not possible to physically access the object to be detected. In this case, it is necessary to resort to the use of cameras that allow the extraction of information for the graphics tracking of the detected object.
The three different types of relief were used on the "Casino all'inglese". The direct relief was used for the planmetric measurements, through the use of a rigid meter and tape meter. The instrumental relief was used to detect heights and wide distances and was carried out through the "Ryobi" technology. The "Ryobi" is an instrument that, through the emission of a low energy laser beam, allows to determine large distances. The advantage of the "Ryobi" is that, compared to a common laser meter, it allows to view the detected distances as images on the display of a smartphone and to take photographs on which is a possible report each detected distance. The indirect relief was instead made for those parts of the building not easily accessible, such as construction details (cornices, cornices of windows and capitals). This type of relief was also used to survey the vegetation present near "Casino".



a) b) c)

Figure 7 a), b),c):Some examples of the relief using "Ryobi" methodology.

Results

After the relief phase it was possible to represent the architecture through a two-dimensional graphic model, with the aim of achieving a complete knowledge of the building in order to identify the best strategy for its conservation and enhancement.

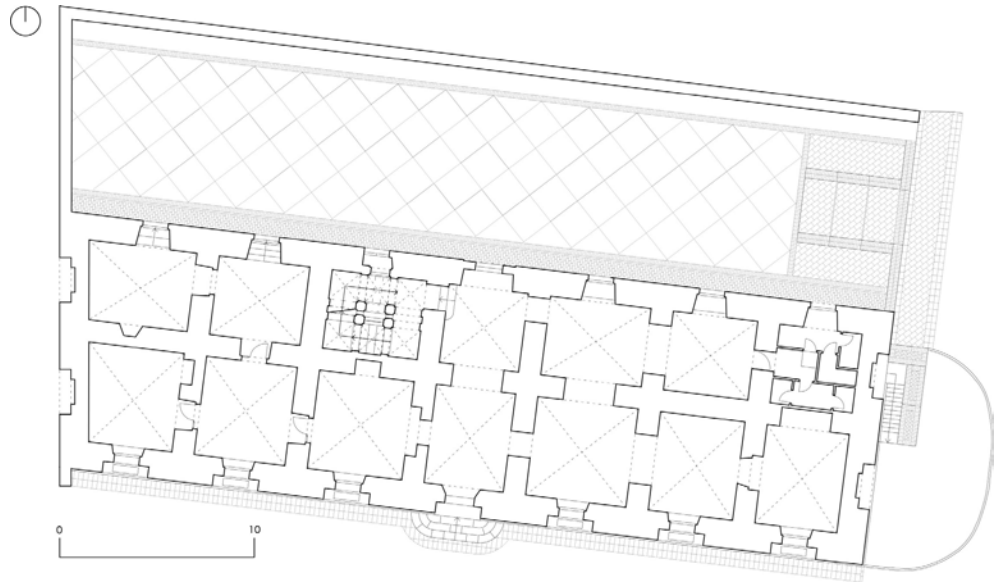


Figure 8: Relief of the ground floor

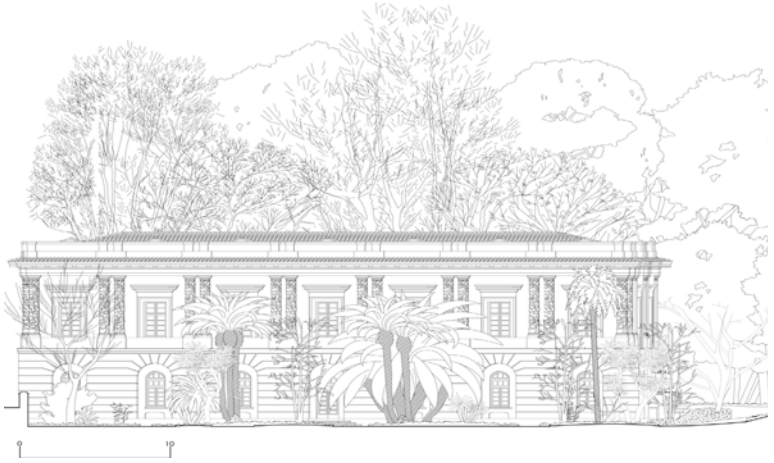


Figure 9: Relief of the South Elevation

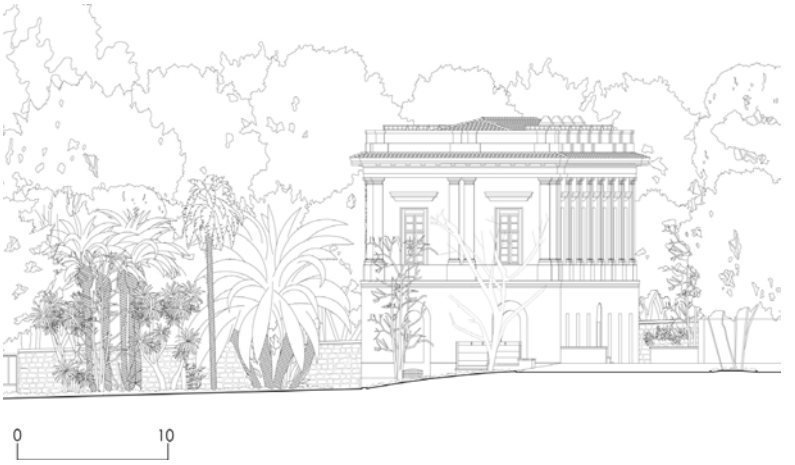


Figure 10: Relief of the East Elevation

Conclusions

For the conservation and the enhancement of the "Casino" was organized by the authority a restoration intervention since 1984 which has two different goals: to reconstructing the original external architectural appearance compromised by a long period of neglect, and to give back to the "Casino" its original service function for the garden. In addition, the future goal is to use the building as an educational and scientific center to promote the knowledge of the Real Sites; this will be possible thanks to the location of the building, characterized by the proximity to the Royal Palace and the Royal Park and by the possibility to access directly from an adjacent road. Therefore, the aim is to create within the "Casino" a permanent structure of didactic information for visitors to illustrate the cultural importance of the "Reggia di Caserta" and of all the territorial and social transformation of the Region from the '700 Bourbon.

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URBAN IDENTITY IN CITIES IN TRANSITION

Derya Oktay

Abstract

Today, most cities are losing their place identity under the influence of industrialization, technological advancements, and globalization. Most urban and suburban development during the past 50 years has been relatively generic, with little sense of place, history, or social-cultural distinctiveness. In this context, it is essential that mainstream politicians, urban planners, urban designers, architects, and residents have to understand what makes a city unique and recognizable, and what could be done to help guide the developments in cities in transition. At a time when many places are beginning to look alike, effective urban design policies and strategies have the potential to reinforce local character and create places with identity. Therefore, a thorough analysis of the concept of identity is needed and an understanding of the ways through which it can be achieved without reducing the concept to an aesthetic dressing possesses a great importance. This paper, drawing on a critical debate on the understanding of urban identity, the analysis of many cities and their urban spaces, and exploring the social, physical and ecological values of the traditional Turkish (Ottoman) city, proposes a holistic framework to analyze cities in transition and to help create more identifiable settlements.

Keywords: cities, transition, urban identity, Turkish (Ottoman) city, holistic framework

Introduction

Today, all cities within the international milieu compete to be perceived as favorable places with international reputations for safety and investment. This resulting competition, along with the increasing urban population and heterogeneous quality, the expansion of urban areas, the intensification of developments within existing cities and towns, the continued proliferation of the high rise and other intensive building types, and the deterioration of both natural and cultural resources has been threatening the image and identity of settlements in the last few decades. In this context, urbanization and globalization processes, which have caused a rapid change to our environments, need to be considered together and the concept of identity, which in turn reflects on urban sustainability, to be reintegrated into the agenda of architects, urban designers, and planners while hopefully challenging today's orthodoxies (Oktay 2016, 255).

Identity in the changing context of the city

In response to many factors, cities are always changing; a city is never static, it is evolving, and in the process of evolving can also destroy and replace its parts. Therefore, the urban environment has to be considered from a historical perspective, not merely understanding historically significant buildings, but rather understanding the evolution of the local urban context, with respect to human activity, built form, and nature. This is also significant in the creation of "a sense of place", an important factor in achieving identity in cities in transition. In most of the cities in transition, streets have become mere vehicular channels without any spatial definition and public use. Low density, car-oriented, suburban style, in some cases randomly placed developments are enclosing the cities. These developments are socially isolating, segregating and alienating; no sense of place; no sense of belonging, and no perceived borders…In some cases in the world, the situation is much worse than 'house as a living machine'. In the central areas, we have lost much of the quality of variety that contributes to outdoor life and vitality. The original texture and elements of collective memory are being lost.

Understanding the concept of urban identity

At a time when many places are beginning to look alike, effective urban design policies and strategies have the potential to reinforce local character and create places with identity. Therefore, a thorough analysis of the concept of identity is needed and an understanding of the ways through which it can be achieved without reducing the concept to an aesthetic dressing possesses a great significance (Oktay 2017, 190).

In the context of the natural environment, climatic, topographical, and landscape conditions are the major elements reflected on urban identity. Although every city has opportunities and constraints to develop its natural settings to give a unique sense of identity to the place, some cities are luckier to have a special geography. For instance, Istanbul, with its Bosphorus, 'Golden Horn' (the bay of Istanbul which separates the old and new parts of European Istanbul) and 'seven hills', is blessed with a unique geography.

The perception of the visual forms, which constitutes the physical environmental context, strongly affects how we make use of the city, and relates to the following qualities: the form, proportions and style of the buildings and their relationship with other buildings and urban spaces (morphology), their color, materials and texture, landmarks, vistas, meeting places, The square is the most distinct element of the urban structure. The square is determined by the same formal factors as the street, with the difference that the buildings should form continuity around the space. In fact, the importance of squares could be best explained through its conceptualization as a center (Oktay 2002, 264).

Indeed, there are many cities where identity is achieved through their well-known squares, boulevards, streets, (i.e. Paris and Boulevard Champs Elysee, Oxford and the High Street, Barcelona and the Ramblas, Amsterdam and typical canal streets, Venice and Piazza San Marco, Siena and Piazza del Campo) and characteristic residential quarters (i.e. London and white terrace houses, Amsterdam and canal houses).

On the other hand, landmarks are important in creating and enhancing the image of the city and public art has a role to play in declaring urban identity recording its history and expressing its aspirations (i.e. Statue of Liberty National Monument in New York and Arc de Triomphe in Paris are very well known even if those cities are not visited).

Since identity is related to the 'character' of an area, it is important to make a distinction between character and appearance; because, the character has more than a purely visual or spatial dimension, and cannot be instantly achieved following the implementation of a new urban design scheme. A place can only gain real character with the passage of time.

The notion of urban identity is also bound up in the social environment, including psychological and cultural dimensions. Since the city is for people and their communication, it should then be seen as a framework for collective identity, and be readable and decipherable through the symbols relevant to local lifestyles and through meanings as documentation of history. In this vein, Lang and Moleski (2010) state that "a sense of place depends on the qualities of the behavior settings that exist in a locale, and the way the milieu is constructed in response to local conditions and traditions". Here, one should be aware of the fact that the urban experience is the collective experience of places and space, and the city only signifies as we walk through it, along with its paths and thoroughfares.

In line with these, this paper focuses on the traditional Turkish (Ottoman) city as it provides useful clues in terms of social, psychological and cultural dimensions.

Learning from the traditional Turkish (Ottoman) city

The traditional Turkish (Ottoman) city was unique in terms of identity both at the urban scale and architectural scale. From an urban and social point of view, the main characteristic of the Ottoman city was its compartmentalization by *mahallas* (neighborhoods), the outcome of ethnic particularities and religious differences.

Identity through social characteristics

The *mahalla* was a geographical entity as well as a homogeneous community providing social and economic collaboration among neighbors (Fig. 1, 2). Each mahalla had its own characteristics and provided an indicative, unique social environment for their inhabitants. The mahalla was self-sufficient as well through the presence of a variety of

functions including a religious-social center, small local market, fountains, imaret (open kitchen) and at times, workshops (Oktay, 2004). As a result of the closed economy, every household produced their own foodstuffs, i.e. vegetables, fruits and a variety of seasonal produce that can be preserved and stored.

Figure 1: A typical layout of Mahalla (Aru,1998)

Figure 2: A view of the traditional townscape in Safranbolu, Turkez (Faruk Soydemir Archive)

It is a remarkable lesson that every house in the Ottoman city was different, even as there are an overall unity and consistency in building technique, scale, and character (Eldem, 1987). The space of the traditional (Ottoman) city was, at a functional level, clearly divided into public and private realms. The public realm, often in the town center, contained all the collective activities of the town, such as trade and commerce, religion, education, administration, and urban facilities, resulted in a fine-grain mixed-use character. The main public node and the representation of people's power were bestowed to the citadel, the Friday mosque and its courtyard, and the bazaar. One of these elements, the main - often covered - street or streets of the city, the bazaar or arasta, functioned also as a communication channel, connecting these to each other and top the less important activities such as public baths, water storages, and educational centers, hence creating a vivid public realm in a spatial continuum. This space as the meeting place of the local people with each other, with the political, religious and economic hierarchies, and with the outside world. However, owing to the cultural codes and realities of the time which were very different from those of the modern Republic of Turkey, most of the public facilities were perceived as the territory of men as the traditional role of women necessitated them to spend the majority of their time in the house and in its environs, which constituted the private realm. The street system was achieved through a process of organic growth in which the street pattern was gradually adjusted and changed according to the peculiarities of the land and needs of the local people, where there was no need for wider streets and a low level of accessibility was required. The hierarchical pattern of streets with dead-end branches serving a group of houses created privacy for the dwellers and helped create a strong sense of belonging to their neighborhood. The organic character of the street, in the state of continuous becoming, produces an effect of great expressiveness, and therefore, enhances the character in the Ottoman city.

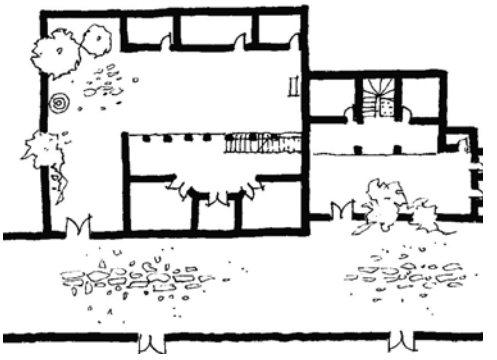

Figure3:A typical courtyard (Oktay,2004)

Figure 4: A typical street with courtyard houses, Antakya, Turkey(Serda Bal Archive)

On the other hand, avlu, the courtyard of each house, an isolated environment that is well defined and well protected, served a variety of uses including social gathering, such as wedding and circumcision parties, women's preparing winter food together, or just spending time together, and helped create a more cohesive community in the mahalla (Fig. 3, 4). Owing to the fact that Ottoman urbanism was never based on the kind of strong formalism characteristic of western cultures, a generally informal character was dominant in cities. In this context, there were no formal public open spaces, i.e. well-defined squares, or monumental axes to be found in the cityscape. However, despite having no planned squares and the lack of an active use of Meydan by people, there was a social and psychological tendency towards meeting and gathering in open spaces of natural character (Eldem, 1987; Cerasi, 1999).

Identity through ecological characteristics

The Ottoman city possessed various attributes that generated an ecologically sustainable environment. Regional climatic characteristics were reflected in the patterns of settlements, and accordingly, every region produced its own characteristic urban fabric and architecture. For instance, in Safranbolu, one of the most characteristic towns in the north-western Black Sea region of Anatolia (Turkey), hard winters forced the people to settle in sheltered valleys (Günay, 2005, 21). The pre-existing topographic character of the site was apparent at the urban scale even in intense built-up areas. The green gardens, i.e. vegetable gardens and patches (bostan), orchards, and so forth, implied a green belt dividing the quarters and bounded the town (Aru, 1998, 12), and contributed to the self-sufficiency in general. The small squares at the intersection of streets with trees created an opportunity for access to nature in the public realm as well. The streets that were defined by high walls of the residential courtyards provided a protected and comfortable space and is divided into two by a 10-14 cm water canal running through the middle, helped distribute water to gardens, and prevented the rainwater from flowing into the courtyards.
The presence of a variety of house plans all with a courtyard, avlu, or garden in every region of Anatolia reveals the fact that there was a natural relationship between such a layout and the Anatolian life-style (Kuban, 1983). With its fruit trees, flowers and small kitchen garden, the avlu, separated from the street by a wall, was the closest relation the house has to nature; and thus it also provided the inhabitant with direct access to nature, and enhanced both the building ecology and self-sufficiency of the house.

Conclusions

Identity is a critical issue for many cities in the era of globalization, especially in the cities in transition. For these reasons, looking at what makes urban identity and how its components are changed in time is critical.
Cities should cultivate a strong, independent image or identity for which people can develop strong identification and affection to attract and hold people. Identity is a critical issue for many cities in the era of globalization, especially in the cities in transition. For these reasons, looking at what makes urban identity and how its components are changed in time is critical.
Since public urban spaces are major functional and visual factors in determining the urban quality and they mirror our culture and time and reflect the wellbeing of the dwellers, we should start measuring the city by analyzing them. However, the term public domain or public space should not refer to the spaces between buildings merely, i.e. voids as distinctive from the corporal mass. The term should be used in a broad sense, to encompass all the buildings, spaces, and objects in an urban environment, as well as the people, events, and relationships with them. One thing that should not be ignored that the city is, above all, a social product, created out of the demands of everyday use and the social struggles of the inhabitants and lived experience is more important than physical form in defining the city.
Most architects, town planners, and urban designers do not have the opportunity to design entirely new towns or villages. More often, the designer will work within existing urban areas or within changing or expanding settlements where the legacy of the past is still useful. Accordingly, retention of traditional urban scale and existing architectural fabric should be carefully thought about as it is one of the best, and usually cheapest, ways of developing a strong, positive image for a central urban area.
The social and ecological peculiarities introduced above have made the traditional Turkish (Ottoman) city an urban

settlement with a great identification. Inspired by the Ottoman city, new urban areas could be planned and designed around a hierarchy of spaces for different purposes, the idea of a shopping strip could be revived in order to prevent the shopping malls to be the norm, and the street pattern could be organized in a way that each street has an identity through the continuity, design and functional layout of buildings. We can move towards more inclusive urban design approach that not only views the public realm as an outside room with equitable access but also as a welcoming place where a variety of users benefit from it and place a value on it as they interact with other people and their own prior experiences. In line with social and environmental characteristics reflected in mahalle, the cohesive neighborhood with a strong sense of belonging, there could be places that foster special rituals where all residents come together in common pursuit and observance as used to be done in the streets and courtyards.

In line with above analysis and discussions, it can be stated that the planners and designers should be looking for a new position in understanding and approaching the city by privileging the human experience as the fundamental aspect of any definition of urbanism along with the perceptual richness and use of the spatial environment paying specific attention to local characteristics both in physical terms and socio-cultural terms. The problems and opportunities discussed here bring into focus one fact: it is crucial that, in future legislative framework for development and growth, the "urban design" scale concerned with the place and identity, cultural policy, communal engagement in public spaces, spatial dimensions (creation, regeneration, enhancement and management of built environments) that are sensitive to their local contexts and sympathetic to people's expectations and needs, should be integrated into the planning system as 'a three-dimensional master plan'.

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54 PRESERVATION OF COMMUNIST INDUSTRIAL HERITAGE FROM DYSFUNCTION AND DESTRUCTION: ADAPTATION OF N.SH.R.A.K. FACTORY INTO MULTIFUNCTIONAL SPACE

Gerta Xhaferaj, Anna Yunitsyna

Abstract

In Albania, monuments of industry and technology have been underestimated during the recent years. Re-use of the old buildings might be the best strategy to preserve the city by overpopulation of the new constructions. In this paper the possibility of adaptive reuse of non-functional industrial buildings is explored using the case study based in Tirana. NSHRAK factory is an industrial building, which had lost its function and currently is abandoned despite of its attractive location, which is closed to the city center of Tirana. Spatial and physical conditions of the factory are examined in order to find and propose the set of new functions, which are suitable to its location and needs of the citizens. The research starts from the study of archive materials, site observation, and informal conversations with the present occupants of the building and the neighborhood inhabitants. The physical conditions of the building are examined and the main spatial, construction and environmental quality problems are found at the second stage. All this process leads to the establishment of proposal of a multi-functional center serving the neighborhood citizens. In the complex building there are designed the spaces, which can host local activities missing in post-communist era, such as library, sport hall, common garden with amphitheater, cinema, art studios and exhibitions.

Keywords: industrial heritage, adaptive reuse, revitalization

Introduction

The growth of industrialization in Albania started on the second part of XIXth century, during the second "Industrial Revolution", which started in Great Britain during the 1840-s , known as the and then it emerged also in other regions as in Western Europe, Northern America, Japan and so on all over the world. Industrial heritage brings challenges and requires a lot effort into finding new answers. In order to value them, it should be considered the context-social, economic, environmental and political evidences. First industrial construction activities were mostly domestic and handcraft activities like textile, brick and oil production. Later on, at the end of XIX century and the beginning of XX century, the industrialization process incurred development because of production of first engines. Since the presence of foreign industrial companies in Albania, new processes and technologies were put to work. In this period the process of industrialization was accompanied by construction of factories. After the Second World War, were build too many factories for industrial purposes. They were also nationalized by the state, which now was represented by the communist regime. In 1949 state factories were built with the help of ex-Yugoslavia, 1948-1959 with the help of ex BRSS and 1961-1978 with the help of RP China.

Most of the time, these new industrial buildings imposed their presence for the city layout. Many new residential buildings were built near production areas to accommodate new workers, which were brought from all over the country (Parangoni, 2010).

Identification of the topic

In Albania monuments of industry and technology have been underestimated for many years in terms of inheritance. This fact is the main reason of my project, to prevent this industrial factory from dysfunction and destruction by giving it a new purpose to the social needs. The functions of the factory are mostly based on artistic activities and other, in administration needs.

The building which I chose to analyse and interfere is called Uzina N.SH. R.A.K. It is build in 19 February 1963 by architect A. Dhami and engineer F. Stermasi during the first part of communism regime referred to Chinese project of factories. Its function was the production of various parts mostly for agricultural machinery. This building has been abandoned since after the fall of regime and since then part of the building collapsed and the rest is abandoned.
One of the reasons why I selected this building is the suitable geographical position on Kavaja Street, 1.5km near the center of the city. This area is surrounded by residential houses, office buildings, schools, kindergartens which creates a dynamic activity of the neighborhood even though it has lack of a multi-functional space where all these people can spend their free time reading or watching an exhibition.
In the city of Tirana there are about four factories of the same nature and structure, but different in area. The N.SH. R.A.K. plant is the second largest in the area behind the Dinamo Factory which, after being reconstructed, turned into the main fruit vegetable market. The largest area of the factory is another reason why we chose to revitalize it.

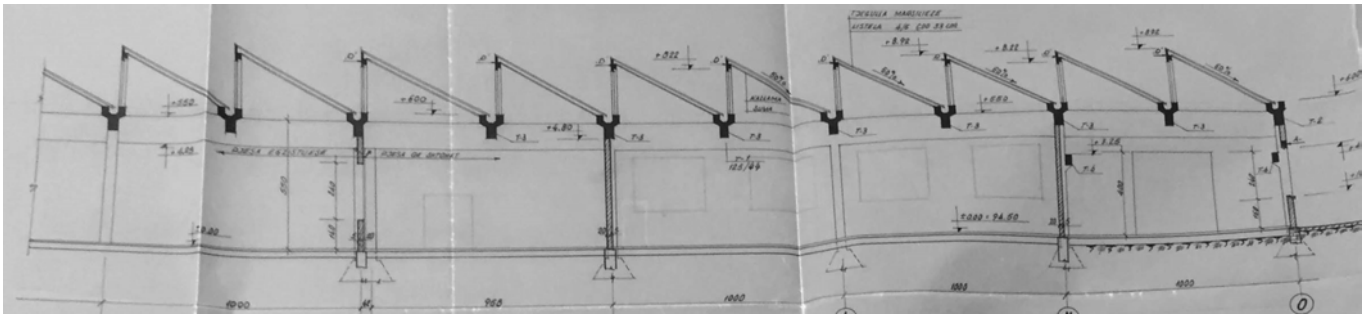

Figure 1: A-A Section of the Factory [State Archive,1961]

Innovation of the design

Design of this project is based in preservation of the factory as much as possible in its initial state. The fact that a part of the roof is collapsed leads to intervention of it, through a new structure. Parametric structure, which is implemented to existing exterior walls of the factory goes to two meters higher than the existing roof peak, creating the possibility of a double height second floor. The activity that goes under this structure is the Info point area, library, completing the parametric structure of the roof above the indoor amphitheater.
Also, the organization of the interior is adjusted to its individual function of each space. The object covers a space of 35070m². Building its oriented north-south in its length. The existing height is h=9m with abundant light openings.

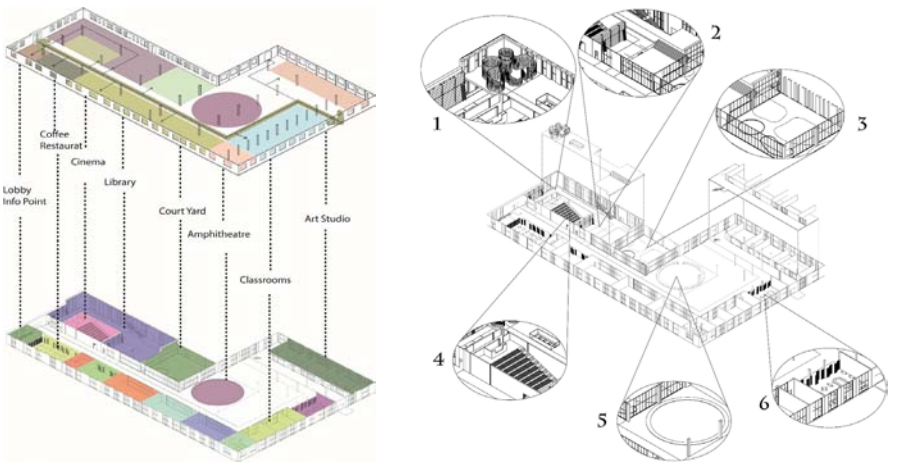

Figure 2: a),b): Main functions Diagrams of the Multifunctional space

Existing materials of the building are concrete red brick, wood. Proposed material is based on the existing ones also other materials as iron (handrails, furniture frames), red fabricated bricks (floor, visual diving walls) wood (stairs, walls, furniture), metal mesh. The first sketches of the idea that the multi-functional center are based on the most necessary neighborhood functions such as bookstores, cinemas, amphitheaters, art studios, yoga class dance classes, exhibition areas. In multi-functional center are two main entrances, the first one is near the intermediate road between the two main axes of the site and the second entrance to the courtyard part.

Conclusions

Re-use of the old buildings might be the best strategy to preserve the city by overpopulation of the new constructions. Using this method, we can regenerate the abandoned spaces by giving them a new function based on citizen's needs and expectations, also we can preserve the heritage of the past by renovating it by adding creative activities to the future. A factory is an industrial symbol, yet, being adapted to new uses, it transforms into a new entity. Once symbolizing progress and modernity, industrial landscapes and built structures are either reduced to ruins, or approached as economic, cultural and material heritage-resources.
This process of re-vitalization of industrial buildings as this factory, needs the support of government. First of all, it is required that the term "industrial archeology" should be added in law of monuments protection. That it could be legally possible to change function from industrial to other uses. Municipalities could collaborate with resident investors and other sponsors to make this transformation process happened, in the most effective and workable way possible.
Knowledge and memory influence the explanations of a built environment, implying particular expectations to the built environments and their roles in a society.

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55

EVOLUTION OF THE CENTRAL SQUARE OF KORÇA: THE IMPACT OF THREE DIFFERENT POLITICAL SYSTEMS

Andronira Burda

Abstract

Cities are vital entities and as such their urban form is in a constant transformation process. Political systems have their own role in the course of this transformation. Korça - as one of the most important cities of Albania – presents its own traces of the impact of political systems in its urban transformation.
This study will focus on the evolution of the central square of the city of Korça, as an urban space. The time frame of the study will take root since its [the central square] conceptual genesis, until recent times. During this time frame three different political systems have governed the city and affected its [the city] urban spatial planning and urban space design: the Monarchy (1928 – 1943), Totalitarianism (1945 – 1990) and Democracy (1990 – nowadays). All the three political systems have influenced differently the urban space of the central square of Korça and all of them have left their traces which are reminiscent nowadays.
This paper will aim to explore the interventions happened during these three periods and building a chronological time-line of the evolution of the central square of Korça through an analytical thinking approach. The methodology will consist in researching historical documents and maps, overlaying and comparing them, reading the urban space through socio - political systems and vice versa. Furthermore, it will try to use the build chronological time-line of the design of urban space to read through a holistic approach, its content: layered ideologies integrated and overlapped in a complex urban interior, where people live, act and share thoughts and ideas.
As per conclusion, by building the memory of a place, this paper will attempt to fill in, an existing gap and layer a solid ground for the current debates on the contemporary transformations of today's Agora of the city.

Keywords: Urban space, totalitarianism, monarchy, democracy, evolution, Korça central square

Introduction

The central square of a city represents a strong identity and image linked to the city itself, which sometimes encompasses its layered historical narrative, or specific parts of it. Being the main public urban space, the central square, not only bears the symbolism of the city image, but it represents the locus where urban life is in its full expression of institutional, economical, social, cultural and everyday viability aspects. It educates the community sense and influences the relationship that this main public space develops with the social stratum urbis. Thus, it marks a necessity to decode the production of public squares within our cities.
Korça represents a rather new and spontaneous urban city, which was further developed and transformed under different political systems. Today it has a population of approximately 87.824 inhabitants. It is not characterised by rapid transformations, or constant urban pressure, but it represents layers of different urban interventions that produce an interesting ground for discussing the stratification of ideologies conflicted and integrated in the complex urban interior, of the main public square.
The evolution of this central square form the urban space inherited by the Ottoman feudal system will be analyzed through an archival narrative and a reading of the formal representations of drawings, which were produced by architects under three different political systems. The transformations that this space experienced during Fascism, Communism and Capitalism will attempt to fill in, an existing gap and layer a solid ground for the current debates on the contemporary transformations of today's Agora of the city.

Marginal void: the genesis of the central square

The foundations upon which the urban space is built defines an important relationship that needs to be understood, in order to further analyze its development metamorphosis. Although the central square of Korça has experienced intense formal transformations, the need to explain the genesis of this public space can not be ignored since in space, what came earlier continues to underpin what follows (Lefebvre, 1991).
In such a context, the analyses of older maps and the reading of open space defined by the build form offers a clear identification of the genesis of today's central square. This urban space presented in the oldest documented map of the city of Korça (1920) is a void produced from the intersection of two main axis aligned North - South and East - West, which served as the main trading routes.
The historic analyses of territorial expansion of the city, studied by Prof. Thomo underpins the marginal void as the genesis of today' central square of Korça (Thomo, 2014). In such a framework, the marginal void encompasses the extrinsic properties of an urban void which has derived as a result of an incongruently expansion of the urban structure of the core settlement during the second half of XIXth century, towards East. The production of space derived from a marginal void, according to Nencini is an undefined space, not only morphologically, but also functionally (Nencini, 2014). These attributes of a marginal void are reflections of an incomplete urbis. Public spaces are part of the city, but it is perceived neither hierarchy of them, nor circulation hierarchy. Thus, the merge of res publica and res economica generates formally undefined urban voids, which clearly do not represent Leon Krier's view of the public space. Therefore, contributing to an incomplete civitas (Krier, 2009).
Following Nencini's argument, these urban voids generated by urban expansion at the edge urbis represent pending spaces: they await to be defined. Their definition implies a challenge for the completeness of the expansed city and the production of the functional hierarchy that contributes to build the image of a city (Lynch, 1960).

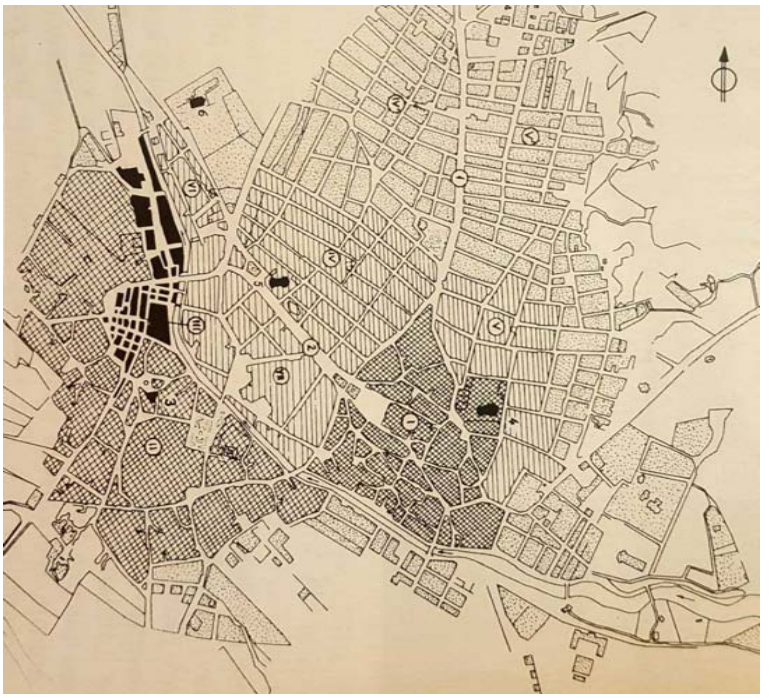

Figure 1: Map of Korça (1920), Source: P.Thomo

Figure 2: Above. Map of Korça (1940), source AQTN. Below. Photography of the main square of Korça (1938), source Private collection.

La Piazza - towards an identity for the garden city of Korça

This pending urban void inherited during the urban transformations that happened under the Ottoman Empire, becomes subject of definition only in 1940, under the short, but very productive operating period (1939-1943) of the Ufficio Centrale per l'Edilizia e l'Urbanistica dell'Albania (Central Office for Urban Planning and Construction in Albania) directed by Gherardo Bosio. An office that operates as a centralised structure under the Italian fascist regime (Vokshi, 2013).
Bosio himself designs several public squares in Korca as part of the unfinished urban plan of this so called garden city, with

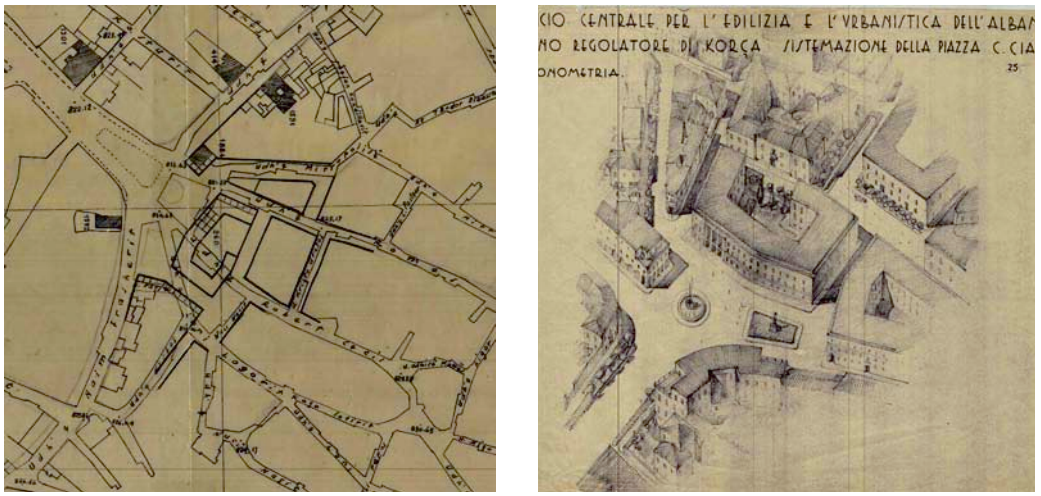

Figure 3: Left to right. Plan of the project for Piazza Ciano drawn on the map of Korça (1940). Axonometric view of the design for Piazza Ciano by Gherardo Bosio (1940). Source: AQTN.

Figure 4: Axonometric view of the design for Piazza Ciano by Gherardo Bosio (1940). Source: AQTN.

a historical identity that needed a careful intervention in order to blend the new proposals with the existing urban patterns. Bosio, although operating in a monarchic regime that must pay tribute to fascism approaches the design of this urban void in Korça with a sense of belonging and an expression of sensibility for intervening at a given context. He designs a square from an urban void that is part of the city and must belong to the city, not in a pending state, awaiting to be defined, but as a meaningful element. Through his design, Bosio involves this undefined space within the city with a clear identity: La piazza di prefecture, or Piazza Ciano, an institutional square that represents in Bosio's idea: the civic square of the existing urban core.

La piazza designed by Bosio, is a clear defined space, where the main element is the prefecture building, enclosed on both sides by two other volumes that share the same architectural language: an arched ground floor and a partly withdrawn third floor that creates a veranda overlooking the square and at the same time emphasizing the main building: the solid linear block of the Prefecture. The design of piazza Ciano by Bosio reflects all the attributes that Sitte identifies as important for creating a human scale and meaningful public square.

The element of surprise emphasized from Sitte is also present in this design. The connection of the enclosed piazza with the streets that are present in the borders of the space and do not close the perspective, but leaves us wandering what comes next is crucial (Sitte, 1945). It creates a harmonic blending of this new design by Bosio, with the existing urban fabric, and at the same time they partake in the fluidity of the concept and the hierarchical circulation from the main square to secondary ones and towards the historical streets. The transparent colonnade of the prefecture positioned alongside the axis of Boulevard Shën Gjergji, is another example of the dynamic piazza, endorsed by Camillo Sitte. The visual axis of the boulevard penetrates the building, links this main square with the second one - the courtyard of the prefecture - and at the same time it builds a visual and connective relationship between the square and the historical city. A design that never came to life, for the events during the WWII shifted the political system.

Where is the public square of socialist gatherings?!

The central square is inherited as an urban void even in the Totalitarian system of Communism, still pending to be de-

Figure 5: Photographic collage of the central square (late 1960). Courtesy by prof. Pirro Thomo

fined. In this political period, Albania, as a post war country, under a new regime experienced vast interventions in construction with the intention to build the new socialist country. Yet the central square of Korça is not subject of another design proposal until late 1976, a time when the Nationalist Approach in Architecture (1975-1991) was dictated by the regime after a harsh war against liberalism and western influences of Architecture held between 1973-1975 (Islami, 2018).

The design project tends to define not only the urban void as a public square (piazza) but also as a political, social, administrative, and economic centre for the city. Attempting again to give this urban void an identity within the urban structure. Thus, implementing a specific given program, which reflected the same requirements even in the socialist city centers of the Eastern Block. In that context, the Socialist center, despite the administrative buildings included in its functional composition also a hotel and a mall.

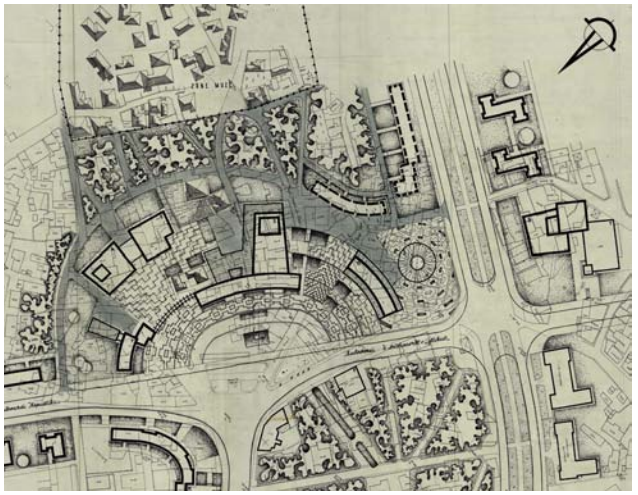

Figure 6: Fragment of the preliminary design of the city Centre of Korça, designed by Gj. Kotmilo, L. Zaloshnja, A. Meksi. Source AQTN.

The final preliminary design for the city center of Korça, which was approved in December 1976, presents a tabula rasa approach that do not attempt to harmonize with the existing patterns of the urban fabric. On the contrary, it produces quite a new formal composition, that bears distinct elements of the Communist ideology: the vast open space, that had to pay tribute to Socialist ideology with parades and rallies, monumentality and lack of human scale which automatically derives from the first attribute, and last, a lack of production of space, as a conceived space, clearly analysed by Sitte and as a social space deeply argumented by Lefebvre. Thus, the production of space under the pressure of the Communist regime in this case remains undefined, scattered for it lacks the human scale proportions and metric to be perceived as a living space where dwells l'homme totale (Lefebvre, 1991).

The capitalist public square – a political economy of space

The collapse of Communist regime inherited a partially implemented city center which was immediately subject to the transitive effects of capitalism. The vast semi circular central square, which hosted Komiteti i Partisë (Committee of the Party), the only building implemented from the preliminary design of the socialist city center, was subject to a new intervention: the strong functional and formal presence of the Cathedral. Although socially the Cathedral fulfilled the spiritual need denied during past decades, formally its placement in the edge of the historical city and the public square tends to be incompatible to its morphology providing an incogruent composition of the urban void which still remains undefined, but with a strong social and formal presence which reorganizes the hierarchy of the space.

The capitalist public square is not an ideological and political expression of totalitarian regimes, but it becomes the arena of pluralist architectures oriented by the politics of economy. Again the unfinished and undefined space inherited form previous political systems is subject to a new identity in democracy.

Figure 7: Left to right. Aerial view of Korça central square (2017). Source: Sualdo Dino Photography. Photography of central square of Korça (1980). Source: Private collection.

The plurality of architectures offers different approaches towards the definition of the public square in the international competition organized in 2009.
Bolles+Wilson tends to formally define the public square with the introduction of new volumes in order to conceive a clear geometry, within the existing urban fabric, that aims to become a catalizator for the social space. Joubert Architecture denies the existing urban void as a public square, and converts it in a green forest. On the other hand, they generate a new public square formally defined by new proposed volumes, through a tabula rasa approach. The third proposal tends to fragment the vast open space inherited by Communism not by 3 dimensional boundaries, but rather through the geometry of paving which implies an abstract notion of definition of space. After almost a decade form the winning proposal, the design is partially implemented since the production of space in capitalism is influenced by the market forces and the economic relation of private-public ownership.

Fig. 8 Left to right. Proposals for the revitalisation of Korça city centre. Plan of the Winning Proposal. Second price, axonometric view. Plan of the third price. Source: Municipality of Korça.

Conclusions

The central square is generated as a result of a marginal void: undefined and unrelated with the city fabric.
Fascism approached the problem by integrating the new design with the existing structure of the city and by defining an enclosed urban space, with human proportions.
Communism approached the problem by a tabula rasa solution and with the purpose of building the new socialist city, where the buildings took precedence over the urban space, the latter tends to be scattered, colossal.
Capitalism approaches the problem with an international competition: various solutions attempt to define the space in different ways, and create an identity, but the plurality of architectures is not only depended on politics, but also from the economy of space.
Today, the central square of Korça is a space that is still awaiting to be defined and to receive an identity. It echoes an unfinished canvas derived from the combination of historical, political and economical factors that impacted this urban space in the last century. A pending status that is transmitted and reflected also to its users, whom rather commute than live this space.

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56 TYPOLOGICAL URBAN PATTERNS: BETWEEN TOTALITARIANISM AND DEMOCRACY

Armand Vokshi

Abstract

The urban layout of Albanian cities is a direct derivative of Albania's history, especially during the last century. The urban interventions decisive for the majority of buildings in cities and their massive urbanization are historical totalitarian periods of fascist during the 1940s, communist after World War II and it is after the fall of communism. In these periods, urban centres begin to review their urban plans periodically. Each of these periods has left clear signs in the territory with specific urban and architectural features distinct from each other.
This research attempts to analyse the current state of the typology of the typical urban paternity of both periods of totalitarianism and that of the late nineties so-called "democratic". This study will focus on the city of Tirana as the most common example of interventions of the Albanian urban centres, where all periods are quite evident. The analysis of the urban typologies of different patterns will be passed on to some filters that have to do with:
- Their composition and their spatial organization
- The system of motion and public space
- Analytical data on urban construction indicators
After knowing the above elements, the research findings will attempt to extract positive and negative features for each period. These features have already become part of the historical background in Albanian cities, which will certainly be part of professional debates in the future.

Keywords: urban patterns, Tirana, totalitarianism, democracy

Introduction

Albania is the place of meeting for different cultures, opposing ideologies, numerous religions, and important historical moments. These multi-disciplinary confrontations have contributed to the urban and architectural product of Albanian cities to this day. This product is very original and unique about other countries in Europe and the Balkans.
The most important part of the urban transformations that are worth studying is related to the city of Tirana. And these transformations had started when Tirana was chosen as the capital of the new Albanian state in the early and mid-twenties. At that time it was a very small medieval town, formed with strong Ottoman Oriental features.
It was founded in the late 1600s when Albania was under the Ottoman Empire. However, the cities and urban configuration nowadays is a consecutive historical overlap of the urban layers that are intertwined with each other. However, if we have to divide it into periods, they are very distinct from each other.
Historical periods are:

- Ottoman period;
- The period of Monarchy;
- Totalitarian periods;
- Post-communist period "the democracy."

Figure 1: Tirana typological urban patterns. Elaborated by A.Vokshi.

This research seeks to define and classify the geometric systems of urban patterns that comprise mainly the Albanian capital. Urban Patterns are the AND of the city code and directly related to the details of the historical events that the city has been facing over the years. They are also closely related to the concepts or decisions taken at different times to transform it (Fig. 1).

Typological urban patterns

A) Ottoman period

As we quoted above, the urban patron, the part of the city born in the Ottoman period, until the twentieth century had a profoundly vernacular character. As Leonardo Benevolo describes, in general, the Oriental city, Tirana has a typical typological form where the bazaar is an important urban berth in the central part of the city. The remainder extends with a random spread around the berry. The urban structure is combined with the presence of the main connecting roads with other cities and with the presence of the Lana River as an urban barrier for the development of the city from its southern part. From the geometric point of the urban paternity, being a vernacular and random structure, there is nothing defined geometrically. Referring to Benevolos, the oriental town has no road with a standard profile, no form of residential geometry, no squares, and geometric parks. The bazaar remains the most interesting part to be studied from this period, which looks like a moving organism with squares and irregular objects.

B) The period of Monarchy

The period of monarchy extends over some time from 1924-1939 and includes all the historical part when Ahmet Zog dominated the political sphere in Albania. The great challenge presented at this time and the decisions it takes have to do with major interventions of administrative and urban character. They focused on turning a European city into new parts without radically altering the old part of the city. In addition to the intense intervention of the strong monumental axis south of the new boulevard with the two geometric administrative squares, the various regulatory plans of this period cannot form a clear concept of a city planner in the city. The new part called "Tirana e Re," which has a residential character in the form of villas fails geometrically to configure residential blocks according to the time schemes as far as the elements of the block are concerned.

Subsequent periods that are of interest to the research in question start from the years 1939 to our day, and they are deployed in successive ways in the totalitarian period.

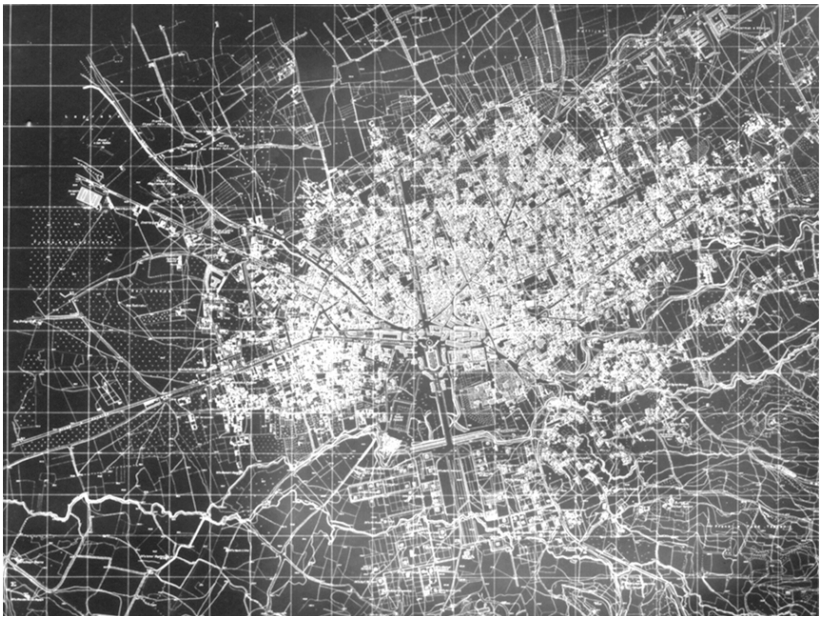

Figure 2: Tirana plan, in 1937, Archive of Bosio, Pelago - Firenze.

C) Totalitarian periods extends from 1939 to 1990. This period is too long and extended in two historically difficult periods:

1. Fascist Period 1939 – 1943, which pervades the short fascist invasion, but enough to give a new urban and architectural identity. Although nine years ago there was an urban care plan for the capital, in 1939 we have a new, contemporary study, which takes into consideration all the contemporary urban developments as well as previous studies. The existing radial road system integrates into the new plan with a new ring system and is heavily given to the axis of the proposed Boulevard since 1925. The new city already had a functional and clear circulation system. Also, the functional zoning for the first time guaranteed the clear areas in the city as well as intensive intervention procedures (Fig.2).

Figure 3: Tirana, Master-plan of the roads on the regulatory plan in 1939. Archive of Bosio, Pelago - Firenze.

2. Communist Period 1945 – 1990, this period in some way has continuity for some concepts on the city launched in the fascist period, even though the communist system completely dropped the previous period ideologically. We have big changes in the new plans regarding the center and boulevard. But in the big concepts, the systems of the ring system and the connection to the existing city were maintained. We will look at ways of intervening in the cities below.

D) Post-communist period or, as it is so called, the transition period with the term "democracy" begins after the 1990s and continues to this day. The post-communist period, though shorter, has been even more drastic with transformational interventions in urban centres and especially in the city of Tirana. This period may also be divided into two periods that result different from each other:

1. Transitional period without Regulatory Plan 1990 – 2010. In this period, it is intervened massively without a general regulatory plan. It's created and destroys the city's urban scale. Permits granted are

2. Period Without Regulatory Plan 2010 – 2017. This period pertains to the formulation of two regulatory plans in a short time. This is due to the reason for the changes in the administrative boundaries of the municipalities.

Urban interventions

Designing the city was the way power had voiced its hardened dominance. In the first part associated with ideology and the second part with narrow economic interest. The purpose of the research is to understand, during these four periods, the configuration and categorization of urban patterns from both intervention methods and urban indicators.

During the fascist era

1- Serial systems. These systems work by installing similar objects in the series. For the first time in Albanian territory are designed a dwelling that is set in series, and some of them were built at the edge of the river Lana (Fig. 4).

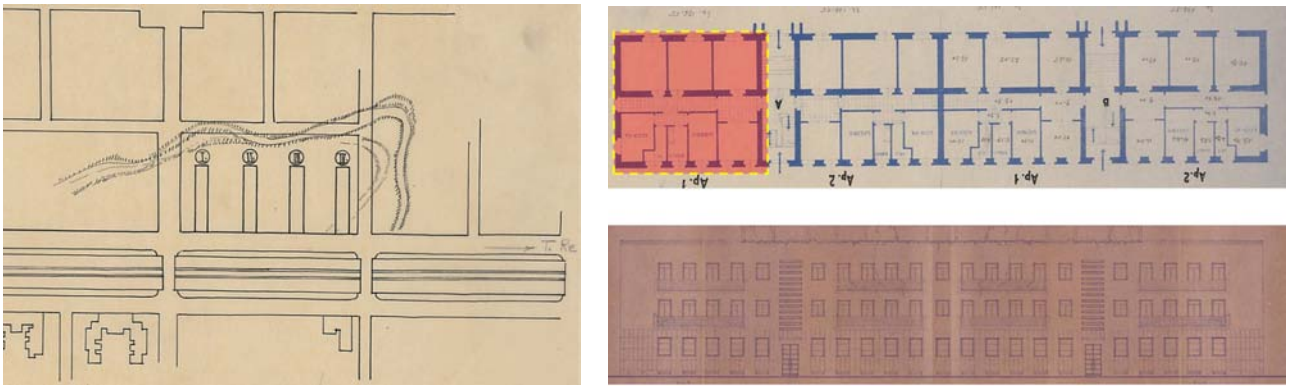

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Figure 4: Tirana,Masterplan of serial residential block system of the river Lana, an on the regulatory plan in 1939. AQTN
Area = 13 000 m2 | S. Constructible = 3 720m2 | S. total area = 11 160 m2 | height = 3 floors | FAR = 0, 86 | S. Green = 3500m2.

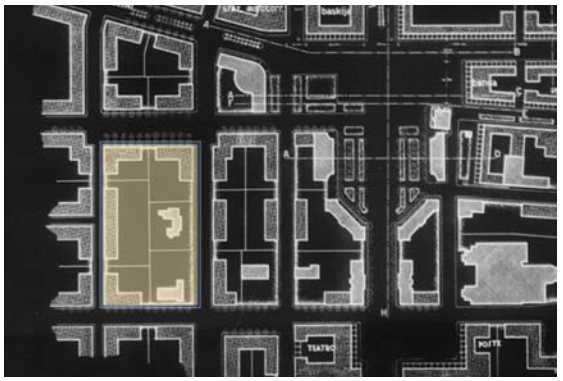

Figure 5: Tirana, Masterplan of semi-enclosed residential block system on the regulatory plan in 1939. Archive of Bosio, Pelago - Firenze.
S. Area = 14 700 m2 | S. Constructible = 2 800m2 | S. total area = 7 800 m2 | height = 3 floors | FAR = 0, 53 | S. Green =?
3- Linear system. There were systems that stretched linearly along the roads.

Semi-enclosed residential block system. This system has clear carve tiles of the housing block. Here there are interchanges of existing objects of special value, which are inserted within the block. The block has approximately a size of 70m wide with 210m long. The lines are straight and define the public spaces on one side. It is not understood how semi-private or private territory works in the back. It provides clear information on the amount of green space in the area. Height is low and harmonized between objects. Even the oriental city landscape is integrated with these schemes (Fig. 5).

Urban interventions during the communist era

As can be seen in the maps of time interventions in this period are multiple. There are generally 3 types of tendencies for the organization of the space:

1- Punctual interventions in the Ottoman texture. This seems to be the typical type of interference. Usually, the intervention was carried out in the middle of the existing paternity where the configuration of the block was not changed but was simply replaced with residential buildings up to five floors (Fig. 6).

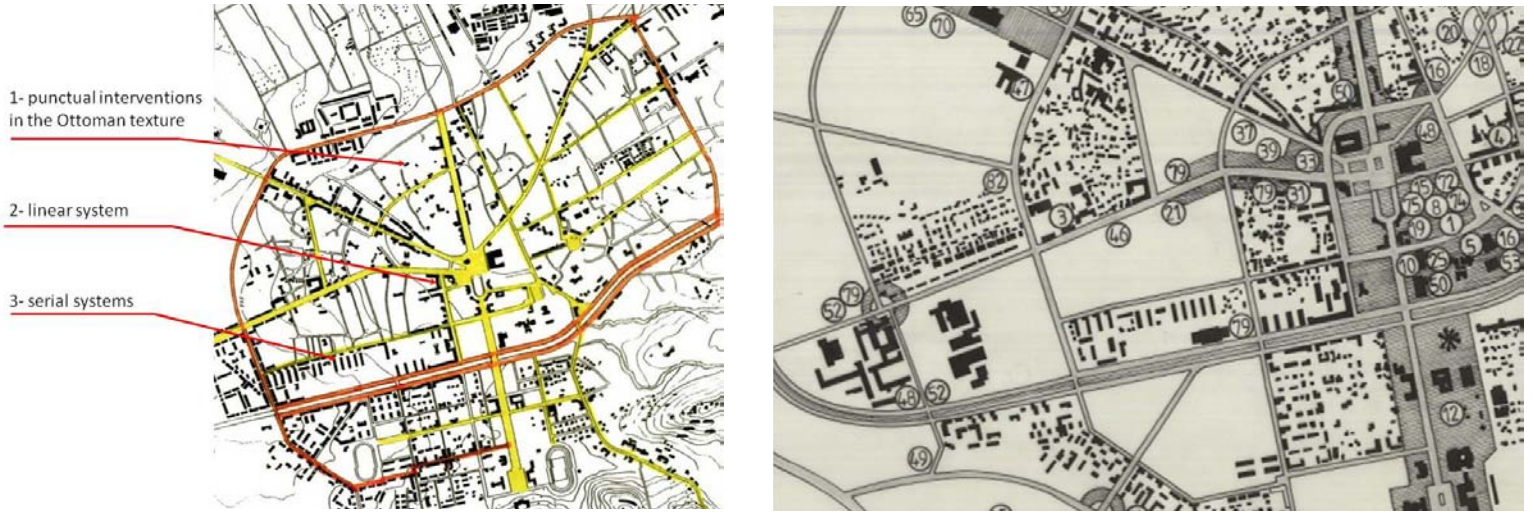

Figure 6 Tirana, Masterplan of the regulatory plan in 1964 and 1989 during the communist dictatorship, AQTN

Figure 7: Tirana, a photo of the residential blocks during the communist dictatorship, AQTN

2- Linear system. For financial reasons, but perhaps for social reasons, these types of interventions were the most commonly used and visible. They served to cover the part of the oriental hiding behind them in the existing chaotic part of the city. In most cases, they did not require visual or urban connectivity with the existing part (Fig. 7).

3- Serial systems (the new pattern of the "socialist" block). The system in the series was one of the typologies of the new style blocks. Usually, the placement in the series was of the recurring type in the queue where the residential block type was the basic part of the design.
One of the most expressive blocks of time is the "Blloku Partizani" (Fig. 8). Spatial dissemination tends to create a modern urban game integrated with greenery. The most important aspect in this block remains the empty report, between the urban space and the dwelling.

Figure 8: Tirana, "Blloku Partizani" Masterplan of the residential blocks during the communist dictatorship, AQTN
S. Area = 45 000 m2 | S. Constructible = 6 700 m2 | S. total area = 33 500 m2 |
height = 5 floors | FAR = 0,75 | S. Green = 60%

Transitional period without regulatory plan 1990 - 2010

This period continues to have these two first points of communitarian interventions with the communist period by the way. They change their architecture and volumetry.
The only urban level innovation is open block systems where we notice new configurations but with a few times higher density. The urban paternal is similar to most of the cases. Lacking it deep in greenery and public space.
1- Punctual interventions in the Ottoman texture
2- Linear system
3- Open block systems. For this occasion, the example of the Commune of Paris was chosen in Tirana

Figure 9: Open block systems, Komuna e Parisit, Tirana.
S. Area = 17 100 m2 | S. Constructible = 6 700 m2 | S. total area = 67 000 m2 |
height = 10 floors | FAR = 3,9 | v S. Green = ?%

Period with regulatory plan 2010 – 2017

The period we are talking about now summarizes the current stage of designing and implementing new building blocks. Also in this phase, we find three ways of interventions, which by configuration are always similar to the phases.
1- Punctual interventions in the Ottoman texture
2- Linear system
3- Open block systems. It is worth mentioning the study of the OMA studio in Tirana according to open block schemes. In this case, the block functions as architecture with itself. Pattern and volumetry were born together, and flows are hybrid connected to public spaces.

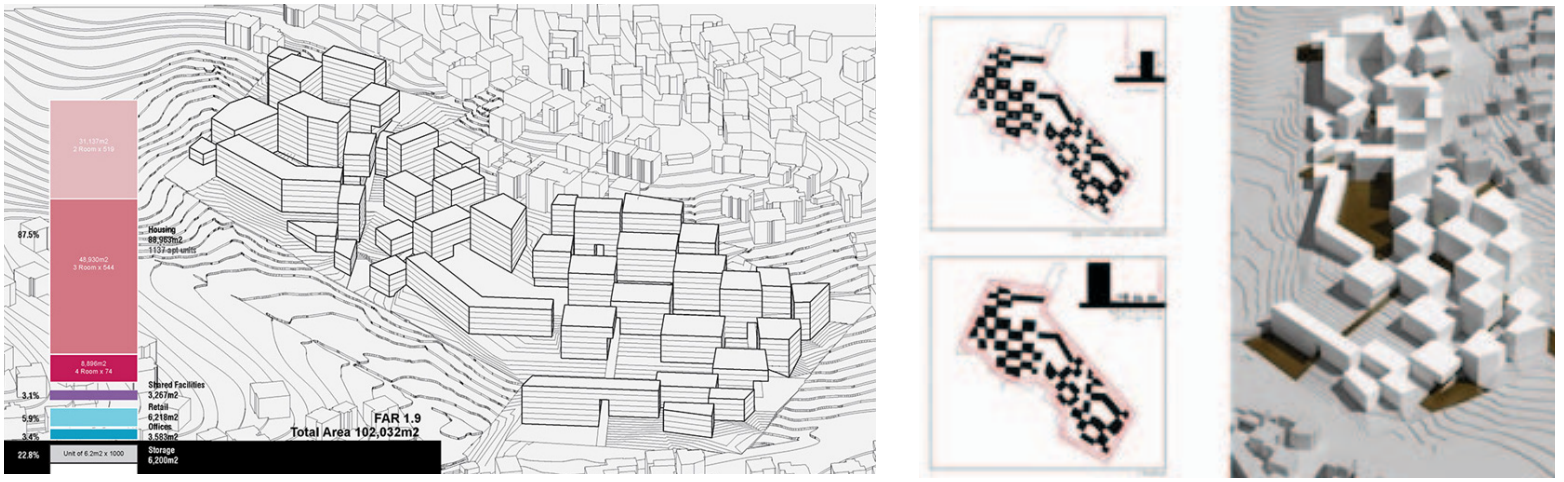

Figure 10: Tirana, "Mangalem of Tirana" Masterplan of the residential blocks from OMA

Conclusions

Looking at the evolution of residential blocks in Tirana, we come to understand the product of these decades. The research sought to classify and categorize to make possible the study of the quality of life and the difficulties that arise for their regeneration.

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TIRANA 2030: THE PROJECT OF A KALEIDOSCOPIC METROPOLIS

Andreas Faoro

Abstract

This paper emphasizes the continuing centrality of density and intensity in shaping future cities. Ludwig Hilberseimer in his book, Entfaltung Einer Planungsidee (1963), considered the possibility of transforming the structure of the city, pointing out two possible options. On the one hand concerning the city's outward expansion and the other, the transformation of the city from within through the gradual modification of its existing elements.
The latter, although often overlooked due to constraints normally associated with the city's property structure and regulations, appears particularly relevant in relation to the Albanian urban debate, as it represents a concrete answer to the on-going process of urbanization. As there is practically a lot of building at the end of life-cycle and the population continues to increase the official planning policy suggested by the new Tirana General Plan (TR030) provides a clear strategy of densification and making at the same time a more permeable and porous city.
The polycentrism proposed by TR030 seeks to create a closer physical relationship between the city and the natural landscape while also considering the strategic impact of replacing some "settlements" from the urban environment.

Keywords: metropolis, polycentrism, contemporary urban forms, territory, master plan, Tirana capital city, landscape, urban regeneration, density, urban design, projects

Introduction

TR030 is the name of the new General Urban Plan of Tirana signed by Andreas Faoro and Stefano Boeri. The Plan was the outcome of a process that began with the awarded two-stage international competition promoted by the Central Government and the Albanian Urban Development Ministry at the end of 2015, won by UNLAB (UrbaN Landscape Architecture Bureau) as the representative of the JV, with IND (International Design) and SBA (Stefano Boeri Architetti). The team coordinated by Andreas Faoro has been supported by a number of international and local experts, consultants and specialists and above all with the collaboration of the Municipality of Tirana, starting from the Mayor Erion Velija, the Deputy Mayor Arbian Mazniku and the Director of the Urban Planning Department Joni Baboci. The Plan and its premises have to be considered carefully in order to understand the historical value and the work carried out by the team for about a year and a half, until its approval in April 2017 by the National Council chaired by Prime Minister Edi Rama.

The new Tirana General Local Plan

The new Tirana General Local Plan is, in fact, a direct consequence of the administrative reform initiated by the Ministry of Urban Development and concluded at the end of 2014 covering all the national territory, which has redefined its structure and administrative geography subdividing it into 61 new structural units. Today the new municipality of Tirana covers a surface 25 times bigger than the previous one, including small and medium-sized urban entities (the so-called "ex communes") and also including smaller towns and small villages scattered all over and within the new borders.
The heterogeneity, fragmentation and urban complexity with which the plan had to and wanted to confront have promoted reflections that do not refer only to a "scale" and the new size (that in fact has enshrined the metropolitan character of the Albanian capital) but, and above all, the need to express and identify a development direction in the coming years within a time frame of 15 years.

Figure 1: Still frame video of TR030, an overview of the urbanized area and the orbital forest. Source: Boeri architects.

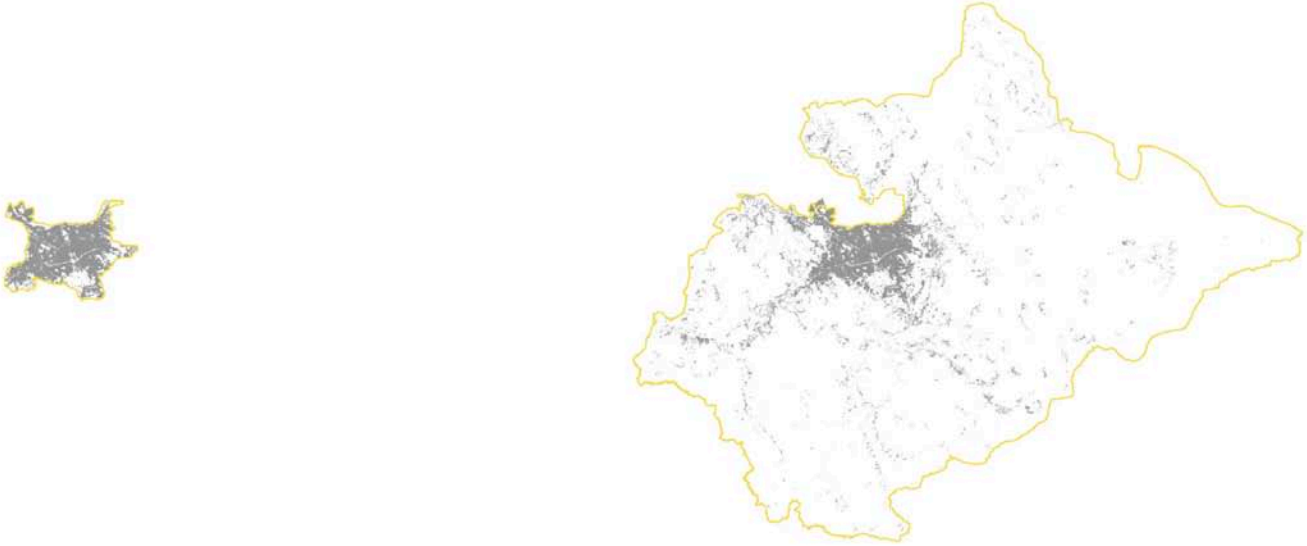

Figure 2: Comparison of the old and new Tirana after the territorial reform.

Tirana, after the fall of the Enver Hoxha's communist regime in 1991 and the following decade of political and urban instability as a counter-reaction to the various deprivations suffered by the population with particular reference to the property rights, it is a city radically changed. In the following years, even if the Mayor of Tirana of that time, today Prime Minister Edi Rama, tried to contain the ongoing phenomena with initiatives aimed at restoring a reorganizing the land use and recovery of public spaces. The activities of informal construction and illegal land occupation have led to a gradual process of "erosion" of large parts of the land and environmental resources. To this is added an exponential demographic growth (due to several factors among all the fact that Tirana was and is also today the economic center and a place for job opportunities of the whole Albania) overloading an already precarious infrastructure system and unable to bear this expansion. This very special condition of "attractiveness" has generated a centralized system immediately around the Boulevard and a heterogeneous peripheral system without services for the inhabitants.
The same processes of densification over the years have followed in a scattered manner resulting in a chaotic overlapping of buildings and incongruent functions between them.
For the specific context, TR030 proposes a methodological approach and at the same time an operational tool defined by three containers. The first defines the "vision" (or metropolitan FRESCO) that takes its inspiration from a cycle of frescoes by Ambrogio Lorenzetti, ("Allegory and Effects of Good and Bad Government" 1338-1339) and it is based on 10 major themes: polycentrism, biodiversity, widespread knowledge, mobility, water, geopolitics, tourism, accessibility, agriculture, energy. These themes were then investigated by design through 13 strategic projects placed in specific areas collected within an ATLAS; the "CHARTER" that has been elaborated around five metabolic systems (city, nature, infrastructure, agriculture, water) allowing to connect a system of regulations to a system of values. The main strategy is therefore confronted with the need, on the one hand, to contain the horizontal expansion of the city while safeguarding as much as possible the existing environmental resources and on the other the critical selection process of areas, sites and places to be developed with project proposals that will be able to enter into a relationship beyond their specific field and therefore influencing a wider territory.

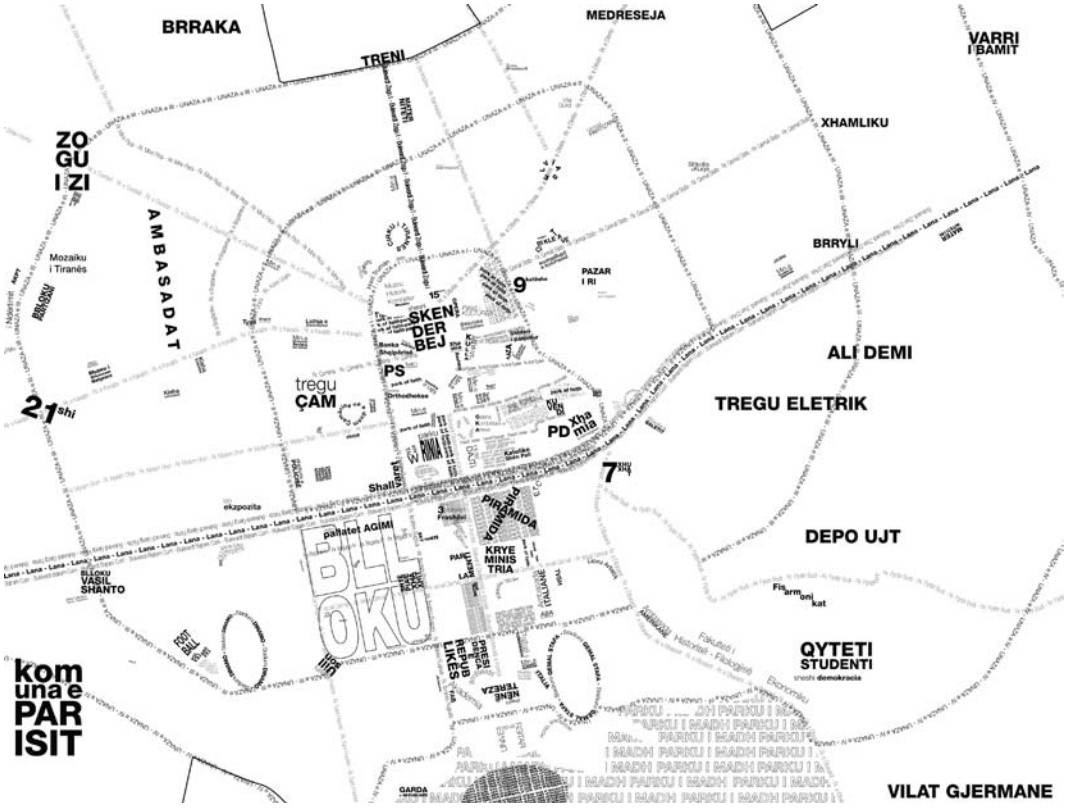

Figure 3: Mental map of Tirana – Toponymy. Source: UNLAB

The redistribution of the "urban weights" in favor of a polycentric system following the logic of "Building in the Built" redefines the relationship between intensity and density, favouring at the same time the infrastructural updating with the identification of two new rings. Densification takes place where it is most significant in terms of life, mobility and production; in which public mobility along with the slow mobility model should become the backbone for a new territorial reorganization. One of the most representative strategic projects is the "orbital forest," an active and productive green "ring" that defines a threshold, a filter and a territorial "form" between the urban and peri-urban area and the surrounding natural, agricultural system. This ring, partly following the old administrative boundaries, defines in terms of planning a "limit" beyond

which intensity and density decrease, allowing the rationalization and use of natural resources, encouraging processes of widespread micro-economies, not secondary.
The vision for Tirana is based on the idea that the "territory" is a resource that must be considered as a whole, and it is something more than the sum of its various meanings. It aims to get over all the partial viewpoints about territory and to lead the different sectoral policies to a more comprehensive framework of global efficiency. It is also the premise on which the different subjects, at the different levels of government, can share a common basis and method to coordinate their actions. Among the distinctive features of the GLP there is the importance attached to the conservation of the essential resources of the territory (environmental and anthropic ones, according to the spirit of the EU law on planning, which assumes the sustainable development as its fundamental principle); and first of all, the conservation of water resources and of ecosystems. The peculiar urban framework of Tirana area, characterized by a highly complex system of settlements, is certainly a precious resource as for the conservation of man's presence on the territory. On the other hand, it can become very difficult to ensure all citizens easy access to fundamental services. The GLP assumes the purpose of the "equipotentiality" of the urban effect for all the centers.
The vision for Tirana widely reflects on the urban questions (proximity, environmental problems, and mobility), fostering inclusive, accessible and sustainable production of space. Referring to Bourdieu's notion of social and cultural capital and, more recently, Edward Soja's notion of spatial capital, related to the benefits derived from social (network), cultural (education) and spatial assets (housing/work location and mobility options). In other words, by ensuring porosity and permeability. The notion of porosity, borrowed from physics but also literature, i. e. Benjamin is as well analytical as a design tool and refers to the percentage of open spaces about build spaces and to the possibility to have different flows (of people, public transport, water, activities, practices, differences, and vegetation). Porosity does not only include green areas and agricultural land, or abandoned vacant and under-used lots; it rather implies the possibility to re-signify built and non-built areas as a whole, especially the space for mobility.
Furthermore, porosity is strongly related to permeability, represented by the single connections between the 'pores.' A porous city is widely accessible thanks to a new structure of public transport (a network described by the metaphor of a sponge), in one word, it can provide an equal distribution of infrastructural and environmental conditions, and therefore urban(ity) opportunities. It has to be remembered, though, that the vision for Tirana is a tool to test some hypothesis and produce new knowledge, as well as solutions to build a city in which different individuals and group

Figure 4: Photo from Plaza Hotel rooftop, 2015. Source: Andreas Faoro

cultures can represent themselves and find their own space.
The proposed "vision" therefore defines priorities in the short, medium and long term, for the development of the city, offering a tangible direction to enhance the uniqueness of the context and at the same time promoting strategic projects at different scales for the definition of a new and more intelligible metropolitan geography: Tirana 2030.

Conclusions

In contrast with the tendencies, this paper is based on the assumption that within the current fabric of the city, one can still find potential sites where new programs can be accommodated. Urban intensity, in this specific General Local Plan, has been projected and measured by four related concepts: compactness, diversity, density, and connectivity. Together they lead to a single idea when considering spatial distributions potentially in a virtuous manner concerning resource consumption, economic opportunity, social integration, and environmental performance. The methodologies applied here includes a deep analysis and revision of previous plans. "Re-building Tirana" from within is a strategy and a vision to put Tirana back into balance. If today we insist on consuming land and "space" as if it were a commodity, and without taking social and environmental costs into account, we produce problems of tomorrow.

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