PROJECTING SHKODRA

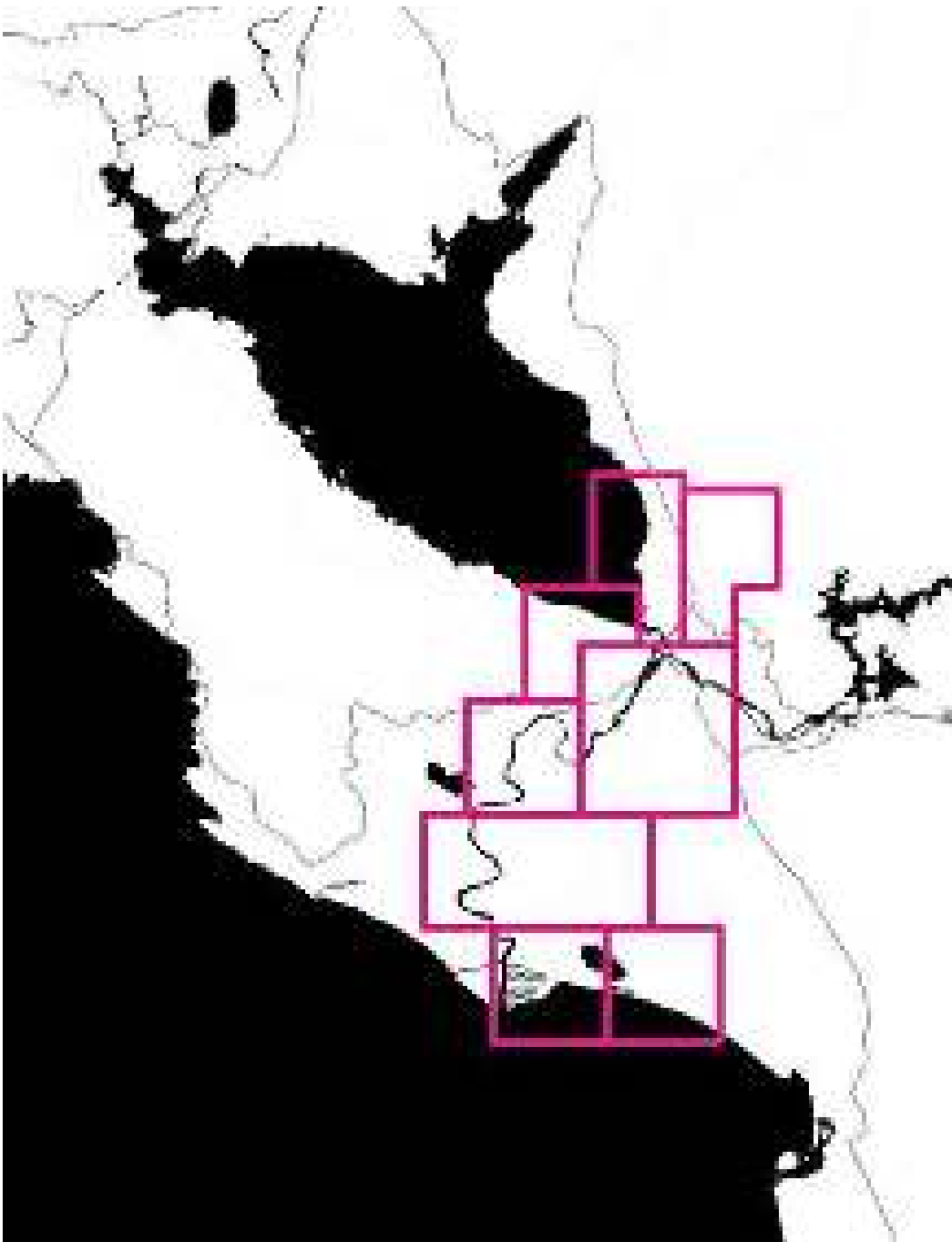
Observatory of the Mediterranean Basin

Projecting Shkodra

Operative fragments between lake, river and sea

A Project of the Joint International PhD Program IDAUP

POLIS University Albania / University of Ferrara Italy



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Editors Prof Dr Besnik Aliaj, Adj Prof Dr Loris Rossi, Arch Enrico Porfido
Besnik Aliaj, Loris Rossi and Enrico Porfido are the scientific responsible for this publication, developed as result of the international PhD workshop organized in the frame of the IDAUP International Doctorate in Architecture and Urban Planning programme between POLIS University of Tirana and the Department of Architecture of University of Ferrara, Italy. The publication collects practical and theoretical experiences elaborated within the context of the Applied Research Department, the research unit Observatory of the Mediterranean Basin (OMB) and MetroPOLIS l.t.d. In this publication Besnik Aliaj, Loris Rossi and Enrico Porfido have also contributed in terms of contents in the introduction, interventions in chapters, conclusions and in the elaboration of the index structure.

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Note / This book uses double-blind review, which means that both the reviewer and author identities are concealed from the reviewers, and vice versa, throughout the review process. All the contributions of this book have adopted the Harvard Quote System.

Projecting Shkodra. Operative fragments between lake, river and sea

A project developed in the framework of the
International Doctorate in Architecture and Urban Planning IDAUP
POLIS University, Albania / University of Ferrara, Italy

The book represents an introduction to the Albanian context in terms of environmental resources, planning strategies and governance decision model through the Shkodra case. A praiseworthy work has been done in the workshop, where all the ideas presented are aimed at the protection of natural landscapes, especially preserving water resources, paying attention to vulnerable and fragile territories and societies. Supporting the on-going initiatives of the European Commission towards eco-innovation, the combination between local knowledge and planning visions, guarantees the success of the development process in a perspective of resilience and adaptation.

Prof Michelangelo Russo, PhD
Università degli Studi di Napoli Federico II, Italy

"Projecting Shkodra" is a powerful collage and an animated atlas. The OMB-IDAUP project uses visual documentation and cartographic analysis of coastline as an interface between land, water, and people, while highlighting otherwise-obscure underlying forces and projecting possibilities in sites and territories in the Albanian region. In the process, the project illustrates immense capacity, high adaptability, and great resilience of Shkodra as a critical case study of city making and nation building of global importance, through design of urban forms and open spaces. The project offers a subtle yet timely critique of urbanism as a philosophy and experience through integration of different disciplines, professions, theories, and practices and diverse methodolgies, stratgeies, and tactics of urban fragments along a coastline. The book will be important for students, researchers, and practitioners in architecture, urban design, urban planning, and landscape architecture as well as to general citizens and political leaders interested in urban development and planning. Through illustrative storytelling of Shkodra and its multiple dimensions and variables, the book offers a critical insight into cities and municipalities as urban ecology. It also outlines a greater need for systemic understanding of urbanism to protect and leverage adaptive flexibility and resilience of places and people toward a sustainable future.

Prof Ass Anirban Adhya
LTU Lawrence Tech University, MI, USA

Preface

Shkodra is one of the biggest municipalities of Albania. It is almost like the 'capital' of northern Albania with strong impact also in Montenegro and Kosova. The city has a great history and culture, and was consider a stronghold of anticommunist resistance between 1945-1990. Since than it went towards a turbulent transition during 90-s and a significant transformation in the last 10-15 years. Nowadays Shkodra is one of 3-4 main cultural-touristic attractions of the country, but the city is facing also the problems of national recession after 2010. Since the three years ago a newly elected female Mayor - previously an expert of local governance - has been trying to build a team and draft/implement a participatory development vision, at least for the next decade of Shkodra. The new territorial-administrative reform of the country created chances for establishing e great municipality in terms of surface, resources and boundaries, but no real fiscal and resources decentralization has been following from the central government. Meantime the newly established municipality did not inherited a readymade strategy and plan, despite those for the 'old/urban' municipality before the reform.

Therefore the mayor could generate support from central government (AKTP, National Agency of Territorial Planning and expertise from Polis University Tirana and Arizona State University, USA. During 2016 an intensive bottom-up process of public consultations was initiated, with public community meetings, sectoral and institutions meetings, professional networks and interests groups meetings. All was about transparency, and this achieved by many public meetings, online charrettes, live television broadcasting, focused groups and thematic meetings, etc. Thanks to such process a municipal strategic vision and a general local territorial plan was drafted and latter approved with debate at Municipal Council of Shkodra. A second filtering and approval was also undertaken by several ministries and by the national territorial committee of the central governments. At this moment Shkodra has an important document to guide its own present and future developments.

However the local situation is not as perfect as it seems. Financing for the strategic projects and programs is harmed by the lack of financing of central government's share. Meantime, the climate change has negative impact over the vast municipal territory that expands from Albanian Alps mountainous region (north-east), ending up to the Adriatic coastline (west). Municipality is part of one of the richest water energy production watershed regions, but flooding is becoming annual emergency for the western plain of Shkodra. Life of people is endangered, while material and financial costs are increased and agriculture/business is

harmed. What can be the emergent interventions? What can be mid- and long-term strategic programs and projects? The general strategic territorial plan that was drafted and approved helps to orient interventions and developments. But more is needed to help local communities and improve quality of life.

Therefore, cooperation between Municipality of Shkodra and Polis University continued in a qualitative way. Two years ago a group of researchers and staff from the Joint International PhD Program of Polis University and University of Ferrara Italy, started a research project for the region of Shkodra with the core theme: the relation between water and territorial development. The starting point was the work done by Municipality and POLIS/ASU as regarding the general strategic territorial plan (PPV). A field visit was also undertaken in the region including Shkodra, Podgorica, Ulqin and all the rest of living settlements and territories around Shkodra lake. The ecosystem of Shkodra Lake, Buna and Drini River was studied, especially in relation with the city of Shkodra and flooded areas. Other focus was to understand different territorial typologies and for each of the to develop models of interventions and development in the form of strategic interventions. Case studies form other international experiences served as reference to adopt to local conditions, and as result several strategic projects are generated. We hope in this way that the contribution of our International PhD Program between POLIS and UNIFE does not simply remain theoretical and academic, but inspires and helps local authorities to detail further the so called PPV Plan. This is also a great example of how local government institutions and academic and research institutions can work together to improve the lives of people and communities! We believe this publication serves for that!

Last but not least, the publication is part the International PhD Program research series, published by POLIS_Press in cooperation with UNIFE, starting with the national visioning: Albania 2030 Manifesto; continuing with regional plans of Durara, Riviera, Semani, Prishtina. This series of publication is also documented by several international and partner libraries, including the Library of Congress, Washington DC, USA.

Voltana Ademi
Mayor, Municipality of Shkodra

Besnik Aliaj
Rector of POLIS University, Tirana

contents

1
introduction

Fragments as methodology / an overview of OMB's research

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Head of Applied Research Department / OMB / POLIS University, Tirana

The idea of this International workshop organized for the 32nd cycle PhD students in the frame of the IDAUP joint International PhD program between POLIS University, in Albania, and University of Ferrara, in Italy, needs to be introduced through several points linked with some of the most important overall research objectives addressed by the Observatory of the Mediterranean Basin (OMB). Such points must be intended as the first achievements of a very young unit within the applied research department at POLIS University, and as guidelines for the readers in order to better understand the methodology and the approach of this book and its future developments[1].

The first topic that must be stressed is the importance of this fourth edition in relation to the applied research concept, always connecting practice to academia. Since its foundation in 2015, one of the main objectives of the OMB is to engage, within a specific research agenda, professional design contracts at National or, as in this case, Regional scale. The city of Shkoder and the surrounding region have been studied from the 32nd cycle PhD students for more than one year, through urban and landscape projects, with the aim of elaborating further some of the topics addressed by the plan developed between 2015 and 2017by POLIS University in cooperation with a research group from Arizona State University, and supported by the Municipality of Shkoder. As a result of this research the PhD students elaborated an overview of practical tools linked to theoretical aspects. All the projects emphasize the specificity of the Shkoder region and take into consideration most of the problems between lake, river, and sea. The design projects provided by the students are strongly connected to the idea of creating open debates for future acupunctural interventions.

The second, equally important, topic is aligned with one of the main concepts of the International PhD POLIS/Ferrara, and it pertains the value of working through interdisciplinary skills. The PhD students contribute to the project depending on their background and research field. Moreover, interdisciplinary exchanges allow the PhD students to enrich their capacity to interact and exchange knowledge about a very specific project with different disciplines and fields of expertise. In the specific case of Shkoder, during the workshop there were many instances where students presented their proposals in front of a commission of experts coming from the municipality as well as from Architecture, Urban Design, Planning and Landscape Architecture professional practices.

The third topic that should be highlighted is the concept behind the OMB book series, which must be seen as an ongoing project. In order to understand the book series as an in-progress project, the transversal relation that each publication has with the activities developed within the OMB needs to be considered. Therefore, each topic, apart from being dealt with through practice and research activities within the Department, also stimulates design speculations that are later developed at

Fig1 / Projecting Shkoder" workshop progress, working with fragments source / the author

the Bachelors, Masters and Professional Masters level, through Designs Studios and Laboratories. Depending of the complexity of the topic, the Graduate students are engaged in a comprehensive design process and give their contribution in terms of design strategies and concepts, while gaining, at the same time, design experience.

Starting with the "Durana" (Vv.Aa., 2015) book and following with the publications "Albanian Riviera" (Vv.Aa., 2016) and "When the river Flows" (Vv.Aa., 2018), this book about Shkoder is the fourth book of a sequence of projects that share the same basic concept. "Projecting Shkoder" is the continuation of previous experiences where the topic concerning the relationship between water and land is the driving subject for research activities aimed at addressing the criticalities of the Albanian landscape. At the departmental level each subtopic became an occasion to compare the Albanian condition with the international environment.

The enigma of Fragments

The first time that the topic of "city fragments" was addressed within the Department of Applied Research at POLIS was September 2014, during an international workshop entitled "Tirana Interrupted"[2]. The aim of the five day workshop was to present a fragmented map of Tirana which embedded the urban scale in the architectural one, stimulating a public debate on the topic. The idea of the above mentioned workshop was clearly inspired by one of the most important experiments made during the 70' in Italy, entitled "Roma Interrotta". Following this research initiative the concept of interrupted city became a manifesto for future generations of architects and urban designers[3].

The main objective of the international PhD workshop "Projecting Shkoder" was to highlight the importance of the above mentioned research method to enrich the architecture discipline through multidisciplinary approaches, capable of dealing with different scales of intervention and fields of knowledge (territorial planning, landscape and city scale).

To better focalize the attention on the importance of this method and on why it is so relevant for our studies, we must investigate the definition of fragment as enigma. In most cases the "fragment" is defined as: "a part broken off, detached,

1 / This is the first number of a book series developed under the Observatory of the Mediterranean Basin (OMB) unit
2 / The workshop was organized in the framework of Tirana Architecture Week 2014. For more info see: Rossi, L., 2015. Tirana Interrupted. FORUM A+P 16, pp. 78-87. Following this workshop further research activities and scientific papers were developed (for more info see the reference in bibliography).
3 / There are several articles written about the "Roma Interrotta" exhibition (for more information see the bibliography). The most important books to mention are: Piero Sartogo, Costantino Dardi, Antoine Grumbach, James Stirling, Paolo Portoghesi, Romaldo Giurgola, Robert Venturi, Colin Rowe, Michael Graves, Leon Krier, Aldo Rossi, Robert Krier, 2014. Roma Interrotta, Twelve interventions on the Nolli's plan of Rome in the Maxxi architettura collections. Monza: Johan & Levi Edition; Pippo Ciorra, Francesco Garofalo, Piero Ostilio Rossi, 2015. ROMA 20-25. New Life Cycles for the Metropolis. Rome: Quodlibet.

Fig2 / Example of tactical selections operated in the framework of different workshops: "Tirana Interrupted, Urban Vison to inspire the Future" - Workshop MAD Center POLIS University Tirana, 2014 source / Eranda Janku

incomplete or unfinished". In the past there have been several concepts developed around the word "fragment", especially considering its property of being "incomplete or unfinished"[4]. In the framework of this investigation the word "fragment" is stressed mainly in its significance as something that "is unfinished" or even not definable, which allows us to shift the concept of fragment in a sort of paradox, in the attempt of finding a possible relationship between a whole system and its micro diversifications. In our case, a micro diversification is the smallest element selected in a vast area, such as the territorial, landscape, or city scale.

Working with unfinished fragments means also looking at Architecture as an additive discipline, capable of borrowing and assimilating information from other disciplines. What happens if we associate other points of view, like the one of the city, planning, or landscape scale to Architecture? During the 50's and 60's we can identify several examples whereby the architectural scale has been associated with different scales of intervention, in the attempt of exploring how the architectural world can work through interdisciplinary processes. This is the case of some of the experiments elaborated by Alison and Peter Smithson, whereby the architectural scale is always recognizable as small elements within an overall structure.

To better guide the reader trough the purpose of our investigation it seems appropriate to quote Bruno Zevi. In his book: "Saper vedere la Città", Zevi describes Biagio Rossetti's[5] strategic approach for the expansion of Ferrara, introducing the concept of "un-finished urbatectonic"[6]:

"[...] – non-finito urbatettonico. Questo è forse l'aspetto culminante, la lezione di fondo. Tutti ormai lo ripetono: una serie di stanze, anche se ciascuna bellissima in sé, non forma una casa; una serie di edifici, sia pure splendidi singolarmente, non configura una città. Occorre un legame di interdipendenza, il continuum. Ma, per concretarlo, ogni elemento, palazzo chiesa viale piazza, deve rimandare a quelli adiacenti, cioè rinunciare alla propria autonomia. Ciò significa: poetica del non-finito, livello urbano in cui Biagio Rossetti assume la statura del genio."[7] (Zevi, 2018, pp. 48-49)

According to Bruno Zevi's definition of "non-finito urbatettonico", the term is referred to an inner system composed by a seriality of micro elements, always related with the whole: a sequence of rooms in relation to the house, a sequence of buildings in relation to the city. What Bruno Zevi wants to stress is the importance of a single element, in its peculiarity of being an "unfinished fragment", capable of establishing an interdependence with the other elements. In other words, for Zevi each element can become operative only if it's considered as an un-finished object and if it's not considered autonomous. The other relevant operation carried by Zevi by fusing together the words "urbano" and "architettonico", and devising the new term "urbatettonico", is to provide a clear idea of the concept of urban scale

Fig3 / Example of tactical selections operated in the framework of different workshops: "Tirana Interrupted, Urban Vison to inspire the Future" - Workshop MAD Center POLIS University Tirana, 2014 source / Anduena Dragovi

4 / Most of these concepts come from the art world, and they evolve around the idea to work on unfinished processes. See also Marc Augé's point of view in: Augé, Marc, L'enigma della continuità, in AUGÉ, M. & MENEGUZZO, M., (Edited by) 2013. Non-finito, Infinito. Sculture di Paolo Delle Monache film di Benoit Felici, catalogo della mostra. Milano: Electa, pp.9-13.

5 / The book "Saper vedere la città" is an extraordinary narration of the city of Ferrara planned by Biagio Rossetti (1447 – 1516). In order to have a more complete knowledge about it, see also previous publications by Bruno Zevi, sucha as: "Saper vedere l'urbanistica. Ferrara di Biagio Rossetti, la prima città moderna europea", published by Einaudi in 1960.

6 / The term "urbatectonic" is a direct translation of the word "urbatettonico" or "urbatettura" introduced by Bruno Zevi. In this context it reinforces our statement on working with architecture and its additionality.

7 / Translation: "[...] – un-finished urbatectonic. This is maybe the culminating aspect, the main lesson. Everybody repeats it: a series of rooms, even if each one is very beautiful in itself, don't make a house; a series of buildings, even if singularly splendid, don't configure a city. A link of interdependence is needed, the continuum. But, to put it into action, each element, palace, church, boulevard, square, needs to refer to the neighboring elements, that is, renouncing to its own autonomy. This means: poetic of the un-finished, urban level in which Biagio Rossetti acquires the stature of genius."

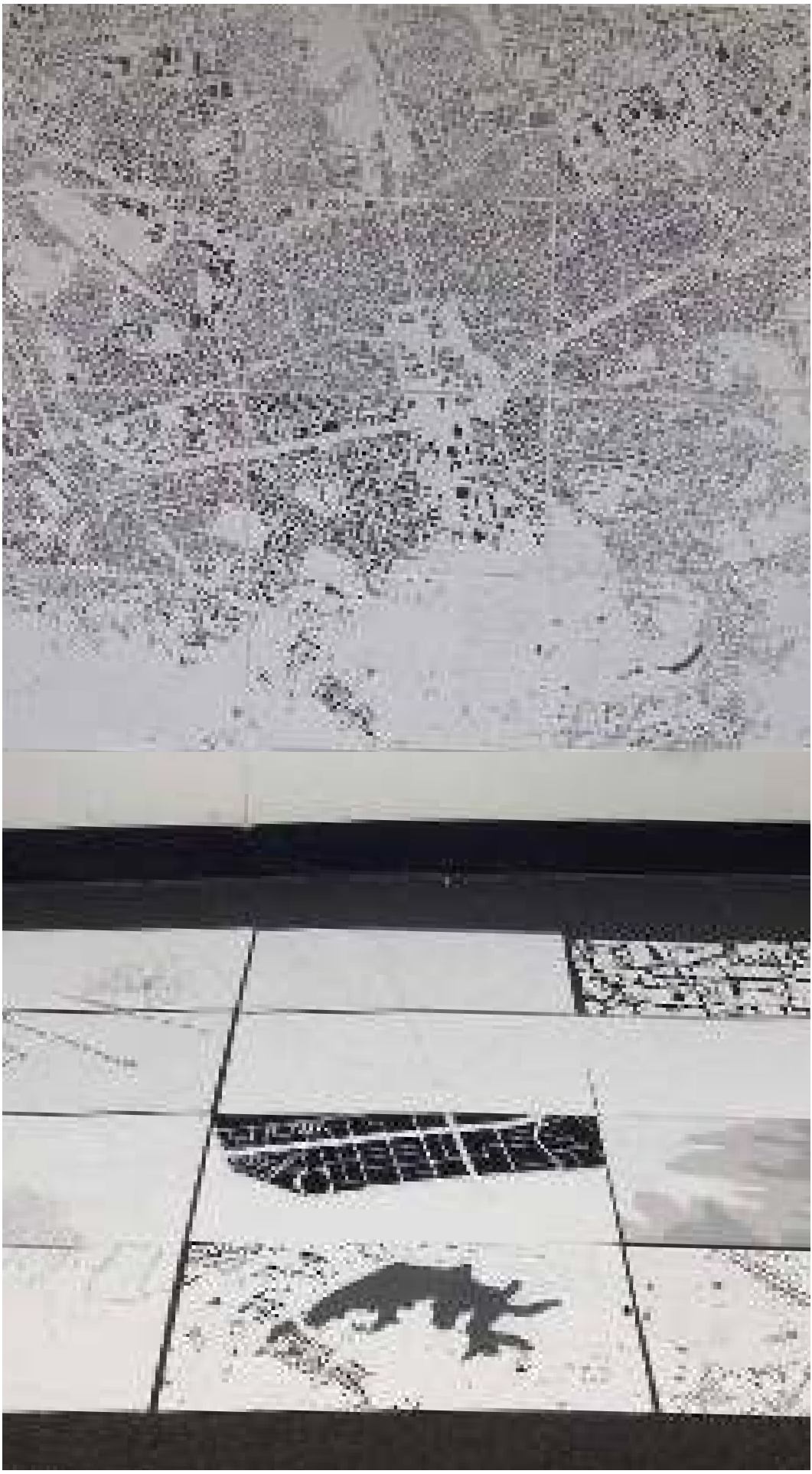

Fig4 / Example of tactical selections operated in the framework of different workshops: "Tirana Interrupted International Workshop" - Department of Architecture and Urban Design School of Arts and Architecture University of California Los Angeles UCLA, 2015
source / the author

Fig5 / Example of tactical selections operated in the framework of different workshops: "Future Epigraphs" – International Workshop - MEF Univeristy, Faculty of Arts, Design and Architecture Istanbul (TR), 2018 / source: the author

embodied in the architectural one and vice versa. Moreover, by associating and linking the words "urbano" and "architettonico" - which denote very different scales of intervention and a material and conceptual distance – Zevi's conceptual elaboration suggests that in spite of this distance, the gap itself can become an operative tool, linking the city scale to the building scale.
What happens if we decide to transfer the above mentioned interdependence between urban and architectural scale to the planning, and the landscape project scale? What if we consider and link territory and architecture, or landscape and architecture? And in the above hypotheses, what would be the suitable methods and tools to operate in such fields of action?

These are some of the questions that the OMB in general, and this publication in particular, are attempting to address. Through the activities carried by the OMB since 2015, the aforementioned concepts have been at the base of speculative investigative approaches - at different design scales and in different contexts – that attempt to identify the interdependence between the smallest elements of a system and the whole. In the case of Shkoder, the choice to start from a masterplan scale, is justified by the need to deal with a vast territory. Such territory is seen as a sum of very complex and diverse fragments, and following Zevi's inspiration about the relationship between buildings and city in Biagio Rossetti's Ferrara, in Shkoder each fragment is linked with the others through the identification of the underlying un-finished processes embedded in the fragment itself.

In the international PhD workshop "Projeting Shkodra" operative fragments between lake, river, and sea mark the end of the above investigation and, at the same time, the beginning of new possible strategies, always connecting the world of architecture with other fields of knowledge.

Considering the above introduction, we will now attempt to list possible tools that make this method operative and try to demonstrate how a small element, that belongs to a bigger whole, can generate new objectives within the different scales of the project: territorial, landscape and city. It's also fundamental to specify that this method doesn't aim at achieving a specific result, but rather at identifying a repeatable process. To make a fragment operative we adopt three key actions: Gridding, Selecting, Projecting and showing.

Gridding - the key action of gridding is fundamental in order to classify the scale and typology of intervention. In this case there are two possible approaches. The first is an abstract grid with regular

8 / The idea of "tactical selection" has been used in some of the previous investigation on the landscape scale like in case of Albanian Lab Studio, for more info see: Rossi, L., Pedata, L., Porfido, E. & Resta, G., 2017. Fragile Edges and Floating Strategies along the Albanian Coastline. TPJ The Plan Journal, 2(2), pp. 685-705.

Fig6 / Example of projecting and showing operations in the framework of different workshops: "Tirana Interrupted, Urban Vison to inspire the Future" exhibition, MAD Centre POLIS University Tirana, 2014 source / Eranda Janku

Fig7 / Example of projecting and showing operations in the framework of different workshops: "Tirana Interrupted" exhibition, UCLA Los Angeles, 2015 / source: the author

quadrants and constant dimensions. The second is a grid with irregular quadrants, normally as a consequence of a specific requirement, i.e. a regulatory plan or a focal area of interest (this is the case of Shkoder). In both cases the grid must be considered like a very flexible device that overlaps an existing topographic map: territorial, regional or city scale. The grid also has the capacity to multiply itself infinitely. After the subdivision of the topographic map in different quadrants each quadrant can be detached from its original position. This operation of detaching a quadrant from a specific origin can have a dual outcome: on one hand the quadrant can work as an unfinished object, having the capacity to include or exclude the whole structure of the grid; on the other, it can work autonomously, like an island in a sea of signs. This action of including/excluding specific parts of a whole is synthesizable in the operation of plug-in and plug-out. In terms of project work progress, the above mentioned operation is a very useful step because it makes the idea of working in a multidisciplinary group immediately operative and, at the same time, it allows for the possibility of figuring out, step by step, the map variations.

Selecting, or tactical selection - before explaining the operative meaning of this key action, it is necessary to underline the importance of the cognitive aspects of an analytical approach. The above mentioned actions must be considered as tools that don't exclude the importance of knowing the area in all its morphological and anthropological components. Therefore, the key action named tactical selection[8] is a tool able to identify hidden characteristics that belong to a series of complex elements within each specific quadrant. This type of investigation enables us to trace unfinished elements at the territorial, landscape and urban scale. It's like highlighting a word in a book; by giving importance to the meaning of a specific word in a book, we open new creative paths for future narrations.

Projecting and showing - in order to introduce this last key action, it's necessary to specify the point of view of this investigation in terms of results and in relation with its future developments. In this frame of work, both "projecting" and "showing" have the same roots: working with open processes. The idea to identify and select unfinished fragments within each specific quadrant enables the students to work with acupunctural projects capable of restoring the interdependence mentioned by Bruno Zevi, in which the idea of a smallest fragment can recreate a new continuity at the territorial, landscape, or city scale. As a concluding key action, the exhibition is a key step of the entire process, whereby all the fragments are joined in a system, they are open to different interpretations, and can stimulate discussions with the local authority. In this case the exhibition can be considered a design strategy engaging multidisciplinary skills in a new configuration of the city. The key action of "showing" is very powerful if considered as a tool to generate new knowledge and initiate new research paths.

Fig8 / Example of projecting and showing operations in the framework of different workshops: "Projecting Shkoder" exhibition, MAD Centre POLIS University Tirana (AL), 2017 / source: the author

The three above mentioned key actions can be considered as tools aimed at defining a practical approach, exploring the capacity of architecture to deconstruct complexity at the territorial, landscape, and urban scale. Hopefully this brief introduction can act as practical guide to read and interpret the work elaborated by the PhD students, and as a useful device for future applied research activities, always attempting to connect the Architectural experience with other fields, through a multidisciplinary approach.

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Fig9 / Example of projecting and showing operations in the framework of different workshops: Future Epigraphs" exhibition MEF University Istanbul (TR), 2018 / source: the author

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The coast as an intelligent device / from conceptual to physical interventions

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Abstract
Coastal areas are commonly defined as the interface or transition areas between land and sea, including large inland lakes. Coastal areas are diverse in function and form, dynamic and do not lend themselves well to definition by strict spatial boundaries. Unlike watersheds, there are no exact natural boundaries that unambiguously delineate coastal areas (Pernetta & Elder, 1993).
This contribution explores the concept of the coast and a number of possibilities in relation to its transformation, from both an architectonic and a landscape perspective. The coast is explored as an intelligent device that is able to adapt and to address the challenges of climate change, as well as other issues related to energy consumption and production, urbanisation and 'touristification' processes, ecosystem protection, etc. The first section focuses on the concept of the coast and how it changed in the centuries, and possible interventions are then presented through different case studies and classified by their relationship with the coast.
The contribution results from a pair of lectures organised in the framework of Dr Loris Rossi's course Design Studio and Theory of Architecture IV entitled `Network Archipelago: New Interpretative Tools to Promote the Albanian Riviera Landscape', which took place at POLIS University, Tirana, in 2016 and 2017. The two lectures which I wrote and delivered aimed to provide the students the first tools for approaching the design process for innovative touristic devices in the studio.

The coast as gate to the sea

The concept of the coast is ambiguous. The coast is often defined as the 'land next [or close] to the sea' or as a more general 'land next to the shore' (American Heritage Publishing Company, 2015; Cambridge University Press, 2013). This last generalisation allows inclusion of the liminal areas of other water resources, such as lakes and rivers, in the concept of the coast, but it also enlarges the cases' number. When referring to lakes and rivers, the word 'bank' is usually used, although for the purposes of this study, 'coast' is used in that context, especially when those areas enter into contact with the sea through their delta and/or lagoon systems. In time, the study of the coast assumed an increasingly important role, which led to the creation of a specific branch of study: coastal geography. This subject focuses on observation and analysis of the changing region between ocean and land, both from the physical geography (geomorphology, geology, and so forth) and the human geography (sociology and history) of the coast. The variety of the fields of study involved perfectly shows the complexity of the coast.

Since time immemorial, the coast has been seen as a gate to the sea, and it has assumed a dual meaning, being a source of life and a cause of death. The Greeks of antiquity turned to the sea for food and for transport; for war, commerce and scientific advancement; and for religious purification and other rites. In her book The Sea in the

Fig1 / North California coast
source / the author, 2018

Greek Imagination, Marie-Claire Beaulieu (2015) explores the symbology of the sea in the common imaginary of ancient Greece through the classic literature. In the Theogony by Hesiod, the sea (Pontus) is one of the children born out of Gaia's parthenogenesis. Thus, the sea is one of the primaeval elements that help conceive and shape the world. Homer refers to the sea as 'fruitless' because of the sterility of salt water, while for others it represented the entrance to Hades (Beaulieu, 2015, p. 2). The sea has an ambivalent character in Greek culture. It is a source of food and a path of communication, but also an empty, barren and disquieting space that evokes death and can even lead to Hades (Beaulieu, 2015, p. 2).

The sea. Try to imagine it, to see it with the eyes of a man of the past: a limit, a barrier that reaches the horizon, an obsessive, omnipresent, marvelous, enigmatic immensity (Braudel, 1987, p. 31).

The dualisms of life/death, calm/danger and fascination/dread accompany the image of the sea throughout the centuries. The relation between man and the sea is strong. Cities concentrate close to water resources for many reasons. Psychologists connect the bond of man to water with the amniotic fluid (Schneider & Morton, 1981, p. 141). The French physiologist René Quinton (1866-1925) drew a parallel between blood and sea water; he affirmed that cellular animal life appeared in the sea (Ferreri & Lodispoto, 1976, p. 74). 'At the beginning there is the sea; it is the origin, the primordial entity from which the amniotic plasma – where we are born – comes' (Amsellem, 2016, p. 11). In this subconscious link between human beings and sea water lies one of the main reasons why the coast assumes such an important role for man.

Measuring the coastline

To address the issue of dimensions, it is necessary to introduce a second concept: the coastline, which is 'a line that forms the boundary between the land and the ocean or a lake' (Merriam-Webster, 1994). This second concept emphasises the existing ambiguity concerning the meanings of the word 'coast' and 'coastline' and their geographical transfer. If the coast is an ambiguous concept, the coastline is an even more fleeting one. The coastline is affected by many different elements that lead to its complete transformation. All those elements need to be differently measured in order to perceive the correct set of dimensions for coastal interventions.

The paradox of the coastline, observed by Lewis Fry Richardson and further elaborated by Benoit B. Mandelbrot (Mandelbrot, 1983), shows how difficult it is to measure the coastline. According to this theory, the smaller the ruler, the longer the resulting coastline will be. If we add a third dimension, the coastline will assume another feature: thickness. The external factors that influence the coastline, such as daily tides and winds, climate change and sea level rise on the global scale, contribute highly towards continuous transformation of this space. The coastline loses its two-dimensional

Fig2 / The coastline paradox
source / Fatima et al, 2015

characteristic and becomes a filter area where land and sea meet, which is in continuous metamorphosis.

The coast [...] is intended as harmonious interpenetration in continuous visual, material, functional, interactive and dynamic transformation between the action of man, sea and land. The coast represents the edge where to intervene. With its porosity and open boundaries, it is capable of responding to climate change and functioning as a resilient device (Porfido & Sani, 2018, p. 105).

According to this definition, which emerged from previous research on the Brazilian coast in 2015, the coast is considered in its thickness and continuous transformation. This new entity passes from being a two-dimensional line to a space with its own boundaries, although permeable and unfixed. In this space, designing a project is challenging and uncertain.

Sea as connector, resource and opportunity and coast as its spatial expression

The following sections present different design projects placed on the coast. The main differences between them are related to the functions of the sea, which in this study are grouped into three main categories:

- sea as connection: ports, lighthouses and castles;
- sea as resource: off-shore oil extraction platforms and fish-farming structures;
- sea as place of leisure: touristic activities.

The coastal interventions belonging to the first category are mainly related to the idea of transportation, such as ports and lighthouses. But it is also worthwhile to mention those uses which, considering the sea to be a threatening place, aim to protect the land and its population, such as castles and sighting towers. Furthermore, the sea is a resource for fish, oil, salt and other products. The second category includes all those interventions related to extraction, cultivation and production, such as fisheries and offshore oil platforms. These first two categories are characterised by the corporeality of resources, while the last one is related to activities. Man benefits from the sea not only in terms of material resources, but also physically and psychologically. This is why the coast become a touristic destination upon the discovery of thalassotherapy in the XVIII century (Pié & Rosa, 2013). The coast became a locus of expression for leisure activities (Toulier, 2016). New cities arose for this sole purpose, and architects began to design piers, promenades, waterfronts, and so forth.

The study cases are presented by location on the coast and by the link they create between the elements. The first case named 'Cidade de Deriva', from the book The Petropolis of Tomorrow (Bhatia & Casper, 2013), is apparently located only on the sea, but functionally, it is strongly related to the land. The touristic city of Port Grimaud is presented as an example of the sea extended into the land to create an artificial inlet, while the artificial peninsulas and other recreational devices

Figure 3 / from top to bottom: Elmina Castle, Ghana; Offshore platform in Norway; Casino Pier, located in Seaside Heights, NJ.
source / the author, 2015; stormgeo.com, 2016; Andrew Mills/The Star-Ledger, 2012.

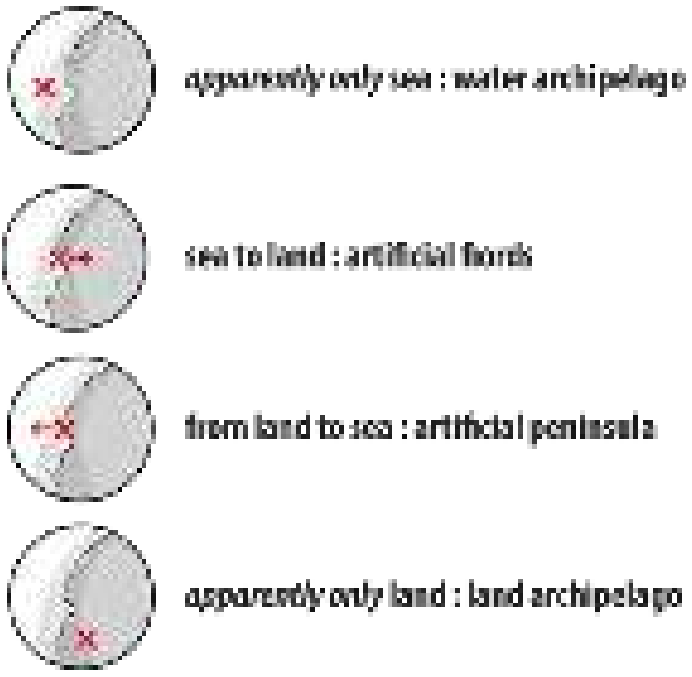

Fig 4 / Diagrams of the projects' location
source / the author

represent the extension of land into the sea. Last is the case of the WeatherField project by Luis Callejas in Abu Dhabi, which appears to be placed only on land but has a peculiar connection with the sea.

Cidade de deriva: from sea to land

This project deals with the supply routes that serve the Brazilian offshore oil industry today. The 'drift and drive' strategy creates a consolidated transport network connected with the existing pipeline structures in order to develop a real floating city. The city is organised in islands characterised by different types of production (agriculture, fishing, energy, and so forth). The route is organised in two phases; the first, from south to north, is motor-powered, and it brings oil and people from one platform to the other according to the working timetables. The second phase is possible due to natural ocean currents, and it allows the free-energy transportation of agricultural products and other resources. All along this route, thematic islands are staggered in order to increase the production in terms of agriculture and energy.

The island system is based on the alternation of agriculture and energy islands. Energy islands contain fields of single-point energy harvesters that passively generate tidal, solar and wind energy. The energy collected is then moved through the drift boats to the main hub and the agricultural islands. Agricultural islands are highly specialised and adapted to specific crops, such as rice, wheat, starches and vegetables.

The project proposes a new configuration for moving products from sea to land, embracing an ecological and political agenda around the economy of production. It reduces the ecological footprint of the existing offshore system, and at the same time, it tries to fulfil the worker-residents' needs. It transforms a floating system into a real territory.

Port Grimaud: the sea extension on land

Due to the boom of mass tourism in the 1970s, the coast of southern European countries along the Mediterranean became the new trend in touristic destinations. New cities were created ex nihilo for the specific touristic purposes related to the sun, sand and sea model of leisure travel (Pié & Rosa, 2013; Barbaza, 1970; Lozato-Giotart, 2008). Port Grimaud is one of those, but it is not a unique case. It is, in fact, the result of a development strategy applied along the southern French coast. In 1964, the architect Francois Spoerry proposed to a group of private investors to build a new Venice close to the famous touristic spot of Saint-Tropez. This area was a wetland, so a large intervention with drainage and engineering solutions was necessary.

Nowadays the city is completely private, much like Costa Smeralda in Sardinia. All infrastructures and public areas are private and maintained by the owners' taxes. In order to avoid a huge influx of tourists, some streets and channels are today closed and accessible only to the residents.

Figure 5 / General masterplan of Cidade da deriva by J. Luo, W. Song, A. Yuen
source / Bhatia & Casper 2013, 295

Figure 6 / Port Grimaud, before and after
source / Yves Lhermitte 1963, GoogleEarth 2018

From bath machines to piers and promenades: the land extension of the touristic devices

In the XVIII century, tourism started to spread, and with it spread the need for services in touristic destinations. This phenomenon strongly affected the coastal areas where most of the middle-class families began to travel (Pié & Rosa, 2013). On the coast, two different types of intervention appeared: accommodation and tourism-service providers. Before mass tourism, the projects with the most impact on the coastal landscape concerned the creation of opportunities for recreational activities.

One example is the bathing machine – a small wooden cabin which was designed for entering the water, where people could change their clothes and leave their personal objects. Bathing machines also provided shadow and allowed women and children to hide from strangers' eyes. The bathing machine became fancier and more sophisticated, such as the one belonging to the Spanish king Alfonso XIII on a private beach in San Sebastian, which, using a rail system, allowed the royal family and guests to have their own privacy with all the comforts of home.

Another important architectural element that represents a milestone of coastal

Fig7 / La plage a l'heure des bains, Boulogne-sur-mer 1890
source / Toulier, 2016

touristic colonisation is the pier. Piers were used for transportation but also as land extension for casinos and medical centres offering thalassotherapy. Piers were the first combination of the sea with the earliest complex devices for the provision of touristic services.

Abu Dhabi Weatherfield: from land to sea

WeatherField is a research project by Luis Callejas along a strip of sandy beach in Abu Dhabi between Yas and Saadiyat Islands. It is an energy generation park; it is 'a public space capable of harvesting the abundant renewable wind resource' of the area (Callejas, 2017). A series of 200 'para-kites' is located in the field, and each one is equipped with two flexible posts; they do not touch the ground or the water ecosystem. These para-kites use an innovative parafoil system to stay aloft and to harvest the wind energy, which is later collected and distributed.

The park offers different possibilities for public interaction. From homes, a sponsoring resident may have free electricity and a view of the Gulf. On the park's site, a visitor may see the view using an embedded 'periscope' in each post, or a more adventurous visitor may be harnessed to a para-kite to witness the view first-hand (Callejas, 2017).

Conclusions

Such different projects provide an illustrative catalogue of possible interventions on the coast, which we have discussed in its manifold aspects of production. The archipelago created in Cidade de Deriva, the artificial inlet of Port Grimaud, the bath machines and the para-kite archipelago of the WeatherField park show different design approaches to an area in continuous transformation.

The coast is an intelligent device that is adaptable, permeable and continuous in metamorphosis, just as a design approach should be in order to take advantage of the coast's potentialities and to show awareness of its risks. A project that conflicts with natural phenomena or does fully not consider them is destined for failure.

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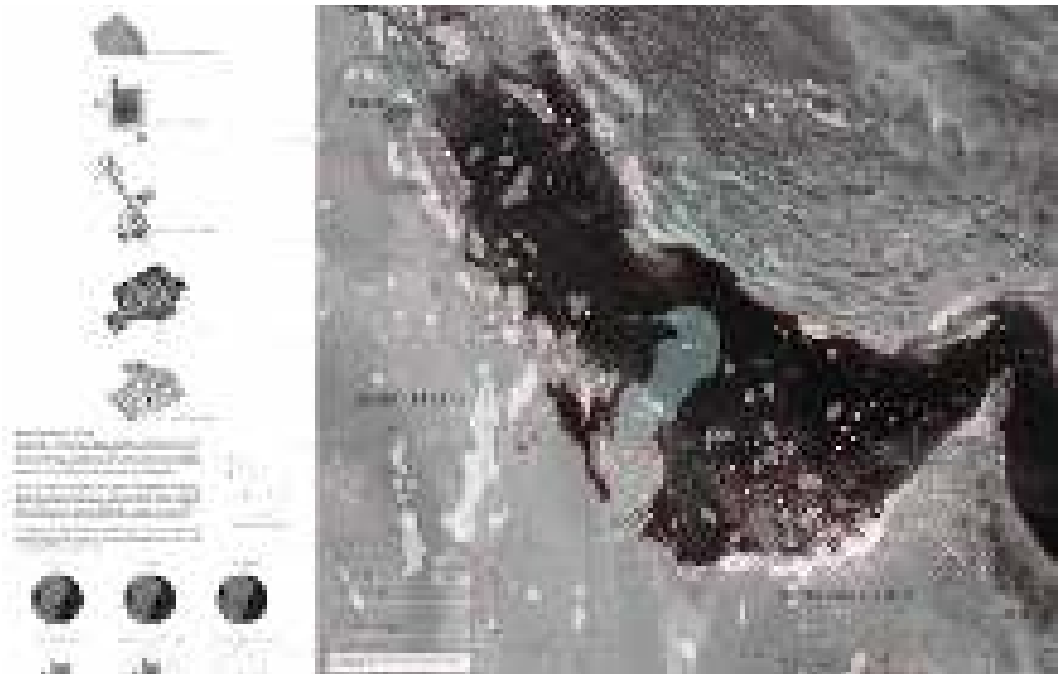

Fig8 / Weatherfield regional network
source / Callejas, 2017

Fig9 / Weatherfield three typologies of public experience
source / (Callejas, 2017)

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2
interdisciplinary exchanges

A Bike Ride for Local Pomegranate Juice / Opportunities for Sustainable Regional Development in Shkodra, Albania

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Abstract

Regions around the world face challenges related to economic development, sustainability, and social stability. In the context of Albania, Shkodra provides an important case study for the region. An interdisciplinary group of researchers from Arizona State University worked with Polis University and the Municipality of Shkodra to ensure sustainable development in the newly created Shkodra regional structure. The team analyzed the current state of the region, and the vision and strategy developed by the Albanian Ministry of Urban Development and Polis University. A series of interviews with stakeholders provided insights into key trends and challenges for future governance and development. This article outlines the findings, identifies three themes that regional municipalities and partner universities can explore, and provides recommendations for moving forward. Importantly, knowledge gained regarding university-government-civil society collaborations for economic and governance transitions, and the potential to incorporate emerging technologies and social innovations into these efforts, provides a model for a strong collaborative regional approach to 21st Century sustainable development.

Introduction

Cities and surrounding regions are leading the way in sustainable development. They are finding solutions that not only support economic development and quality of life, but protect environmental health as well (Nevens, et al., 2003). There are no one-size-fits-all solutions, however, as political, social, and economic contexts affect how a region transitions (Kemp and Lorbach, 2003; Frantzeskaki, 2007). Creating the momentum to shift away from environmentally, socially, and economically divisive practices requires collaboration between government, business, civic society, planners, and researchers. It requires developing projects, programs, policies, plans, and funding mechanisms that support sustainable development and economies (Miller, et al., 2014; Loorbach and Rothmans, 2009). While many Northern European cities have made major strides in this space, some are just now beginning the transition. This paper explores current efforts underway in Shkodra, Albania.

Background

Albania's Ministry of Urban Development (MZHU) developed a national program for long-term regional development planning for every region in the country. Each region is anchored by a major city with city and regional decision makers, Albanian planning experts, and firms with international expertise providing strong leadership. The regional planning effort in Shkodra paired the Municipality of Shkodra with Polis University and an interdisciplinary team, including the authors, from Arizona State University (ASU) in Tempe, Arizona, USA (Figure 1).

Methodology

Between January 2016 and early 2017, the team performed a detailed technical analysis including geo-spatial analysis, public engagement, regulatory planning,

Fig 1 / Mayor of Shkodra with ASU and Polis researchers. source / Braden Kay

and strategy development. Polis University was the technical lead and worked closely with municipality staff to ensure appropriate data was collected and analyzed.

Research included a literature review of national and international reports and articles, previous planning documents, and previous work of Polis University researchers; observations from several large-scale public engagements in March and June 2016; and informal interviews with stakeholders, Polis University researchers, and MZHU members (Figure 2). The ASU team also completed ten stakeholder group interviews with local transportation advocates, business owners, farmers, residents, elected officials, and members of civic society. Interviewees were asked for input on how Shkodra can move forward with regional sustainable development that supports national interests and economic development, while enhancing the social and environmental vitality of the region.

The universities and municipality worked closely together on community engagement to ensure the perspectives of residents, businesses, and civic society were incorporated. Participants were recruited by the municipality, researchers, and local non-profit organizations. Data were compiled and analyzed to determine key trends and challenges for future governance and development.

Results

The following themes emerging from this project highlight points of entry for regional development:

- Regional identity and strategic regionalism with a focus on critical assets
- Sustainable economies catalyzed by transformational investments
- Emerging technologies
- Anticipatory governance

Regional identity and strategic regionalism

Issue 1 / While a vague notion of Shkodra as a region exists, there is a need to create a cohesive regional identity. The Municipality of Shkodra should play a leading role in developing this identity.

Recommendations:

- Municipality development must model sustainability principles, green infrastructure, and community engagement for the broader region.
- Development must position Shkodra to embrace its role as the seat of regional governance, history, and culture; the regional transportation hub; and a haven for education and entrepreneurship.

Issue 2 / Connectivity between major urban and surrounding areas is fundamental to sustainable development (Newman and Kenworthy, 1999). MZHU showed significant foresight in delineating regional zones centered around an urban hub. Interviews and observations highlighted the need for more strategic regionalism that preserves Shkodra's character and encourages connectivity.

Recommendations:

- Connectivity must include strong economic linkages between regional activity (agriculture, eco-tourism, rural development) and the city.
- Development should focus on greater

Fig2 / Shkodra farmer discussing the need for regional transportation infrastructure to support agriculture / source: Braden Kay

density, complete streets, enhanced walkability, open space/parks, and regional public transportation development and transit investments that connect urban and rural areas, decrease automobile usage, and lower carbon emissions.

- New growth in rural areas may be best developed as dense nodes or villages organized along current and potential future transportation corridors.

Issue 3 / There is a need to solidify and protect Shkodra's historic character while promoting a livable city that attracts youth and business. The regional planning process presents an opportunity for strategic visioning and action plans that draw people in, engage them, and celebrate the region's history.

Recommendations:

- Planners and developers must resist sprawl and disorganized new development
- Form-based rather than use-based zoning encourages compatible growth
- Greater densities should not negatively impact historical and cultural assets. Concentrated low-rise developments that create walkable, welcoming streets while promoting density rather than high-rise housing options are suggested (Figure 3).

Rowhouses (vertical detached single-family houses) and townhomes (vertical single-family houses attached by common walls) use space efficiently while providing community members easy access to homes, businesses, education, and amenities. Both can support ground-level retail, making them ideal for urban centers.

Issue 4 / Park connections add value to communities, especially when they are integrated with key places (Tzoulas, 2007). Park planning was viewed as important by the universities, and the city's concepts and plans for its parks were publicly supported.

Recommendations:

- New development needs to be integrated with open public spaces and recreational green spaces.
- Existing development should be evaluated for opportunities to integrate green spaces, i.e., green roofs, community gardens, small parks, etc.

Issue 5 / Residents and small business owners reported that there is capacity for enterprises to celebrate and monetize the region's environmental and geographical assets. In fact, an emerging economy based on environmental assets is evident. Simply having the right economic development plans will not suffice, however.

Recommendations:

- Predictable governance, planning, place-making, business incubation, and job training will nurture the desired economy and provide a strong economic foundation.
- To support existing and future efforts, we recommend that the most recent development plan be revisited to determine what has and has not been implemented, impacts, and gaps.
- Regular monitoring, evaluation, and community feedback is needed to ensure investments are being allocated as intended and allow for adjustments as needed.

Fig3 / Rowhouses (left) and townhomes (right) support density and economic development without detracting from a city's history and inherent livability / source: Urban Land Institute

Issue 6 / Regional development needs to go beyond sound planning, and empower conservation and stewardship of environmental assets. We found that there were numerous national government assessments completed that identified locations in need of cleaning up and potential approaches.

Recommendations:

- These assessments should be revisited through the regional development planning lens. This is especially important as the region faces serious challenges in wastewater, lake quality, river flooding coastal development, and reforestation.

Issue 7 / Some stakeholders expressed concerns that future planning and development efforts would not fully acknowledge or fund the necessary investments.

Recommendations:

- Integrating environmental and ecological planning into regional development planning will promote investment, encourage sustainable practices, and protect natural resources.
- Innovative green infrastructure approaches, such as constructed wetlands, should be explored to provide investment opportunities as well as build community sustainability and resilience.

This comprehensive approach offers a unique opportunity to fully embrace a new regional narrative for environmental assets. But to push Shkodra to its full potential, sustainable economic development is needed as well.

Sustainable economies

Sustainability planning must connect physical elements to the social and economic elements that draw people to a place. Shkodra brings together history, universities and education, a new food industry, etc., to form the basis for creative economic development. Our experience drinking local pomegranate juice harvested from the mountain region in the city center is an example of the ways business owners are leveraging the region's rich environmental assets and entrepreneurial spirit.

Issue / Shkodra's local business leaders and entrepreneurs have many ideas of what a more sustainable development pattern in the region could look like. Those interviewed report spending years establishing businesses, from juice shops and bakeries to internet start-ups, that contribute to the creative hub model. But, they were quick to point out that this was not fully embraced in city and regional decision making. Furthermore, several potential investment ideas that we heard, such as a large port, offer less sustainable economic trajectories. These types of investments will not fully take advantage of Shkodra's assets and can, in fact, be detrimental.

Recommendations:

- Shkodra's overreliance on industries discarded by Western Europe (i.e., call centers) needs to be addressed. This can be done by acknowledging and embracing the city's potential as a creative hub.
- Concrete job creation strategies and capacity building support for entrepreneurs

Fig4 / Researchers drinking pomegranate juice at a local business during a group interview. source / Braden Kay

and businesses are needed.

- Transformational investments must support sustainable businesses and industry.

Municipality collaboration with local business

Issue / Business leaders noted that Shkodra businesses need support services and small business incubation in partnership with government investment in critical infrastructure such as business associations, transportation, and internet capacity. These investments would allow local businesses to thrive, nurture a place-based culture, and connect them to the region and the rest of the world. They expressed the belief that this would, in turn, make Shkodra a more desirable region for further investment.

Recommendations:

- Decision makers and regional planners should use community and participatory planning processes to elicit viable, sustainable development options and build consensus.

These processes engage the community in decision making, enabling high-quality, democratic governance and strengthening civil capacity; building public confidence, trust, and broader support for solutions by reflecting a wider range of public concerns and values; empowering ownership; satisfying public demands and generating a greater understanding of issues, concerns, priorities, and solutions; and ensuring that decisions and policies incorporate knowledge and expertise that is often overlooked to obtain the most appropriate solutions (Slocum, 2003; Wates, 2014).

Sustainable enterprise

Issue / There is significant opportunity for Shkodra to define and invest in sustainable enterprise. The ASU team recognized the region's potential to become a leader in eco-centric enterprises based upon its abundance of natural assets, the connection with European tourism, and entrepreneurial spirit.

Recommendations:

- The sage industry's success should be replicated for local pomegranate, honey, and raki production (Gecaj, 2017).
- The region can become a culinary destination by further developing its food-based economy.
- Developing markets in sustainable apparel and crafts made from local products, such as olive wood, are viable options.
- Cutting-edge sustainable enterprise trends, such as renewable energy and the circular economy, should be explored as both sustainable industries and a mechanism for making Shkodra products more desirable. For example, processing locally produced goods using renewable energy adds value to the product, reduces the region's dependence on fossil fuels, and lowers the product's and region's carbon footprint[1].
- Regional government should play a major role in securing support from external sources (NGOs, philanthropies, etc.) to help launch sustainable enterprises.

Efforts around the world to develop clean

Fig5 / Multimodal bridge in Portland, Oregon is an example of a transformational investment that supports a low-carbon and resilient city / source: City of Portland

and renewable energies are opening myriad business opportunities and encouraging the exploration and creation of new energy sources (solar, wind, and biomass) as tools for economic development (Koçak and Şarkgüneş, 2017). We were impressed by the solar enterprises encountered in Albania and recognize the potential for similar enterprises in the Shkodra region.

Circular economies move beyond simple recycling to reintroducing materials into the supply chain for future goods. Much like sustainable development, Shkodra has the capacity to replace its linear economy and establish itself as a center for innovation in this area (Kobza & Schuster, 2016). This would provide environment benefits and create new jobs.

Transformational investments

Issue / Selecting the right transformational investments are key to local, sustainable economies. For instance, Portland, Oregon's Tilikum Crossing (Figure 4) embodies a transformational investment in a low carbon future by supporting pedestrians, bicycles, buses, streetcars, and the city's light rail system but not automobiles (Sadik-Khan, 2017). Continued investment in fossil fuel economies and individual transportation will hinder progress towards a truly sustainable region.

Recommendations:

- Investments need to drive development towards the future Shkodra wants by focusing on local transformational businesses, industry, and programs.
- Investments should support a more resident-friendly, livable region, and build on its reputation for being a pedestrian- and bike-friendly city.
- The university-government-civil society collaboration can play a key role in identifying and developing these investments and garnering national and international funding support.

Emerging Technologies

Issue / Emerging technologies and innovation create challenges for sustainable development. For example, autonomous cars, nanotechnologies, and artificial intelligence will have increasingly disruptive effects in coming years. An excellent example is the use of unmanned aerial vehicles (drones), which raises public safety, liability, and privacy issues (Guston, 2013). Peer-to-peer services, such as Uber, Lyft, and Airbnb, also raise public safety and regulation challenges.

Recommendations:

- Developing an awareness of, and systems for responding to, these challenges will encourage benefits and mitigate problems.
- Plans and regional governance must be able to adapt to change while preserving key sustainability principles.
- One interviewee recommended building in opportunities to solicit input from citizens about emerging technologies and how they might be integrated into

1 / The amount of greenhouse gases and specifically carbon dioxide emitted by something (such as a person's activities or a product's manufacture and transport) during a given period.

community and regional practices.

Anticipatory Governance

The shift towards regional governance opens the way for regional stability. We witnessed skepticism in this national effort, but hope the people of Shkodra and Albania can see the forest for the trees and continue down the pathway of strategic planning and regional governance.

Issue / Youth and young professional interviewees embrace the governance transition and strategic planning taking place in the region. To ensure continued support, their ideas need to be consistently cultivated.

Recommendations:

- The region needs to resist the urge to copy Western European and North American governance systems and planning regimes.
- Decision makers, planners, and citizens must embrace anticipatory and open governance systems and the flexibility it offers.
- The university-government-civil society model currently being used promotes these governance structures and collaboration. Thus, they should continue to play a primary role in the region.
- It is strongly recommended that citizens be engaged in discussions on the region's future.

Crowdsourcing has proven effective in supporting innovation while building citizen trust and buy-in. Innovation forums and online engagement are inexpensive tools for ensuring that citizens play an active role in governing. Using tools these and similar tools will help develop local expertise and support.

Conclusions

Shkodra has the building blocks for sustainable regional development. The people that we interviewed represented a regional pride and creativity that will drive a sustainable economy if given the right support, strong governance, and well-placed investments. For instance, a focus on the region's geographic diversity and its natural resources, agriculture, and culinary traditions can support the growing tourism industry. Sustainable transportation infrastructure development, planning regulations, and growing enterprises such as renewable energy and the circular economy can support low-carbon lifestyles, nurture innovation and creativity, and ensure living wages and quality of life. The current regional governance and development models will go a long way to making the region truly sustainable if they embrace the region's innovative and creative spirit and remain flexible.

The university-government-civic society collaboration we participated in during this project shows promise. Continued work among these partners is expected to produce the information necessary to determine critical changes needed. It will also build support for programs and transformational investments necessary to move the region forward. These partnerships will not succeed alone, however. Anticipatory governance and community engagement are needed to build capacity.

Sustainable regional development demands rethinking policies and decisions, strategic planning, and community-based visioning that brings residents into discussions on community needs and goals. Making decisions based on future scenarios requires identifying areas of vulnerability as well as strengths, then working towards making the community less vulnerable and more resilient, a key concept for sustainability. Constant and consistent monitoring and evaluation are needed to ensure needs and goals are met.

Development will need to occur in tandem with smart investments to support a thriving, sustainable region. Shkodra's resources have the potential to transform the region, but it may be more successful with external support. It is important to recognize that this brings challenges as there is an inherent threat that long-standing interests can steer resources in the wrong direction. We suggest that regional decision makers consider the future that Shkodra wants and prioritize internal transformational investments towards that future.

If the desired future includes a low-carbon, environmentally responsible, resilient future then investments must focus on creativity, innovation, and an urban development model that meets regional needs. Dedication to good governance and planning will prove best in the long-term. While Albania may not have a long history of this type of governance, MZHU has provided Shkodra and Albania the opportunity to craft a new trajectory that honors its history and culture, and embraces a sustainable and exciting future.

Acknowledgment

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The role of environmental Strategic evaluation, as instruments for promoting sustainable planning and development in Albania / The cases of Shkodra Municipalities

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Abstract
This paper aims to analyze and draw conclusions from several ongoing reforms in Albania during the last decade, from a political, administrative and professional point of view, focused on issues such as spatial planning and development policies.

The authors are researchers and practitioners of sustainable planning in Albania, and they have tried to summarize their own experience by analyzing: i) the contextual developments in Albania in the last 3 decades, reflecting on the transition from centrally planned towards market economy; ii) the bottom-up (and vice-versa) processes of territorial planning and environmental protection in Albania; iii) the political reforms on territorial and administrative reorganization in Albania; iv) illustrate their real function on the ground based on two concrete case studies on territorial planning and environmental assessments in the respective processes in the Municipality of Shkodra (north) Albania.
Finally, conclusions are drawn from the case of drafting of GLP and SEA in the Shkodra Municipality and the progress of such reforms and their impact on people, communities, local and central authorities in Albania, leaving also room for recommendations and improvements. The article is also a good reference for academic and research purposes. It draws lessons from complex planning processes working from ground to government, including a lot of creative and innovative ideas on sustainable planning for Albania and Western Balkans.

Introduction
Until 1990, economic development and territorial administration in Albania was governed by the principles of state ownership of land and other assets, state-centralized planning (top-down). The basic forms of economic organization were state-owned enterprises and agricultural cooperatives (group property), where the land had been declared state owned by constitution. With the change of the system (1991) and the privatization of the economy, there was a shift from centralized planning to the principles of market economy. Until 2014, the entire territory was divided into 386 local units (61 municipalities and 325 communes). Due to the fragmentation of local units, problems of mismanagement of territory and informality, chaotic urbanization of potential agricultural lands and disruption of rural-urban balances arised.
Precisely for this, the Government implemented the reform of the new territorial administrative division (2014-2015). The entire country was divided only into 61 municipalities and 4 main regions. The division created some advantages over territorial control, but also some difficulties in meeting the needs of communities with services. By 2014, the planning focuses on the regulatory plan of cities and residential centers, and after the reform the territorial planning at the municipal level began. The General Local Plan is a strategic instrument for the development of economic sectors, balanced development of sectors, balanced use of natural resources, environmental protection, social improvements, service provision

Fig 1 / Shkodra view from the castle
source / Eranda Janku

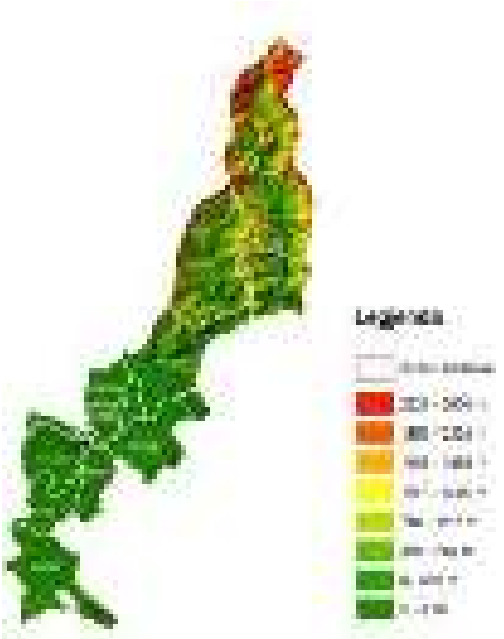
and quality of life of communities.
In the case of Shkodra Municipality, the period after the administrative territorial reform, compared to the previous organization, the municipality includes 11 administrative units, the population 140 thousand out of 80 thousand inhabitants, has increased 25 times in space (760 km² from 31 km²), saw the creation of new urban-rural relationships, orientation of development under new conditions, extension of planning as an instrument that encompasses the entire territory of the municipality aimed at creating sustainable balances of conservation of natural resources, protection of potential agricultural lands and protection of the environment in a wider extent from the problems identified.
After 1991, Shkodra has changed a lot. From rural areas, the population has migrated considerably abroad as well as in the city of Shkodra and in the suburbs. The city of Shkodra experienced a pressure on urban territory, land use, converting large public urban or agricultural areas to the construction site to the outskirts of the city. The free movement of the population, especially concentrated in peripheral areas of the city, has put pressure on ecosystems (natural, agricultural, aquatic systems) and on the existing infrastructure and services.

Some of the previous regulatory plans of the Shkodra municipality or of individual communes partially limited the informal urban developments, but did not stop the public spaces being occupied from urbanization, the urban dispersal to agricultural land, the green areas, the environmental damage and the emergency situations.

By 2013, the legal control instruments on environment and the impacts of the local plan interventions have been fragmented. Law 91/2013 "On Strategic Environmental Assessment" is the key instrument for integrating environmental issues and sustainable development principles into the strategic planning as "a systematic process that foresees and assesses the potential environmental impacts when designing a plan or program, in order to prevent negative impacts. Riki. Th. emphasizes that in many countries it will be one of the areas of assessment required for strategic compliance actions with other regulations, the effect on capital health in various business groups or environmental sustainability (Strategic Environmental Assessment in Action, 2004 page 66). The main objective of the SEA is, in all phases of drafting the General Local Plan of the Municipality, to consider the impacts of the proposals of the Local General Plan on the environment and to seek the orientation of the Plan (GLP) in order to minimize any potential negative impact which may result from its implementation. Based on the need for orientation of the expanded Shkodra development, the Municipality developed a General Local Plan of the territory.

Objectives

Reviewing the role of SEA in evaluating and improving the environmental situation in Shkodra Municipality and preventing the negative impacts of PPPs and proposed



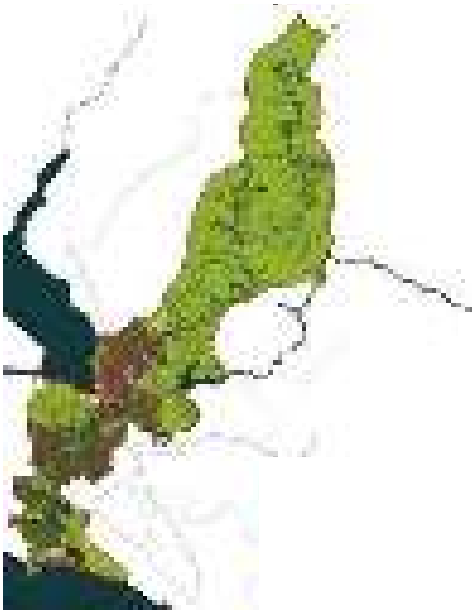


Fig2 (left) / Reliefs - source / the authors
Fig3 (right) / Territorial systems - source / the authors

projects on the environment as well as the orientation of the Plan for minimizing any potential negative impact that may result from its implementation.

Main theories

The theory is based on the principles of SEA. The case relates to the drafting of the General Local Plan for the Shkodra Municipality and the Strategic Environmental Assessment (SEA) as a basic instrument subject to local urban and rural planning plans and projects foreseen in the local plan.
The main objective of the SEA in the General Local Plan of the Municipality focuses on the analysis of the situation of the environment at all phases of the drafting of the local PPP of the Municipality, to consider the impacts of plan proposals and projects on the environment and to seek orientation of the Plan for minimizing any potential negative impact that may result from its implementation.

Study methodology

The methodology focuses on environmental situation analysis, with the participation of the public and stakeholders, the assessment of plan impact and environmental projects with (i) knowledge of the conditions of relief, geology, hydrology, climate, territorial systems, biodiversity and protected areas, landscape, infrastructure (ii) Comparison of scenarios on environmental impacts with the scenario without plan (iv) Environmental Assessment of idnicators of Air, Water and Land Pollution, Urban Waste, "Hotspot", Natural Pressures (forest fires and deforestation, floodings, seismic conditions of the region, climatic changes, degradation of agricultural land), urban dispersion (iv) Project Impact Analysis foreseen in the Plan and compliance with Sustainable Development.

General analysis of the territory

Relief

Shkodra municipality has a variety of reliefs from the coast of Velipoja to the altitude of 2694 m in the Alps of Albania, valleys, forests, pastures, fields, mountains, streams and rivers (Fig.2). Agricultural lands in the coastal area lie at a height of 0-16 m, while in hilly and mountainous areas natural systems dominate.

Territory systems

Natural resources in the territory dominate in 64% of the total area, the agricultural system in 20.2%, water, urban and infrastructural systems. Agricultural lands occupy an area of 16054 ha distributed in all administrative units, out of which 90.5% in the plain area with a slope of 0-5% and 9.5% in the hilly-mountainous area (Fig.3).

The water system

The water system is complex, including Shkodra Lake, Drin River, Buna River, Kiri River, Shala River, streams, Vilum Lagoon, Domn's Swamp, Irrigation and Drainage Infrastructure. Shkodra Lake is the largest on the Balkan Peninsula with 5500 km² (1030 km² in the Albanian territory). The lake and its surroundings are proclaimed as "Managed Natural Reserve as well as Ramsar area". The Buna River is the only river channel in the hydrographic network

Fig4 / Water system
source / the authors

of Albania with a length of 44 km and an annual average flow of 320 m3 water / sec. It stems from Shkodra Lake along the fields of Buna Coast. It joins the Drin River 1.5 km away from the Lake.The Drin River is the largest river of Albania with a length of 285 km and consists of two branches, where the waters of the rivers Valbona, Nikaj, Shala, Gjadër and Kiri flow.There are 3 Hydropower plants constructed in Drini River, which provide over 85% of electricity. The Kir River is 43 km long, but flows tempestuously into the Drin River. Kiri causes strong erosion of river banks, damage to protective structures, rock transport and swamps on agricultural lands near the shores. The Shala River is part of the Albanian Alps hydrographic network. The surface of the watershed is 260 km² and the length is 39.3 km (FIg.4).

Natural systems occupy the main surface of the territory. With the implementation of the territorial administrative reform, Shkodra Municipality has transferred 43806 ha of forests and pastures, of which forests 30992 ha and pastures 5377 ha, inproductive surfaces 5556 ha and so on.

Findings from environmental situations analysis

Assessment of plan secnarios in environmental issues

Through SEA, we compared the plan's alternatives and trends that may emerge in the future on environmental issues in 3 scenarios. Scenario 1 (Scattered Shkodra) means urban development and informality, where environmental issues would become worse. In scenario 2 (Monocentric Shkodra), the occupation of agricultural land from construction is limited, but the rural area remains undeveloped. In scenario 3 (polycentric development) environmental aspects become more controlled: agricultural lands and natural resources are preserved as a result of avoiding informality and urban dispersion, as well as landscape protection and reduction of agricultural land loss. It is the most acceptable scenario.

Environmental situation analysis

During the assessment of the situation in the environment, in the territory of the Municipality there is an evidence of the presence of environmental pollution, ozone pollution in the city center, damage to biodiversity, forests and landscape, mismanagement of urban waste and polluted waters, loss of agricultural land, erosion, flooding, partial functioning of the drainage system, erosion of river banks, natural pressures.

On agricultural land we distinguish urban dispersion, informal buildings, repeated floods of about 12 thousand ha with a duration of 25-30 days, erosion and landslides and degradation of land. Every year there is about 20-25% of the uncultivated agricultural land area, a significant change in the land production potential, due to the high fragmentation of agricultural land distributed in 3-5 places. About 14% of agricultural land) rejected by the owners during privatization because of the low production capacity continues to be degraded.

Agricultural land planning helps to reduce

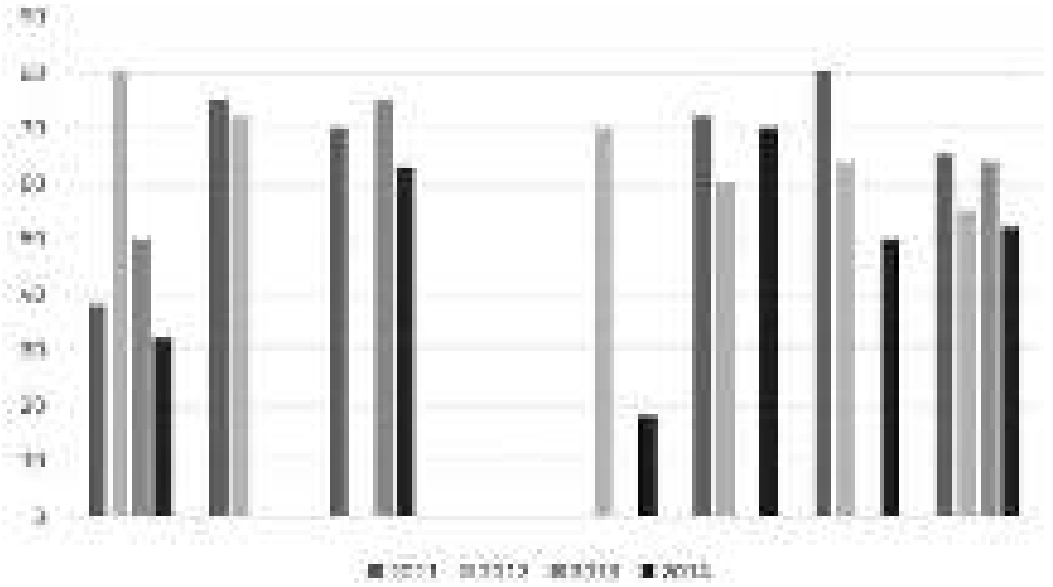


Fig4 / Air Pollution by Ozoni Shkodër, 2015
source / Report on the environmental situation, 2015

environmental impacts from agricultural practices and rural-urban ties (Beaty T, Petersen G & amp; Sindale I, 1986, Planning and the use of land management, page 251). The land is polluted from waste water during floods. The analysis confirms that after the floods, the biological activity of the soil has decreased by 5 to 10 times, physical and chemical qualities deteriorate, productivity drops and salt content increases in the coastal zone. In the Lowland area of Shkodra, the average soil loss only from erosion caused by floods is about 5 tons / ha (source: author group, 2011_ Action Plan for Natural Disaster Prevention).

A number of environmental and natural resource management problems are identified such as: the lack of forest management plans, illegal logging, incineration in Taraboshi Mountain, damage to forestry on river banks of Drin, Buna and Kir, cutting / growing ratio, erosion on the banks of rivers without plant furnishings, contamination of forest land from urban waste. Limited work on pastures stretching in the valleys of Kiri, Shala, Sheldi, Majë e Pejës, Shosh. It requires some additional work, in order to guarantee the maximum capacity of the pastures.

Severe georisks caused by fires, rock crashes, earthquakes, slips, floods, geological erosion. The area of Shkodra is pronounced with seismic and historically repeated earthquakes, with an intensity across the territory of a magnitude of 7.5 to 8.5 (8 to 8.5 at 72 percent of the territory). Climate changes with a temperature of + 5 degrees from 1912 also lead to the loss of soil capacity. The impacts of land degradation on global food security and the quality of the environment are important. It is concerning when only about 11% of the world's land surface can be considered as the main good land (Sivakumar M, Ndiang'ui N, 2007 Climate and Land degradation) (Fig.5).

Floodings / The flood phenomenon in the municipality of Shkodra is a complex and repeated issue. The whole hydrographic network on the hydraulic point of view is represented as a single water surface, HPP over the Drin River, inefficient drainage system and damage to river protection structures. All river waters accumulate in the Buna River. In the Shkodra area, the floods have been repeated since the biggest flood of December 1860, continuing with 10 major floods by 2010.

The Buna River sees the waters of the lake and the rivers flowing into the sea. The flowing capacity of Buna is 1500-2000 m3 / sec. In 2010, from the Vau i Dejes hydropower plant, 2800-3000 m^3 / sec have been discharged or 1.5-2 times more than Buna's flooding power, flooding the Shkodra suburbs, the city and the surroundings. The existence of three HPPs, in the absence of their good management, expands the flood problem, as it did in 2010-2011, when over 12,500 ha of land were flooded for more than 25 days. The discharges became obligatory because they were above the carrying capacity of Shkodra Lake, but also two

Fig5 / Georisks map source / SEA Shkodër

times above the carrying capacity of the buna River.

Shkodra floods have affected the use of inertes over the 25 years (1991-2014) of the Drin, Bune, Kir river beds, 55-60% damage to protective structures, massive erosion of river banks, damage to the forest coverage, protective embankments, the need to set up at 80 km and the construction of new embankments. Cleaning of drainage channels that includes 200 km of main channels, 250 km of second channels, 1200 km of third channels and cleaned only at 25-30% of the volume. In the Drini River basin the forest cover is no more than 50% of the surface, the new Buna bridge has created water barriers. Returning to a natural lakefront bypass itinerary built in 2011 is an additional element of city flood risk and environmental pollution from urban waste and damage to biodiversity.

Wastewater and urban waste management

Wastewater management remains an unresolved problem. There is no sewerage sewerage system in the peripheral suburbs of the city at 30% of the territory, the city's sewage is poured raw in the Buna and Drin River, causing pollution and eutrophication of waters, damage to aquatic life and biodiversity and concentration of heavy metals with toxic effects, in water and soil.

Mismanagement of urban waste in the municipality of Shkodra is another problem. There is no organized service in the mountainous administrative unit. For 2015-2016 38,786 tons of urban waste have been produced, of which 45.4% are organic. In most mountainous areas, they are deposited on local landfills, they are found scattered or disposed of by incineration. Organic waste separation, recycling and composting is lacking. Composting has a great potential to develop in the future. Two old urban wast landfills constructed without technical & sanitary hygiene conditions, cause soil and water pollution.

There is a need for drafting the waste management plan at municipal level, the requalification of the waste disposal site of Shkodra and Velipoja, separation at source, especially in Shkodra and Velipoja with the highest waste stream.

The whole territory of Shkodra Municipality is rich in flora and fauna and in protected areas (Shkodra Lake, National Park (PK) Theth, Protected Landscape Buna-Velipoja), a variety of trees, plants and animals. There are 60 species of fish in the Shkodra Lake, 54 molluscs species, 87 species of crab, 30 species of fish in Buna river, 50 species of waterbirds. In Theth Park, there are 1500 plant species, of which 70 are endangered. There are a lot of problems in biodiversity of flora and fauna and in the protected areas.

Impact evaluation of projects in the environment

In GLP Shkodra Municipality, 109 projects are defined, related to the improvement of Access and Regional Relations, Territorial Integration and Equality in Services and Access, Competitiveness and Economic

Fig6 / Floodings in Shkodra in 2010
source / Jutta Benzenberg for GIZ

Development, Quality of Life and Urban Development, Environmental Protection and Natural Hazards. Not all projects anticipate interference. This section involves evaluating projects regarding the compliance of each project with environmental objectives and their impact on the environment. Based on the evaluation, 40% of projects require strong mitigation measures, 15% have no environmental impact, 31% have positive impacts on the environment, and 14% of projects require mitigation measures at the work stage.

Projects requiring mitigation measures include mainly infrastructure construction, terminals, road axes, bypasses, regional markets, requalification of industrial and informal areas, etc. In SEA mitigation measures includes natural systems as a strengthening of the forest and environmental management structures in the municipality, inventorying and establishing a forest cadastre, drafting a municipal management plan, forestation of burned areas, unplanned in the municipality of Shkodra in 4200 ha, in Tarabosh Mountain, Velipoja, Guri i Zie, Postriba, spaces within the embankments from Dajci to Guri Zi, improvement of pastures in Sheldi, valley of Kiri and Rrjoll, protection of biodiversity for endangered species.

Conclusions

The Strategic environmental assessment remains the key instrument for integrating environmental issues and sustainable development principles in the PPP, which foresees and assesses the potential environmental effects of designing the proposed plan and projects, as well as minimizing any potential negative impact that can result from its implementation.

By comparing plan scenarios and future trends in environmental issues, it turns out that in polycentric development environmental aspects are more controlled in preserving natural resources and agricultural land from informality and urban dispersal etc.

In assessing the situation of the environment in the territory of the Municipality, there is an evidence of the presence of environmental pollution (air, soil and water), damage to biodiversity, forests and landscaping, mismanagement of urban waste and wastewater, loss of agricultural land, erosion , floods, natural pressures (fires, seismicity, rock crashes, all forms of erosion)

The most critical issues in the environment are related to:
- Urban waste management in mountain administrative units not included in the collection system, waste separation and recycling are inexistent, two dumpsites open as a source of contamination. Composting organic waste is recommended to be developed.
- Management of untreated wastewater that continues to flow between Shkodra Lake (between the Lake and Buna).
- Floods as a repeated phenomenon and in spaces of 10-12 thousand ha. There is a need to improve Drini's

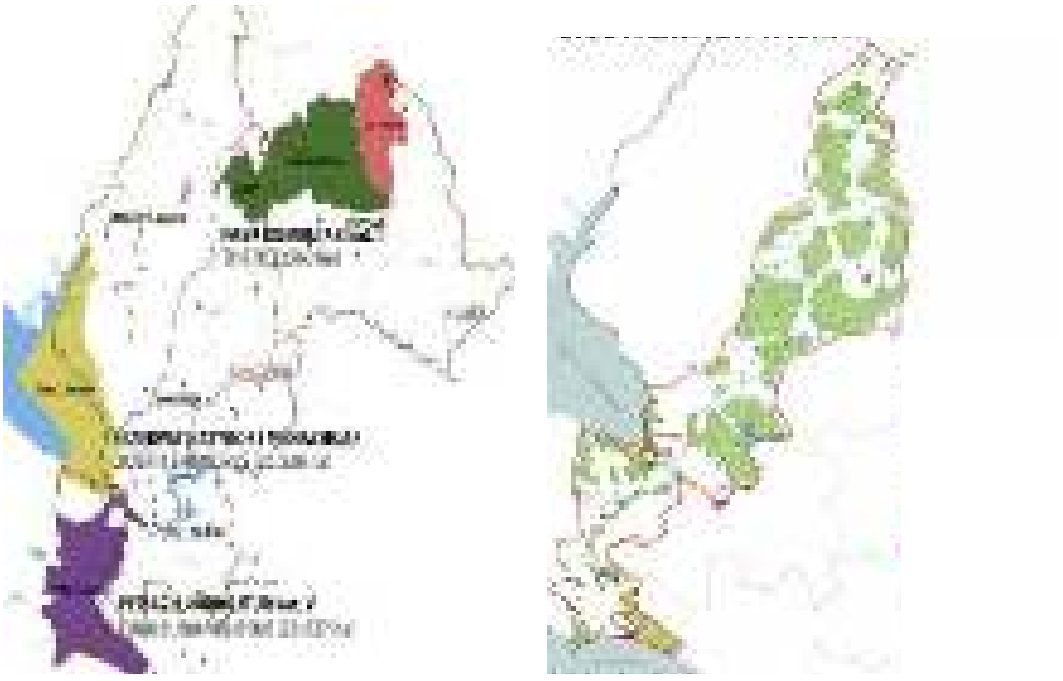


Fig7 / (left) Network of protected areas and natural monuments; (right) Biodiversity and fauna source / JSEA Shkoder

HPPs management by the Ministry of Infrastructure and Energy through the implementation of the discharge quota manual, to transport up to 2000 m3 / sec in Buna. Establishment of embankments in 60 km and the construction of new segments, re-qualification of the lake and impacts of the Buna bridge.
- Strengthening forest and environmental management capacities in the municipality, Inventory and establishment of the forest cadastre, increase of investments for forestation and forest improvement in mountainous settlements, drafting of the management plan at the municipal level.
- Rehabilitation through the forestation of burned areas, untreated by 2020 in Shkodra municipality in 4000-4200 ha, on Mount Tarabosh, Velipoja, Guri Zi, Postriba, spaces within the embankments from Dajci to Guri Zi for the protection of river banks.

Of the 109 projects proposed by the GLP of Shkodra Municipality, according to the environmental impact assessment on the basis of the compliance of each project with the environmental objectives, it results that for 40% of the projects (mainly infrastructure construction) massive mitigation measures were foreseen because they directly affect in the environment.
For a better quality environmental assessment, there is the need of an increasing capacity and knowledge of experts and regional environmental directorates, strategic environmental assessment (SEAs) and in-depth environmental impact assessment (EIEs) developed with experts from all fields. Communities should have more information, as often when the work for landfills or HPPs construction begin, the conflicts start also.
The whole procedure of environmental permits should be revised, as the agencies find themselves unsuccessful in preventing out-of-rules exploitation, permits are granted in river basin segments with canyons for the construction of HPPs, quarries near residential centers and protected areas.

Defining hindering factors of the informal settlements in the general regulatory plan of Shkodra municipality

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This research dates back to the beginning of the first phase of drafting the General Regulatory Plan (GLP) of Shkodër Municipality, January 2016.
As stated by the Albanian law 'On Territorial Planning', the drafting phase of a GLP follows three processes: deep analysis of the territory, vision and development plan. The most consistent of all three processes is the first. It requires the involvement of different actors in data collection and the ability to merge specific thematic maps. For these reasons, and due to the complexity of the objectives that an actor might have, this research focuses on one specific theme: informal settlements and the role that two actors has during the first process of plan drafting.
Many studies have been conducted on the second and third phases, such as critiques of the zoning or political processes that are brought to strategic visions and their applicability. From this perspective, this research is the first attempt to highlight emerging problems that the GLP could solve if it begins with the first process, the deep analysis of territory.
The two actors studied are the Regional Agency of the Legalization, Urbanization and Integration of Informal Areas (ALUIZNI) and its agenda and the municipality and its territorial instruments, such as the General Local Plan, (GLP).
The hindering process[1] to acquire formal housing from informal housing is mostly a hidden and neglected issue. The classic way to deal with these practices is the last process of the GLP, the development plan. This phase does not include the hindering factors in the analytical data, and it treats them as a unique area to be combined later with the structural units of the zoning tool. By doing this, we lose the main principle of the GLP, that of wealth redistribution and social justice, defined by law 107/2014 "On Planning and Territory Development".
The research explains why it is important to integrate the information of both the actors in the first phase of plan drafting with what can be generated later if revenues and public investments are made in a different political decision making process. By integrating in consecutive layers the various housing emergencies the research calls in action various professionals and decision makers in a planning instrument based on informal area.

Introduction

Shkodër Municipality has historically been the most important demographic, administrative and economic centre of the Shkodër region. With the new administrative division[2], Shkodër Municipality includes within its administrative jurisdiction the city of Shkodër and ten other administrative units.
The urban planning laws in Albania have undergone several changes in the last 27 years, but the most significant wasa 2009 addition that changed municipalities' perspectives on their territories, changing the interpretation from 'On Urbanism'[3] to 'On Territorial Planning'[4].This period also signifies the expansion of the competences of the municipalities to manage the rural area outside the yellow line[5], defined since the communist regime to maintain the centralization of the cities.

Fig 1 / Mar' Lulaj Neighborhood, close to the Train Station in the south east of Shkoder city. source / the author

This planning instrument, the yellow line, has also represented the inability and limits of the municipalities to manage the urban sprawl that has characterized the Albanian territory for more than 27 years. Informal settlements have been raised outside the yellow lines of the biggest cities in Albania, such as Shkodër, Durrës, Tiranë and Elbasan. However, in 2004,the main government created a new regional agency to deal with informal settlements, ALUIZNI. Since then, these two territorial actors, ALUIZNI and the municipality, have been challenging the same competences with different resources and policies. A previous research[6] on the public urban agenda and the public policy evaluation on legalization, urbanization and integration of informal areas shows that public resources[7] has been given to the first actor, ALUIZNI. The research conducted in two given timelines, 2006-2016, explains how the this urban agenda has been centralized to the higher administrative levels. The Urban Agenda have shifted toward a centralized actor's network with a focus on efficiency (cost-benefit) and public revenues rather than effectiveness, by creating a deeper fragmentation of the network, limiting the cognitive[8], political[9] and economical[10] resources of the lower administrative levels, such as the new born municipalities.

This separation and conflicting conditions between these two actors has importance not only to the administrative point of view but also to the implementation and coordination of the future (GLP) of Shkodër Municipality.

The main objective of this research is to integrate in consecutive layers the various housing emergencies[11] related to these two different actors in order to create one planning instrument that deals with the work of both actors.

ALUIZNI deals only with informal settlements, and the municipality is the main actor to release building permissions. The fact that these roles and competences are separated leads to a situation in which public revenues are divided between the two actors: this creates political instability regarding wealth distribution.

1 / "Hindering Process" or "Hindering Factors" are all the legal, physical and environmental constraints that persist on the territory.
2 / On August 2014, a new Reform on the Territorial Division was approved in the Albanian Parliament.
3 / 'On Urbanism' was the Albanian law regarding urban planning.
4 / 'On Territorial Planning' is the actual law with new changes regarding territorial planning beyond the yellow line.
5 / The yellow line was defined by 'On Urbanism' in 1998 and before tracing the urban borders and competences of the municipality.
6 / For previous research from the institutional decisional arena, see 'Opening Future Scenarios for the Urbanization, Integration of Informal Settlements in Albania'.
7 / Public resources, cognitive, legal, economical.
8 / Cognitive resources are those related to the information that each actor, in this case ALUIZNI and the municipality, has on the actual condition of housing. This is verifiable on actors' maps.
9 / Political resources are the political veto that the municipal council has to gather survey on informal settlements.
10 / Economic resources are the revenue that public authorities use to invest in informal areas.
11 / Housing emergencies are activities related to informal practices for housing purposes. In the Albanian context are all the informal settlements that for one reason or another can't be legalized. They have legal and environmental constraints. Inhabitants in a such conditions are legally, economically in high risk. In some cases they are in hazardous environments or close the highways, railways and other physical elements.

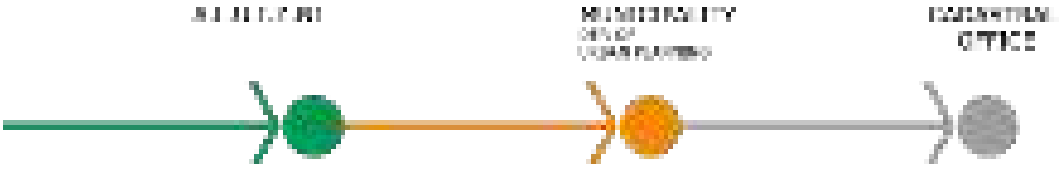

Fig2 / Looking for the hindering factors in three phases for a legalization. source / the author

The separation of roles also may influence social justice and opportunities offered by the city. This underlines that ALUIZNI is at the first administrative level[12],while the municipality is at the last.
The main agenda of ALUIZNI has three objectives: legalization, urbanization and integration. The first objective results in public revenue from the legalization fee, and the last two in public expenditure, such is infrastructure. Given such financial measurements we can have the investment for a single informal area[13] as follows:

Investment = (Legalization Revenues) - (Urbanization Costs) - (Integration Costs)

Formula A: Measuring the Investment for Each Informal Area

The last objective is not defined by the agenda and comprises the competences and duties of the municipality, depending on how the General Regulatory Plan defines it. Therefore, revenues might appear on the side of ALUIZNI while costs are charged to the municipality, as it has the duty to make investments. This underlines that an investment related to informal areas is not a local priority agenda, the more they are legalized more are the costs of the municipalities. Some of these case are with the expansion of the urban area to bring public transport or waste management facilities. On the other hand, municipal planning instruments, such is the GLP, do not permit the development of informal settlements on unclear territorial conditions, such as hazardous areas. This last hindering factor also influences the public revenues that should come from the legalization process to ALUIZNI and, later, the investment for each informal area[14]. By defining the hindering factors in consecutive layers, we can have a more sensitive and clear formula to calculate the necessary NET investment for each informal area, which could lead to a fair distribution of wealth and social justice.

Methodology

Based on the introduction, the assumption is that there is an incompatibility in cognitive resources[15] between the two actors: the map that the municipality works with is different from the one that ALUIZNI uses. To understand the diversity of the two maps, it is important to underline that ALUIZNI has the political and economic resources to update and take surveys on cartography. The cartography of the municipality is less updated. Only by the approval of ALUIZNI the process of legalization can go to the municipality and then to the Cadastral Office. Picture 1 illustrates this process (Fig.2).

For this reason, in this research, I will follow a consecutive analysis of the hindering factors, passing from the first actor involved in the decision making, ALUIZNI, to the municipality and the Cadastral Office. By the decisions that actors make as gatekeepers, they also define who receives regular housing conditions and who remains in informal conditions, for legal and environmental constraints. For a better understanding of the hindering factors, this research focuses on different

Fig3 / Land and Settlement in four macro hindering factors. source / the author

surveys and studies.
A first analysis of the hindering factors comes relies on Aliaj's(2008) The Sixth Mystery: What Is the Trap That Hinders Development and the Integration of the Albanian Economy with the Modern World?:

The first lesson is that informal constructions are not simply a legal problem, even when it is recognized that this phenomenon has considerable implications and takes different legal forms. Constructions may be illegal for a number of reasons: they are built on land public or property belonging to someone else, having problems of marking or registration, having inheritance, marriage, property claims or compensation, disregarding urban norms, or having obtained construction permits, the latter may not comply with de facto implementation: the constructions do not respect the environmental conditions or are built in the protected historical area, they are located in areas of low durability and pose a danger to the safety of people, are built on agricultural land etc.(Aliaj, 2008, p. 70)

This statement identifies six different hindering factors, listed in Table 1 and regrouped in 4 macro hindering factors[16]. The other document that has been used to illustrate the hindering factors in consecutive layers relies a survey made on the laws and decisions of the National Territory Council[17]. One of these is the council's last decision regarding the criteria that a settlement needed in 2015 (National Territory Council Decision Nr. 280, 2015), and lists a total of sixteen articles. In the Table shown in Figure 4, these criteria are listed a factors that the ALUIZNI agenda takes into consideration; however, for a better understanding, they are not translated verbatim from the Albanian language with all legal articulations.
For the municipality and the GLP, many of the criteria listed by the ALUIZNI are included as well, along with the adjunctive aspects that the plan may prescribe. The research relies mostly on Law 107, 2014, 'For Territorial Planning and Development', which guides the GLP and how it should be drafted, and Article 33,'Development Suspensions', which gives more than ten reasons why a settlement cannot have a building permission. For a better reading, many-sub articles are not included (if they were, there would be between 50 and 60 regulations and various decisions at the lowest administrative level, the municipality).Four macro hindering have

12 / First administrative level actors are all those public actors working based on the agenda of the national government.
13 / Informal areas are homogenous legal statements of settlements and neighborhoods. In 2016, there were reported to be 277 informal settlements on a total of 205 ha spread around the outskirts of big cities such as Tirana, Durrës and Shkodër, including around 300.000 families. For more details on informal areas and their legal status, see Law 9482 (03.4.2006)Article Nr.13.
14 / In some cases it's possible the municipalities can candidate to the central government for urbanization investments in informal areas. This cases are ad hoc and do not reflects many local issues.
15 / Cognitive resources in this case are information, such as maps, that different actors have on informal areas.
16 / Macro hindering factors is the methodology used to regroup the hindering factors based on settlement condition.
17 / The National Territory Council comprises five ministries and makes decisions on territorial matters every month.

been listed in consecutive layers that regroups the hindering factors of each actor mentioned above: 'Outside the Land', 'On the Land', 'On the Building' and 'On Single Family'. The macro hindering factors has been regrouped thanks to the two crucial territorial resources that constitutes the access or not to legalization process, the land and settlement. Each hindering factor lays on one of this two resources and the combination of the both creates 4 probabilistic situations. As the prisoner's dilemma[18] suggests when one or another factor fails these probabilities are going to be four, as follows;

- If Land (L) and Settlement (S) fails, both. (and vice versa)
- If (L) fails and (S) does not fail to legalization, (and vice versa).

In our case this theoretical law, the prisoner's dilemma, creates the main methodology to classify each hindering factor, for the legalization process, in four macro hindering factors in planning and territorial matter.

Results

The four macro hindering factors are a series of grouped restrictions and regulations that derive actors, described in the three phases of the methodology. The results are the summary of macro hindering factors, described as follows.

Outside the Land / This group of hindering factors represents the biggest portion of prescriptions in all three phases. The contents of these prescriptions, laws and regulations are strictly related to the protection of land status and destination of use. Usually, these are hazardous areas, close to river basins, highways or other unspecified locations, and violated laws. The hindering factors in such a condition will persist if nothing is done to re-establish the natural condition or what is prescribed by the GLP. To understand the housing emergency of this condition, we look to the consequences of land flooding, unhealthy air and water and un stable terrain. Investments should focus on large-scale, natural systems, land expropriation, health conditions and alternative housing solutions. The emergency costs for this group are the highest of all four.

On the Land / This group of hindering factors represents one of the most intersected problems that housing faces, as described by Aliaj (2008):the conflicting and imprecise cartography used by different actors. Inhabitants that have raised settlements in such conditions face a continuous institutional barrier. The cost that solves this process transitions may vary from a technical solving programme to land price. Unlike the first group, the needed investment is lower. For the Albanian context it can be estimated from 30 Euro per square meter of land to 100 Euro[19].

On the Building / This group of hindering factors is less prescribed by the regulations and may vary based on municipality and GLP laws. It is related to the physical and architectonic incompatibility with the law or the (GLP) where in some they have surpassed the limiting indicator for development in the zoning area. This macro hindering factor relies on the

Hindering Factors from " The Sixth Mystery survey: What Is the Trap That Hinders Development and the Integration of the Albanian Economy with the Modern World?"

Hindering Factors from the ALUIZNI Agenda, Law and Regulations. ***Phase one in Picture 1.***

Hindering Factors from the General Regulatory Plan. ***Phase two in Picture 1.***

Hindering Factors Cadastral Office ***Phase three in Picture 1.***

 Macro Hindering Factor, group1 **"Outside the Land"**	 Macro Hindering Factor, group2 **"On the Land"**	 Macro Hindering Factor, group 3 **"On the Building"**	 Macro Hindering Factor, group 4 **"On Single Family"**
These Settlements are built on agricultural land.	These are built on public land or property belonging to someone else. Having obtained construction permits, but may not comply with de facto implementation.	Having obtained construction permits, but may not comply with de facto implementation.	Having inheritance, marriage, property claims or compensation, this group has no income for the legalization fee.
This group violates the strict zone of protection for seas, rivers, canals and other natural water systems; main water supplies and networks, airports, ports and dams; pipelines, oil wells and their infrastructure; and energy power stations or interconnection zones.	This violates the category Integrity of the Monuments of Culture, I, II and archaeological areas, as well as requirements for distance from the main streets.	This violates the category of the Monuments of Culture, I, II and archaeological areas, as well as requirements for distance from the main streets.	n/a
This violates proposed or existing protected natural areas in various categories.	The Urban Planning Office of the municipality can express public interest.	This group has no building permission. The municipality's Urban Planning Office can express public interest, or may change the development indicators.	n/a
n/a	n/a	n/a	This group has no income for registration fees.

Fig4 / Four Macro Hindering Factors to regroup each single hindering factor, or legal constraints based on settlement and land conditions. source / the author

single investment for the building and it may vary from partial reconstruction, in unsafe conditions to live in, to entire investment. For the Albanian context it can be estimated from 200 Euro per square meter of building to 300 Euro[20].

On Single Family / In this group of hindering factors are all those families who cannot pay the legalization fees or the registration to the Cadastral Office. Other taxes may be included in the hindering factors to the legalization and formalization processes. The cost for future investment for this group is the lowest if confronted with other macro hindering factors and it may vary from 250 euro for a single building to 1000 euro in case of socio-economic activities[21].

18 / The prisoner's dilemma is a standard example of a game analyzed in game theory to study 'cooperation' and 'failings' possibilities.
19 / The price per meter square of land is referred to the free market price in Albania.
20 / The price per meter square of building construction is referred to the free market price in Albania.
21 / The price for the cadastral registration of building is referred to the price of public services that the institutions delivers.

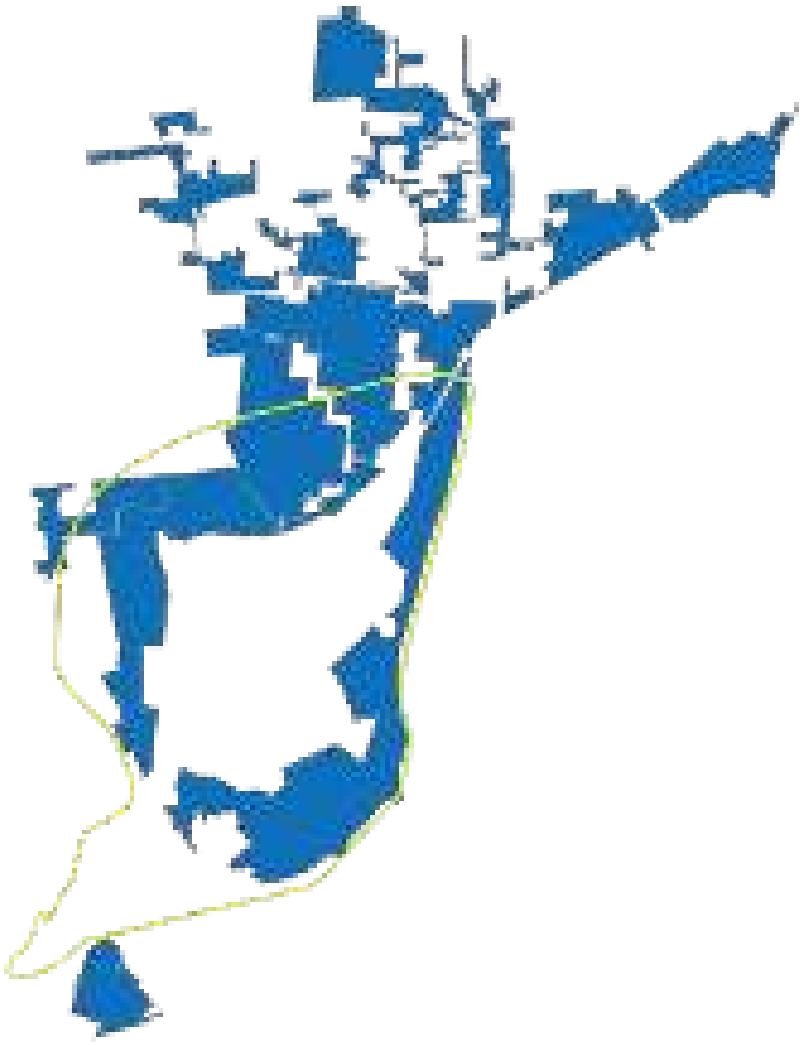

Fig5 / Bounded rationality on decision making for future investments. source / the author

Summary / While the macro hindering factors of groups one and two are maintained, informality will prevail, and the hindering factors of groups three and four will consequently increase. The first two hindering factors risk the creation of an 'oil stain' of the last hindering factors. A single example is when a settlement can't get a building permission for a reconstruction if lays close to the river basin. This condition would have consequences in a short or long timeline to unsafe situations to live in. For this reason, it is necessary to involve different technicians from different fields, such as environmentalists, landscapers, urban planners and architects, in the problem solution phase since the first macro hindering factor. Investment in these new technicians may be from the public and private sectors as well.

As technicians, we cannot change and control the informal practices. However, technically and politically, there is much to do, and it is up to the new planners and architects to understand this relationship between the social city and the physical city in order to fill the vacuum that Aliaj, Shutina and Dhamo (2010)explain in their book Between Vacuum and Energy.
For Ludovico Quaroni, and Italian architect, urban planner and essayist, this interrelation is described as a symbiotic process that persists through time and space:

the social city and the physical city lives together according to a form of symbiosis: how certain species of the plant world have a structure resulting from the coexistence of an alga and a fungus, of two very different things, therefore, which nevertheless find possibilities, realities of life only in an indissoluble union, just as a social city and a physical city can't exist in complete autonomy. Each of them claims its autonomy: but the social city can never be if not in a space ... the physical, spatial city can never be anything but for a human reality ...(Quaroni, 1982)

Importance of the Research
While summary rises the need to involve public and private actors to action

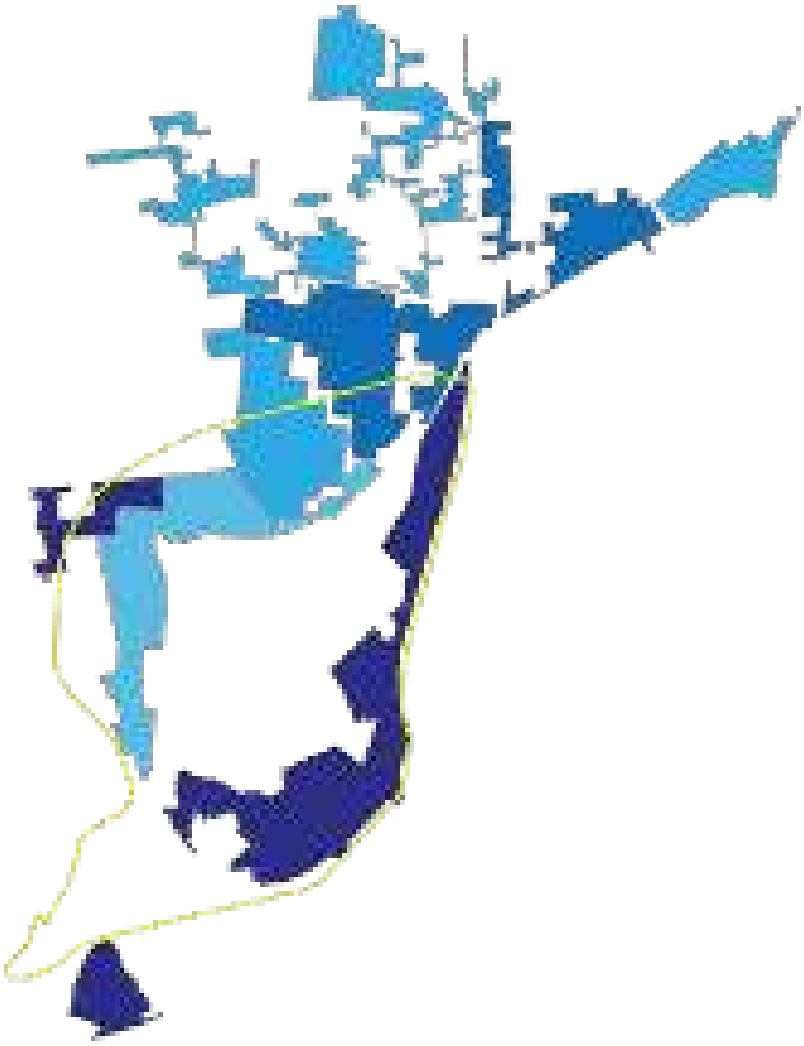

Fig6 / Synoptic planning on decision making for future investments (with blue dark the informal areas where the investment is negative) / source: the author

for problem solving, and definitions, it's important to get to the planning instrument such is the Shkodër GLP.
As mentioned in the beginning of the research the deep analysis of the territory is the first step to the GLP draft and it mainly consists in the data collection and elaboration.

Even if the two actors, as mentioned above, have different cognitive resources on the informal settlements, and areas, the information that they shares is unhelpful to a wealth redistribution and social justice. As we know from the survey for the methodology there are macro hindering factors that blocks the legalization process, and this means less revenues for ALUIZNI. The inability to show this public deficits on revenues of this last actor to the municipality creates unhelpful cooperation for future investments on urbanization.

Picture two show the eight informal areas, in blue colour, around Shkoder municipality, and with the yellow the old yellow line. The nature of the decision making that the municipality follows on this circumstances can be defined as a bounded rationality.
According to Dente (2014), professor in public policies at Polytechnic University of Milan, we know there are four decision making models. The bounded rationality belongs to the second model after the rational and before the incremental model.

"...the rational decision maker looks for satisfying courses of actions, or actions that are ''good enough'' on the basis of the information he has, avoiding any pretence of optimization, i.e. of maximisation of the effectiveness of the solution". Dente (2014)

Differently from the bounded rationality the rational model appears to be more sensitive on data, means and goals. This would need a different map from picture two, in order to show the policy effectiveness. And as we know from the survey the macro hindering factors are different for each informal area or settlement. To change the lens of problem

Fig7/ Qafe Koder, Ajasem Neighborhood, view from the Shkoder Castle. in the southern part of the city source / the author

detection, a synoptic criteria planning[22] would be needed to read the hindering factors since the drafting of the GLP by providing evidence for the importance on housing emergencies, urbanization and other priorities in informal areas and settlements. Picture three illustrates an example if policy efficiency, revenues and public investments, are taken in consideration on informal area scale.
Public revenue from ALUIZNI can be directed for future investments to specific macro hindering factors by cooperating with the actors involved in the problem solving, such is the municipality. The integration cost, not defined by law, can be translated as a hindering cost in order to give territorial evidence for wealth distribution and social justice. Below is the integrated formula to take into consideration the hindering factors on the final investment of the policy efficiency for each informal area.

Investment = (Legalization Revenues) - (Urbanization Costs) - (Integration Costs)

Investment = (Legalization Revenues) - (Urbanization Costs) - [Hindering Cost ("Outside the Land" + "On the Land" +"On the Building" + "On the Single Family")]

Formula B:The Integrated Formula for the NET Investment in Each Informal Area.

The final investment for each informal area in this case creates sensitive data to manage the decision making and picture three shows its value on the map. In some cases it may be negative and in others positive, such means the public interest to invest on specific area is greater and to others less. The methodology used for the survey permits us to have clear values for each informal area and it is relevant not only for the wealth redistribution and social justice, but also for the GLP drafting, latter translated in costs for the municipalities.

A horizontal political debate can rise among municipal administrative units to foster the future investments by reclaiming the political interest, or disinterest, on specific informal areas based on macro hindering factors.

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22 / Synoptic planning typically looks at problems from a systems viewpoint, using conceptual or mathematical models relating ends (objectives) to means (resources and constraints) with heavy reliance on numbers and quantitative analysis. Despite its capacity for great methodological refinement and elaboration, the real power of the synoptic approach is its basic simplicity. The fundamental issues addressed-ends, means, tradeoffs, action-taking-enter into virtually any planning endeavour. (Hudson, 1979).

Creative cities along water margins / Urban and cultural regeneration of Shkodra, city of water

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The culture of water in the contemporary world

Water has always influenced human life and has shaped the entire planet. It was the fundamental element for the economic and cultural development of all populations, to the point that the evolution of civilization depends on the way in which man has relied on water.

The need of man to have water resources near the inhabited places is a constant necessity in time. The domination of water as a source of energy and wealth for the city is an essential model of urban evolution.

The contemporary city no longer tends to territorial expansion, but to the regeneration of marginal areas, especially those rich in resources and potential. From this point of view, the waterfronts are those spaces that transfer to the city the possibility of continuous change and improvement of the entire urban fabric.

In the contemporary world the interest in redesigning and exploiting coastal margins has increased more and more, in order to build ever more efficient relations with water and create new images of waterfront. "When these relationships become creative, the city becomes capable of generating a new urban form, of producing new landscapes and of feeding, through the perennial flow of urban culture, the great relational networks, making them more vital, communicative and competitive" (Badami, Rosivalle, 2008, p. 7)

Bruttomesso (2007) states that "the cities of water will be the leading cities of the 21st century and these will not only be the existing water cities, but also the new ones, those that are being built and designed in these years" (Bruttomesso, 2007), the water cities, which can be closely related to the sea, the lake or the river. European experiences are very significant and give an idea of how the relationship between city and water can change, rediscovering the interest of society for its centrality aspect. These are cities that after having expelled nature, feel the need to find it again. There are several relationships with the water that the cities have built, according to their type. The fluvial cities exploit the riverside as an area formed by more or less large equipped bands, so as to make them become dynamic places for meetings, movement and entertainment for the city. An example of this is Paris and Berlin where the beaches equipped with swimming pools on the riverbanks of the Seine and the Spree have been rebuilt.

Cities overlooking the ocean tend to create megacities, carrying out projects that go beyond urban boundaries.

The Mediterranean waterfronts and those of many European cities, are generally meeting places for various economic, cultural and touristic functions and activities.

In the interventions that take place along the waterfront, which are cities that overlook the sea, the river, the lake, or hybrid cases of a relationship not really direct with water, the key feature that unites them is always the centrality of public space, as a priority place for relaunching the city, also at international level, through cultural and touristic

Fig 1 / Beaches facilities on River Seine
source / siviaggia.it

programs. Over the last few decades, the waterfront has assumed an increasingly strategic role, stimulating new reflections on the city in general, but above all by dragging into the regeneration process even wider territories of backwaters. These reflections are also affecting cities that in the past have turned their backs on water, developing rather inland. Rome itself, over the centuries, has expanded into the hinterland. The sea, "despite its great proximity, has never represented a real attraction: apart from the choice, originally, of the place to found the city, a choice determined, probably, by strategic reasons linked to that specific place, one can not understand, as it has never been, (...) an attempt, perhaps a desire, to bring the expansion of the city towards the delta of the river " (Quaroni, 1976, p. 19-20).
And with the due differences, this is what also distinguishes Shkodra.
The city is characterized by a building expansion towards the hinterland, giving its back to its lake, and its rivers, which are natural as well as economic and cultural resources. As a consequence, the presence of water has never had the right importance, and has never been the protagonist of urban development due to the absence of a real connection and dialogue between the waterfront and the hinterland.
Only in the recent years, the city has embarked on an attempt of development that focuses on the redevelopment of waterfronts and their integration into the urban context.
But what is the right direction to take with the best effect on the regeneration of this relationship which is still complex today?
You can find answers in many examples of urban centers that have previously experienced urban regeneration starting from the water margin, and the transformation processes that have led to a development in the economic, cultural and tourism sectors.
The analysis of the Shkodra case has its roots in the history of urban planning in the city, focusing on the events that have in the past characterized (very often constraining) the relationship between the city and its water resources.
Today the city is preparing to live a new phase of regeneration that mainly involves an economic growth based on the revival of tourism, the result of a new relationship between the city and its lake and the rivers Drin, Buna and Kir.
Only by comparing the studies already carried out or those that are taking place, one can get to the choice of the best ingredients, which will serve, and which today are still lacking in the city, for a new economic, touristic and cultural revival.
In the last thirty years, the value of water in cities has undergone a real revaluation, thanks to numerous studies and projects aimed at highlighting this added resource.
'The waterfront is not just a line, but a network of places, functions, grafts and reconnections between the coast and the city, between the port and urban activities' (Carta, 2006, p. 227). These places cannot be defined as border areas, but rather as permeable margins, places of connections between land and water. It is right in these places that new centralities are often placed where new ambitions are

Fig2 / Forum area views in Barcelona
source / inexhibit.com

concentrated for the improvement of the city's future.
Now, about thirty years after the first experiences on international waterfront, you can easily identify the common characteristics that distinguish these interventions, their strengths and weaknesses.
The main feature is undoubtedly the great symbolic and evocative value of these marginal areas, which then affect the rest of the city. This is why the redevelopment processes in most cases resume and reinforce the city's identity.
Waterfronts enhance a city both from a qualitative point of view, through redevelopments that affect the economic, cultural and social aspects of the city, and from the quantitative point of view, with the possibility of building new structures necessary for the city.
The rereading of some planning experiences on the margins of water, allows us to understand and deepen the meanings attributed to the place of physical relationship between urban context and the edge of water. When one intervenes in the waterfront, projects characterized by dynamism rather than by static (Meyer, 2009)are required, because the margin of water "is the result of the intersection between the rules of the city and the rules of nature, between the urban and the territorial, between permanence and indeterminacy"(Forino, 2003, p. 13).
The marginal spaces between city and water, often degraded places, are an opportunity for recovery and allow a reflection on their form and function in the contemporary.
The social changes in contemporary culture have given rise to studies on the new uses and meanings of public places, as these are the places that reflect the needs of both collective and private life.
What are better places, if not the onboard areas, to concentrate such research, and to manifest these changes in collective life?
The recent studies and projects, which aim at the recovery of marginal areas, and the relationship between urban centers and water, investigate at the same time the configurations of public space, as creative areas and relaunching spaces, through regeneration in different aspects at once, such as the social, environmental, landscape aspect and many others. One of the main characteristics of the city is change, transformation, as well as the private and social life of each citizen, who does not rotate in a circle but advances and evolves in a straight line. The city of Barcelona has undergone changes in the coastal strip that have fully represented the social, cultural and aesthetic changes of the city. If before, this city had not taken into consideration the sea for many centuries, now, thanks to the recovery of the margin, it enjoys a new awareness of its territorial condition.

With the recovery of its maritime front, the Barcelona experience has become emblematic in current trends for the redevelopment of the maritime fronts. Like few other cities, in a single urban context, we can appreciate very different models and results, deriving from very different planning, economic, political and

Fig3 / Museu Blau by Herzog & de Meuron in Barcelona (left) and the photovoltainc pergola on the Explanade, South-East Coastal Park by AZPA/FOA (right). source / inexhibit.com and Boschetti 2011

urban choices. In the coastal strip of this city the most consistent changes of the city are implemented, making the water edge, not just a border line, but a place of communication, as well as a new form and image of the city. It is a sliding towards the water, a new opening, completely absent before.

Creative cities on the water / The cases of Lyon, Bilbao, Antwerp

People are the main driver of economic growth and social aspects of the 21st century. As emerges in the studies of Richard Florida, the investment in the creative and cultural education of people, involves a rich cultural offer, which then attracts further human capital with increasingly qualified characteristics.

Creating a repertoire of uniqueness means enhancing the history, tradition, culture and values linked to the place.
A strong desire to relaunch economic, touristic and cultural policies, so as to strengthen economic growth, is reflected in the collective image of the city.
The creation of a favorable image of an urban context, able to represent a strong identity, and consequently to also arouse curiosity, is an important factor to succeed in being successful both nationally and internationally, attracting not only tourists and investors, but above all by relaunching the relationship with citizens and residents.
Not all cities have the appropriate characteristics for a creative development. A unique historical environment full of distinctive features is certainly an important starting point for creating the differentiation.
Art and culture have been key elements of economic and social awakening for many cities, because creativity and local culture are an authentic source of differentiation.
The concept of creative cities dominates the political thinking of many contemporary European cities, which apply it, especially in areas of cities with greater potential for development and with distinctive characteristics. These areas, which serve as a starting point for a redevelopment of the entire city, are often the margins of water. "Creative city, economy of culture, strategic planning and effective governance are new keywords to guide the development processes of the city, but at the same time they must constitute resources and procedures for the new city project" (Carta, 2007, p. 17).
Each case has unique, non-repeatable characteristics, because each city enjoys its own resources and its own identity that by their nature escape from the seriality(Carta, 2007). We can mention the case of Lyon, a city at the confluence of the Saône and Rhône, important waterways between the Mediterranean and the North Sea, which occupies a very strategic position in the European urban system.
Among the various planning plans, the water plan is the one that focuses on the regeneration of the banks of the two rivers that cross the city. The entire intervention aims to recover the relationship between the city and its two rivers, through the design of quality spaces and new pedestrian and cycle connections between the banks, as well as the enhancement

of the natural environments of the river landscape. This plan has had major effects on the economic, social and ecological aspects of the city.

The new urban waterfronts along the two rivers, become places of relationships between citizens and nature and influence the quality of life in this city. Rhone and Saone, embrace the city as a precious commodity and flow directly to the same goal, the Confluence. On the southern tip of the area, at the confluence of the two rivers, the new Musée des Confluences "also accentuates the confluence of knowledge: the human and natural sciences". The Lyon experience demonstrates the reconstruction of a city in itself, redeveloping the public spaces of the city center and the suburbs, redesigning the urban landscape and reinforcing the relationship and dialogue with its waterways. Urban quality involves social, cultural and aesthetic quality, where vegetation and water are the central elements of every intervention.

Another city, with an imputable relationship with water, is Bilbao, due to its crucial position near the sea and along Nevriòn river. Throughout its history, the transformations of the city have never ignored this important presence. The main interventions focus on the redevelopment of disused industrial areas and the recovery of the city's relationship with its waterfront. The case of Bilbao represents one of those riverfront regeneration interventions that entail the reinvention of the entire city. The transformation of this city is very radical because it consists in the search for a new image starting from the urban development along its river Nevriòn, which also represents the identity of Bilbao.
In the new image of the city, the river is conceived as a new axis of connection through the construction of new transversal crossings[1]. In addition, the engine of the entire urban transformation of the city is the Guggenheim museum of F. O. Gehry. The location of the museum along the Ria also triggers the redevelopment of the entire riverfront of the city, in addition to the famous "Guggenheim effect", capable of "capturing global trade in an environment in which architecture is called to play a key role"(Rajchman, 1999, p. 10-12).

Antwerp, the second largest city in Belgium after Brussels and situated on the right bank of Schelda river, also owes its importance to its advantageous geographic position. The current transformation scenario of the city of Antwerp has its roots in the process started in the '90s, Stad aan de Stroom, "City and River", with the aim of reviving the less used areas of the port, such as new views towards the river. Through these processes of transformation, Antwerp is able to deepen the theme of cities of water in many ways.
The main purpose of the planned interventions is the urban revitalization of the city with a new system of relationship with the river, creating physical links between the two shores, and the revival of new ambitions with which to treat the port area. Nowadays, along the river Schelda, a wide range of cultural, recreational and tourist events have been launched that extend along the two banks of the river, strengthening even more the link between city and water and making it more and more a place of leisure and of interest for all citizens and also for tourists. After a long period of darkness, due to economic and social problems, industry begins to leave space for culture in this city. With its project Stad aan and Stroom, the city on the river, Antwerp manages to radically change its appearance.

Towards recovering relation with water

History tells us that "the life of many peoples is always, or almost, linked to the presence or absence of a watercourse. The map of human settlements corresponds, in practice, to that of rivers in the world. The power of the cities depended on the power of a river, on the fear of floods "(Ercolini, 2010, p. 54).
Shkodra has always been a city of water. The main feature of this city was its important geographical position, being on the banks of the two rivers, Drin and Buna, and next to the largest lake in the Balkans. From the time of the early Middle Ages it has been a very important center, a hub of exchange for all the Balkans.
Thanks to its geographical position, the city has been recognized as a confluent point with a certain number of trade routes connecting Central Europe with the Mediterranean basin, between East and West.
The economic development between the nineteenth and twentieth centuries is reflected in the social and cultural life of the city of Shkodra, as well as in the urban

1 / On both sides of the Guggenheim two pedestrian bridges are built, the Zubi Zuri Bridge of Calatrava, which means "Ponte Bianco" in Basque, and the Ponte Pedro Aruppe of Fernandez Ordonez.

Fig4a-b-c / (dall'alto) Confluence of Saône and Rhône rivers in Lyon (2017); View of the Guggenheim Museum in Bilbao from the Nervion river side (2015); MAS Museum in Antwerp.
source / the author (a-b) and www.lonelyplanet.nl (c)

and architectural aspects. The city, trying to detach itself more and more from its past, largely influenced from the oriental cultures, expresses its maximum interest in the culture of the countries of the West. This phenomenon, which is a strong interest for Western cultures, embraces all the countries of the Balkans.

One of the most important figures of the new image of the city of the early twentieth century is certainly the architect, as well as painter and musician, Kol Idromeno.
It is thanks to its great contribution that the city today enjoys a characteristic historical center, with the first houses built in true western style, with commercial activities on the ground floor and residences in the floors above. These new buildings, which are located on the main pedestrian axis that bears the name of this architect, reflected the awakening of the city and the desire for change towards a new social, economic and cultural reality.
After the Second World War, Albania experiences radical changes in political, social and cultural aspects.
The "deep gray" architecture, characteristic of the communist regime, and the town planning characterized by vast spaces, express the spirit of this long and tiring regime.
The city of Shkodra, as well as many other Albanian cities, radically changes its appearance. New residential districts, with living spaces created with elements of low constructive, functional and aesthetic quality, and with the same types of facades, are realized under the strict rules of the dictatorship. The years between 1945 and 1990 are characterized by standardization, in many ways. The new regime acts by canceling any link with the past, thus eliminating a part of the historical heritage, and controlling in detail every aspect of the future of the country, such as urban growth and the life of citizens[2].

Nowadays, the city gives its back to the greatest resource of the area: the lake. And this is precisely the place of revival, the reversal of urban relations on which we want to insist on defining the new image of the city through a new element: the waterfront. The ecological dynamism of the lake, which in the different periods of the year draws the boundary between land and water is the new resource that serves to give life to an image that accepts the particular, against the generalization and the certainty of a future that could soon be compromised.
The common thread of this reflection on the city is the relationship between urban space and water, which today is broken and denied. We must try to identify various directions for a subsequent development trying to think of Shkodra as a place of touristic attraction, making the most of its historical, architectural and environmental heritage.

Shkodra is among the oldest European cities and has been a cultural center of all Albania. Numerous archaeological evidences indicate this region as being continuously inhabited since the Paleolithic period until today. After a thorough Environmental Strategic Assessment

Fig5 / Waterfront, Shkodra (2017)
source / the author

(ESA), the Municipality of Shkodra in collaboration with POLIS University, Arizona State University and Metropolis sh.p.k has drawn up the new PRG in 2016. Created according to the main national and community strategic guidelines on the redevelopment of the territory, this new program represents one of the most important challenges that the city is facing in recent times and its main objective is the improvement of the environmental and functional quality of the entire region through a revitalization of the current urban, architectural, environmental and cultural status. Starting from a new reading of the signs of the places and characteristics of this city, and also a rereading of the previous Plans[3], the new PRG focuses on the landscape and urban aspects that would result in an improvement of the economic, social and cultural aspects of the city. The innovative character of this Plan lies in the enhancement of the landscape resources that characterize the region of Shkodra.
Urban regeneration places at the center of its problems the relationship of the city with river courses, with the lake, and with other environmental resources. It explores and identifies the distinctive features of the region, which is already a way to master it(Corboz, 1998, p. 185), knowing its strong identity. Of course, the development strategies of this Plan foresee future visions of Shkodra as a polycentric, eco-sustainable city, of tourism and leisure, of economy and production, of culture.

We have seen how the city of Shkodra is almost totally surrounded by water, and the regeneration policies can not but enhance this resource of primary importance for the life of many cities: the waterfront. The future projects of the image regeneration of this city are focused on the recovery of water fronts, on their reorganization, and the restoration of the relationship between water and the city.
The reconversion of the areas, which today present problems of degradation and abusiveness, in places equipped for leisure, for creativity, for sport, is one of the primary objectives that the city has decided to tackle. Shkodra is a student city. A wide educational offer that every year attracts young people, residents and non-residents. The city center is characterized by numerous school and university facilities. These facilities are well integrated into the urban structure, making university life and everyday life perfectly intersect with each other. Shkodra is also a city of art. Architecture, painting, literature and many other disciplines have always characterized and enriched the life of Shkodra citizens. It is also this cultural aspect that has always

2 / The writer Ismail Kadare, on a trip to Rome during the years of communism, with his friend writer DriteroAgolli, recalls: "We had not yet visited anything in Rome, we did not have the possibility to make any comparision with the sad Albanian reality, but a small night bar was sufficient, in a remote lane, and a coffee taken humanly, as over the hundreds of years in the night cafes, for having awakened an unbearable nostalgia". In H. kadara, Insufficient time, Onufri (2011).
3 / For the preparation of the new PRG, all previous plans were consulted and analyzed, such as: (i) Regional Shkoder-Lezhe Plan, 2005; (ii) PRG of 1994; (iii) Local General Plan of the Municipality of Shkodra, 2010; (iv) Local General Plan of Velipoje, 2015.

Fig6 / Buna bridge in Shkodra (2017)
source / the author

attracted many young people and creative people, making life in the city very dynamic and pleasant. The new generations are finding in Shkodra a fertile ground for the development of new activities so far absent or in any case not very encouraged. Shkodra is identifying its strengths, which are also the guidelines that allow the city to transform its face. However, it isn't about turning the page, but simply about recovering those that have always been its strengths, starting from the main resources of the city and from the analysis of the life of its citizens. This city that contains within it a commercial, cultural and artistic heritage has been able to fully overcome its negative periods, and today seeks to differentiate itself by focusing on a renewal and redevelopment of its image by exploiting its "added value".
In the scenario of the Albanian cities, we can say that Shkodra is an atypical city, so it is worth paying attention to what will be its future scenario. We need to know how to plan in a long-term basis and have the maximum support and collaboration of its citizens. The resources are there, the great desire for change as well, so the road seems the right one that other countries notice this amazing city.

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Fig7 / Views of Shkodra's lake (2017)
source / the author

A breathing city: Shkodra and its representative places on the water

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The Albanian settlement and anthropic system highlights the current crisis in the relationship between urban settlements and natural landscapes of the contemporary city. This reality can be assumed as a field of experimentation to verify new grammars of the urban space and of the architectural forms able to establish a constitutive relationship with the forms of the natural landscape. Shkodra, located on the shores of the largest lake in the Balkans, in an area of transition from the Adriatic coast to the mountainous landscape of the Albanian Alps, is the most important "lake city", in which deep relationships among urban, natural and rural landscapes, the forms of water and the forms of urban settlement, are recognized. In this sense, the interpretation of the boundary between city and water is an opportunity to give identity to those marginal spaces assuming them as constituent and identifying parts of the urban form of Shkodra.

The challenge contained in the research is to offer a model of intervention that can guide the strategic choices related to urban and environmental rehabilitation actions, towards those aspects of material and immaterial reality on which the economic and social reconstruction of Shkodra can be founded. This could combine the needs of local development with the most advanced sustainable tourism processes, recognizing for Shkodra a role of reference in the Adriatic basin as a gateway to the Balkans, accentuated by the presence of the great lake and its value in defining the identity of the city.
In this sense, morphological operations conducted in the Shkodra abandoned territories such as the marshy margins, the Rom areas, the residual areas of infrastructures and commerce, allow us to experiment with new models of cities able to become instruments of proactive urban economic and social development.

Introduction

The Albanian settlement and anthropic system highlights the current crisis in the relationship between urban settlements and natural landscapes, a condition due to the "widespread" dimension of the contemporary city, its indifference to the geographical forms, the formal and constructive identity of the places and their history (Monestiroli, 2010: 60). This reality can be assumed as a field of experimentation for the elaboration of new "city ideas" capable of expressing an urban identity congruent with the specifics of the places, to verify new grammars of the urban space and of the architectural forms able to establish a constitutive relationship with the forms of the natural landscape.

But it also represents "a historic opportunity for transformation that allows us to concentrate" attention to the environment not only in ecological but above all morphological terms" (Gregotti, 1990).
In particular, the presence of lakes, artificial reservoirs, rivers and streams, channels linked to the reclamation and use of extensive cultivable areas, and the relative

Fig 1 / Reconstruction of the ancient bazar of Shkodra
source / N. Azzariti, R. Dicuonzo, M. Korbi, E. Ferrara, M. Manzari

cities built on their banks, is a condition of primary interest in the Albanian territory. Shkodra, located on the shores of the largest lake in the Balkans, in an area of transition from the Adriatic coast to the mountainous landscape of the Albanian Alps, is the most important "lake city", in which deep relationships among urban, natural and rural landscapes, among the forms of water, agricultural structures and forms of urban settlement, are recognized. In this sense, the interpretation of the boundary between city and water is an opportunity to give identity to those marginal spaces assuming them as constituent and identifying parts of the urban form of Shkodra.

Landscape spaces

The territory of Albania, a region between the shores of the Adriatic and the ridge of the Albanian Alps, is strongly characterized by a rich hydrography, both natural and artificial. The hydrographic system formed by rivers, natural and artificial lakes and land reclamation channels, and the valley bottom path system, define the natural and anthropic connective structure that unites the shores of the Adriatic to the mountainous hinterland.
The territory of Shkodra, in north-western Albania, is a model of this structure due to the presence of the homonymous lake where the rivers Drin, Buna and Kir meet themselves. The river, the lake, the navigable canals and the exclusively irrigation ones of the land reclamation represent, together with the routes and the actual settlement, the constituent elements of a stratified territorial structure, starting from the Illyrian anthropization, through the Roman one and then Ottoman, constitutes the foundation of the settlement forms and the forms of the landscape.

The variability of the aquatic landscape produced by the fluctuation of the water level of the lake produces an important spatial and landscape value of the city: the lake of Shkodra has natural and marshy shores, shallow waters that favor the horizontal diffusion of water, periodically bringing out vegetation and soil.
The reclamations dating back to the last decades of the last century have profoundly transformed the structure of the country around the city of Shkodra, which has been regularized and made productive and given a 'direction' through the canals that connect the lake to the city. Water structure and ground structure are integrated and related. The hydrographic, agricultural and settlement systems in the areas close to Shkodra Lake are strongly interrelated and determine the form of the landscape.

These channels allow the irrigation of the fields and the sliding of small boats to the city. Each channel is flanked by a towpath and a row of shrubs connected to "espalier"[1] , building a structured settlement system.
This system, acting as a filter between the 'urban system' and the lake, defines a "weak" form of the agricultural space that changes according to the seasonal variation of the water level and its extension, giving an agrarian and aquatic

Fig2 / Idrography and vegetation structures of Shkoder
source / N. Azzariti, R. Dicuonzo, M. Korbi, E. Ferrara, M. Manzari

Fig3 / Reconstruction of the ancient bazar of Shkoder
source / N. Azzariti, R. Dicuonzo, M. Korbi, E. Ferrara, M. Manzari

character to the space of the shore placed between the lake and the city.

Reflections in the water / The construction of the urban form of a city on lake

"The city loves water" (Costanzo, 2009: 196) and it reflects itself in correspondence of its boundaries: the forms with which the city establish a relationship with the water represent their identity at a distance through interpretative elements of the relationship with the natural features such as topography (embankments, banks, quays), the orography of the coast, the geographical elements (bays, rivers, swamps), the type of water (sea, river, lake).

In particular, the lake is a spatial unit of completed form, defined by the profile of the shore that gives shape to the water in its border with the ground[2] (Norberg-Schultz, 1977:50). The shape of the water expressed by its profile, enhances the finiteness of its extension and makes clear the boundary with the land, a place where the lake city is often established and is represented through the elements appropriate to the hydrographic context: the city can accommodate the shape of the shore when the height of the water is stable, it distances itself in case of shores with shallow waters attesting on the paths, it can be on the hill surrounded by water as an island in the case of considerable fluctuation.

In the case where, as in Shkodra, the city develops in the plains and almost at the same level of water, the boundary between land and water loses its linear character of limit to assume an extended dimension of lagoon space, changing, with irregularly evolving edges, reversible and seasonal cycles.

In the urban structure two distinct parts are recognized, each with its own form linked to a water landscape: the first, more ancient, is located near the gate of the lake between two hills, where the three rivers meet themselves and feed it; originally it consisted of a system composed by the castle and the fortified citadel built on a hill, located at the center of the marshy and lagoon territory that receives and distributes the waters of the Drin, from the path that leads to the river, from the bazaar (now no longer present) and from the river port, the bridge and the urban core on the eastern shore of the lake at the foot of a small promontory.

The second part is the modern one that developed from the late fifteenth century onwards along the caravan route, according to the model of the linear city-road along the main territorial routes, which expands in the plain between the lake and the river Kir in a widespread and informal way, occupying the swampy and flooded rural areas towards the lake, today protected by an embankment.

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1 / "Espalier" is a support used by local peasants to back over the liake the lake for reaching the city.
2 / The structure of the landscape is generally rather blurry. Only sometimes the elements have a clear definition as in the case of the lake.
3 / In this case, the landscape is considered as a cultural coexistence of geographical singularities and it is the result of an interpretation of the nature as a subject or aesthetic fact and therefore as an ideal subject.

Fig4 / Design of the new linear park of Shkodra along the shore of the lake source / N. Azzariti, R. Dicuonzo, M. Korbi, E. Ferrara, M. Manzari

Research methodology

The research to which this essay refers has developed in two complementary phases but united in a unitary path: the first phase is analytical, dedicated to the formation of a cognitive framework; the second is synthetic and is considered as a verification and address of the analysis phase through an inductive (circular) design process (Monestiroli, 1999: 153). The design approach is based on method and culture with a consolidated and identifying attitude of Italian architecture to consider the landscape as a purpose (Purini, 2008: 93), starting from the assumption that architecture belongs organically to it as the city is the sedimentation of a continuous renewal of the settlement paradigm always referred to a higher order consisting of the natural form of the territory (Zuaznabar, 2011: 161)[3]. Design is developed through research of typological and paradigmatic " foundation "conducted on individual projects and settlements forms that characterize the territory of Shkodra, to define the features of the architecture in a non- historicist way but through a process of abstraction and analogy. This allows to the definition of a renewed architecture belonging to the history but not historicist: an architecture then, which knows how to disseminate on a land become anonymous, new signs of cities that do not manifest the difference between what was and what will be, (Purini, 2008: 95-97) from the reconstruction of the foundational relationship between physical forms of the territory and forms of settlement and dwellings. The design method assumes the problem of discontinuity of the historical stratification that characterizes the development of the Albanian city and proceeds according to a typological and inductive approach: the reconstruction of urban forms that are in continuity with the historical matrix of the city can be done by establishing a relationship of " similarity " (Foucoult, 1967: 31) with the forms of the past, evocative and analog, as a result of a process of abstraction. The analogy makes it possible to build subtle similarities based on relationships, exhibiting an infinite number of possible affinities (Ravagnati, 2016: 85). The form of the historic water cities in Albania has its specific features, starting with the relationship of its location, the type of shore and the shape of water (sea coast, lake or river), and is characterized formally by monumental elements related to water such as bridges, towers and town walls, castles, harbors, bazar. The city on lake, unlike other water city, compares itself with a defined horizon derived from the spatial finiteness of a water basin delimited, an internality that becomes "territorial room" and space of relations between the banks, according to their limited mutual distance. They overlook calm and circumscribed waters by which it establishes continuity, proximity, mirroring relations.

The project recognizes the need to define the identity of Shkodra and its urban form through the reconstruction of new centralities in the spaces of nature, representative of a reconquered relationship between city and lake, able to build a new urban hierarchy in the spaces of informal building. The urban

Fig5 / The park on the lake of Shkodra: piers and spaces of the water source / N. Azzariti, R. Dicuonzo, M. Korbi, E. Ferrara, M. Manzari

Fig6 / The park on the lake of Shkodra: piers and spaces of the water source / N. Azzariti, R. Dicuonzo, M. Korbi, E. Ferrara, M. Manzari

paradigmatic forms identified, such as the street, the bazar, the terracing, the urban gate, the irrigated and reclaimed countryside, are able to express that "etymological" continuity with the form of nature and ground (Martì Aris, 2008: 131), in which the urban spaces of greater collective value coincide with the places of conspicuous or notable nature, to build what Aldo Rossi calls the "permanencies" of a city (Rossi, 1978: 178).

A breathing city: Shkodra and its representative places on the water

The "breathing" of the city, that is the transformation of the landscape that takes place during the periodic filling / emptying of the lake basin, highlights the representative places of this vital alternation and suggests the creation of urban forms able to assume and represent this condition as distinctive character of the city of Shkodra. The aim of the project is to restore the harmony between architecture and nature and build on it a distinctive value by highlighting the seasonal variations of the water landscape through the construction of public places in nature and paths to cross and stay in these parts of the emerged / submerged countryside, able to connect city and lake.
The project experimentation deals with the theme of the reconstruction of the relationship between city and lake, giving form to the agrarian landscape, 'form to water', 'form to urban and extra-urban routes', 'form to representative places', as well as an underlying order to the changeability and to the apparent multiplicity of aspects of the lake landscape. Two significant places have been identified from the landscape and urban point of view of Shkodra, where the city can re-establish a formal and spatial relationship with the water, recovering the lesson of the ancient city, its ability to recognize topological and topographical features of the site and assume them as the "etymological root" of its form. The first is the city gate at the confluence of the three rivers, Drin, Buna and Kir at the mouth of the lake where the ancient city, walled and fortified, settled on the top of the hill, integrated the exceptional geographical nature of this conspicuous place, building an urban system with the bazar (today demolished) at the foot of the hill, the wooden bridge and the degraded rom district on the opposite bank beyond the bridge. The second is constituted by the western edge between city and lake, an area interposed between the city and the water, partly reclaimed, parcelled and cultivated and partly natural, a landscape made changeable by the emersion / submersion of its lands according to the water level and separated from the city by the by-pass embankment.
In the first area the project reconstructs the continuity of the castle-bazar-bridge-Rom district system between the two banks of the river as the identity root of the city, facing the redesign of the bazar, the fluvial port and the Rom district according to a principle that through a deep-rooted and terraced urban form allows to individual forms of self-construction. In the second area the design theme is the enhancement of the marginal space between the city and the water as a lagoon-agricultural

Fig7 / picture name and source / N. Azzariti, R. Dicuonzo, M. Korbi, E. Ferrara, M. Manzari

Fig8 / The Rom district on the other shore of the river source / N. Azzariti, R. Dicuonzo, M. Korbi, E. Ferrara, M. Manzari

park at the territorial scale, which unites the south and north doors of the city, able to represent and preserve the exceptional natural and anthropic characters of the area, through the recognition of a measure and the definition of a form of interposed space.

The by-pass, an embankment against flooding the city, is transformed into a green promenade overlooking the lake, and a suture element that is a linear connection structure between the lagoon park, agricultural park near the lake and the urban fabric with vegetables gardens, public gardens, services and poles. The promenade joins the north gate and the south gate of Shkodra connecting the "cornerstones" and the polarities placed on the edge of the city towards the lake that link the agricultural system and the canals with the city.

Conclusions

The current crisis in the relationship between urban settlements and natural landscapes, derived from indifference to geographical forms and the identity of the places of the contemporary city, is an important opportunity to experiment with new grammars of urban form based on the close relationship with the forms of nature. The challenge contained in the research is to offer a model of intervention that can guide the strategic choices related

to urban and environmental rehabilitation actions, towards those aspects of material reality (nature, landscape, city, tourism) and immaterial (beauty, culture, social cohesion, participation) on which the economic and social reconstruction of Shkodra can be founded, combining the needs of local development with the most advanced sustainable tourism processes, recognizing for Shkodra a role of reference in the Adriatic as a gateway to the Balkans, accentuated by the presence of the great lake and its value in defining the identity of the city.

In this sense, morphological operations conducted in the territories of waste and brownfields of the contemporary city such as the marshy margins, the Rom areas, the residual areas of infrastructures and commerce, allow us to experiment with new models of cities able to become instruments of proactive development, not only spatial and urban, but also economic and social, starting from the valorization of identity places able to represent "the soul" of the city.

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Fig9 / Design of the new bazar of Shkodra
source / N. Azzariti, R. Dicuonzo, M. Korbi, E. Ferrara, M. Manzari

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3.1
Planning the "new" Shkodra
Amanda Terpo, Ledio Allkja

3
the regulatory plan

Planning the "new" Shkodra

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Introduction / The context of planning in Albania

Over the last decade, the planning approach in Albania is changing from an urbanistic to a more comprehensive, integrated planning approach (Toto, 2012) (Allkja, 2017). The "reform" was initiated in 2007 with the start of the preparation of a new legislation on "Territorial Planning". It culminated in 2009 with the approval of law 10911 "On Territorial Planning", and subsequently in 2014 with law 107/2014 on "Territorial Planning and Development" (Toto, 2012). Of course, to change the legislation is not the only issue as planning practice and the institutionalization of a new planning culture takes time and is an incremental process of continuous change (Allkja, 2017). Thus planning changes from a "technical and regulatory" discipline towards a socio-political process of policy making in support of better territorial governance and territorial development. Afterall, planning as a profession, by nature is subject to continuous changes based on territorial, social, economic and environmental challenges.

Decentralization is also one of the main reforms going on in Albania which impacts territorial governance and spatial planning. In 2013, a new territorial administrative reform was started aiming at the consolidation of local governance (Ministri i Ceshtjeve Vendore, 2015). As part of this reform from 373 Municipalities (urban) and Communes (rural) local governance in Albania was "reduced" to 61 Municipalities composed from urban and rural territories (Ministri i Ceshtjeve Vendore, 2015). This reform has great implications for planning and supports the change in approach from "urbanism" towards comprehensive and integrated. The latter was also supported by the drafting of the first document of General National Territorial Plan for Albania prepared by the Ministry of Urban Development. The drafting of General Local Territorial Plans (GLTP) was the natural next step not only to complete the territorial planning framework in Albania but also to support the Territorial Administrative reform.

The newly formed local governance units were in a "confusion" as now they had to govern a larger territory which they knew very little about and on top of that a relatively new planning approach which they had little experience with. On top of the absence of capacities in planning at the local level, the absence of data was one of the main and greatest challenges. Therefore, the planning process in Albania was faced with a challenge in terms of process as well as technical capacity thus the central government decided to allocate financing for the preparation of GLTPs of 26 main municipalities in the country (AKPT, 2018).

Shkodra is one of the largest and importrant municipalities in the northern

Fig 1 / Before (left) and after (right) the Administrative Division source / the authors

part of Albania. Shkodra has always been a strategic city throughout history and its location has made this municipality an important part of the northen Albania. Historically, the city has played an important role from the economic point of view as a result of the trade routes and connections with the Venice in the XVIII century. Shkodra through the lake and the river Drin, has had also important trade connections with the east (Skopje, Kosovo etc.) on the 18-th century. This role is clearly demonstrated in the cities functioning, development and was an important characteristic to be considered. Now the new municipality is spread from the Shkodras new territors the Adriatic Sea (Velipoja) up to the the border with Montenegro, including vast forest areas and traditional houses and as well as natural protected areas of national importance such as the lake of Shkodra and the Park of Theth. The new administrative division has changed its configuration not only in territory but also in population. Prior to the administrative division Shkodras had a total area of 31.48 km2 which changed to 763.77 km2, bringing together 12 former communes. Its population doubled from 79.633 to 137.612 people. The new municipality had many problems in terms of access and disparities in economic development, mainly because of the topographic barriers of the areas. Prior to the territorial division, only three of the former communes had local plans (Shkodra, Velipoja, Rrethinat) and only two had development strategies (Dajc, Guri I Zi) living the rest with no previous studies, development strategies or vision.

The municipality received financial support to draft the local plan (AKPT, 2018) and a consortia composed of two universities (POLIS University- Albania and Arizona State University-USA) and one architecture and planning studio (MetroPOLIS) was selected to work with the municipality through a tendering process to draft the GLTP. Besides the two challenges above, due to the situation in the country, the government decided that plans had to be drafted in a "record-breaking" time-frame of only six months. Therefore, this case is interesting to report as it represents a new planning approach in a difficult context. The aim of the plan was not only to support the municipality in drafting a planning document, but in supporting them to build a process which was open and democratic and supported the municipality to overcome the initial difficulties of the territorial administrative reform. The paper offers a short report of the planning process and the main policies proposed in the plan to achieve territorial cohesion and development in Shkodra.

Shkodra profile

The aim of this section is to give a quick profile of the municipality and its implications for planning.

Territory / Shkodra is located in the north-western part of Albania and has a complex territory including the Adriatic Sea and some of the highest mountains in Albania. The city of Shkodra is located in a field that varies from 9.5m to 24m above sea level. This municipality is rich in water resurces, in the middle is located the lake

Fig2 / The Geographical position of Shkodra
source / the authors

of Shkodra from were derives the river of Buna (44km) that ends in the Adriatic Sea. The river Buna in the southwestern part merges with the river of Drin about 2 km from the city of shkodra. From the Eastern part of the city runs the river Kir which derives from the northern mountains (43 km) and converges with Drin River on the southern part of the city. The part of the city located in a flat area is 1.150 ha and the part located in the hills sounding the city is 350 ha. The sea is only located 30 km away from the center of the municipality (Shkodra city). Not much further is also the northern part of the Alps with mountains that go above 2000 m altitude like the mountain peak of Jezerca (2694m), the peak of Radohima (2570m), and the mountain of Shenikut (2550m). There are also smaller mountains like Tarabosh (595m) and beautiful valleys like the Shala valley and the Kir valley.

Population / From the population point of view in Shkodra live 63% of the districts population, the rest is distributed in the neighboring municipalities of Malësi e Madhe, Vau i Dejës, Pukë and Fushë Arrëz with 14.3%, 14.1%, 5% dhe 3% of the total population. The population of Shkodra has increased 76 % more with 136 000 people. The population of the municipality is mainly concentrated in the main city Shkodra from which the municipality is also named after. Nearly 57% of the total population of the municipality is concentrated in the city, leaving the rest of the population dividend between the other former communes, 16% to Rrethinat and 6% to Guri I Zi. The rest 27% is divided among the remaining 8 former communes with approximately 4% of the population in each of them.

Environment / This municipality is rich in landscape, nature and agriculture. The protected areas have an important role in this municipality, one of them is part of the Emerald network of protected areas due to the rich flora and fauna. To the south we can witness large agricultural lands, part of the national agricultural grid. Part of this municipality are also the protected areas such as the National park of Theth. The lake of Shkodra (5500m2) is located in the center of the municipality and is shared with Montenegro and has some of the most important national and international ecosystem. In the western part there is Velipoja with the river of Buna and the Vilun lagoon, both very enviromentaly important protected areas as part of RAMSAR network.

On the other hand, there are also several problems and challenges from an environmental point of view. The greatest problem, which is also expected to be exacerbated due to climate changes is related to flooding. A series of man-made interventions combined with an absence in terms of infrastructural measures has created a system where flooding has become common almost every year. Meanwhile rising sea levels and coastal erosion are problems which are expected to increase in the not so far future. Waste management is another problematic issue in Shkodra. The latter also contribute to the pollution of rivers and the whole agricultural system as a consequence.

Fig3 / Shkodra's relationship with the Sea and Mountain
source / the authors

Fig4 / Population Division by Administrative Units
source / the authors

Economic Development / Shkodra from an economic development point of view is the strongest in the northen region. The main economic activity is divided between industrial production, energy, agriculture and tourism. The agriculture part of the economy is mainly concentrated in the Bërdicë, Velipojë, Dajç, Gur i Zi and Postribë. Production industries also make for an important contributer to Shkodra's economy. In the region of Shkodra are located 7.300 businesis with 62% of them based in the city.

Tourism in Shkodra has a big advantage since the municipality can provide 360o of tourism all year long, partly because of the territory, history and culture and partly because the vicinity to both Montenegro, and Kovoso. Beeing one of the main centers of the north, Shkodra has opportunities to be a gate for the north connecting the cities of Ulqin Podgoricë - Gjakovë, Prizren, regions of Shkodër – Lezhe and the region Kukës-Has-Tropojë. The northen part of Albania where Shkodra is located contributes 24% to the total GDP of the country with only 30% of the countries population. In 2013 the region of Shkodra contributed 5.5% to the total GDP of the country, raiting Shkodra 7-th in the state.

Although Shkodra shows great potential for economic development it is also faced by different challenges. Initially, the "brain-drain" towards Tirana or other cities in Albania and Europe has reduced the creative and working force in Shkodra. The latter is also associated with high

Fig5 / Map of the Protected Areas of Shkodra Municipality
source / the authors

Fig6 / Regional touristic itineraries
source / the authors

Fig7 / Regional economic itineraries
source / the authors

unemployment rates of young people. They find it hard to gain access to work although from an education point of view the level is relatively high when compared to the region. Lastly, the tourism industry has one of the potentials to become a key contributor to the economy but the absence of infrastructure combined with un-coordinated and non-integrated policies reduce tourism to a seasonal sector rather than an all year round economic activity.

Infrastructure / Shkodra is relatively well connected with road infrastructure and railway. The railway is only active for transporting goods and runs from the border of Han i Hotit towards the port of Durres and Tirana. The current condition of the railway is very poor, keeping in mind that the raiway has build during the socialist era with no interventions made to improve its state in more than 25 yeas. The municipality is well connected with national roads, in the southern and middle part. The northen part has poor connections and fragile infrastructure that is isolated during the winter because of the snow. This municipality has one of the most important border passing points of the country, connecting Albania with the European infrastructure corridors.

Fig8 / the Infrastructure of Shkodra Municipality
source / the authors

Shkodra used to have an airport located in Gjader (southwestern part) that is no longer active. Its also located 90 km from the main airport of Tirana-Rinas 39 km from the port of Shengjin and 90km from Durres port, the country's biggest port for people and goods. The GNTP - National Spatial Territorial Plan - defines Shkodra as center of primary importance, giving it a greater importance and role for the region.
Education / The population of Shkodra is young and the municipality has within its territory a variety of educational institutions including universities located in the city of Shkodra. In the municipality of Shkodra there are 190 public and private institutions that operate in the educational field. In the beginning of 2015 more then 28 thousand students were registered in school and 2000 teachers. An important part are also professional high schools, more than 10 public professional high schools are located in the municipality and are very important for the economic development of the industries and capacity building.

The planning process

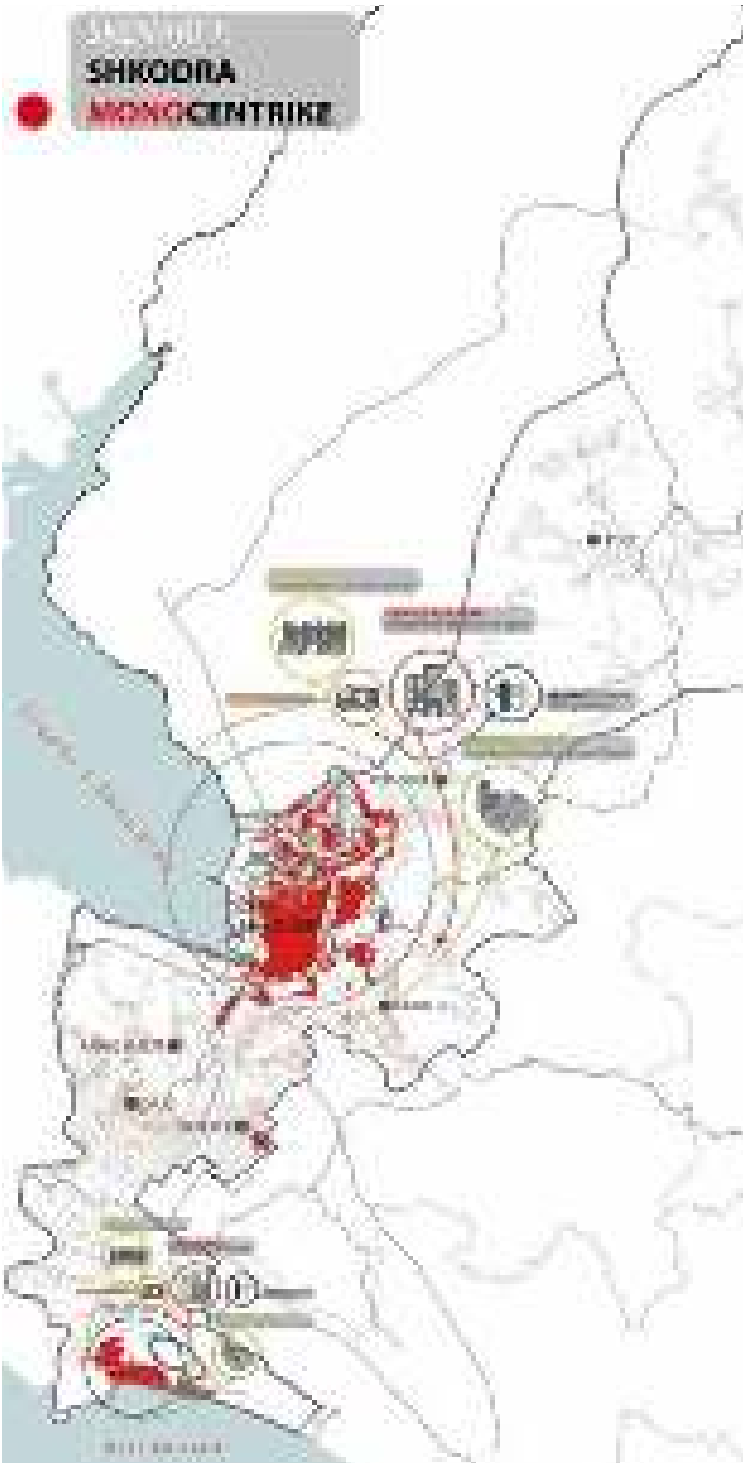
As mentioned above, the planning process in Albania is based in law nr.107/2014, date 31.07.2014 "Territorial Planning and Development" and the Decision of Council of Ministers Nr.686, date 22.11.2017 "On the approval of planning rregulations". These define the general content of the GLTP - General Local Territorial Plan. One of the first things that this document considers is analysing and comparing the previous planning initiatves within the territory.
The methodology started with a literature review of the previous planning documents, including partial strategies, local plans and inter-sectorial plans. For the porpuse of proper information structuring all the planning documents have been divided into three categories: Plans & strategies of international and national level, Plans & strategies of "Regional" level and Plans & strategies of local level. All of these documents are cross referenced with each other to understand the objectives and future implications that these plans might have on the new local plan.

Following that a detailed territorial analysis was conducted. Shkodra as many other municipalities in the Albanian reality has a severe lack of data. Besides territorial surveys and visits for data collection, due to the limited time, key local experts were interviewed in order to gain further local knowledge. Once the analysis was completed in order to achieve to a territorial vision scenarios were used as a method. Three scenarios were developed and discussed extensively with focus groups and in public hearings.
Public participation was a key element for the planning process and not only a mere legal requirement. To oblige to this specification, the consultants and the municipality of Shkodra official's drafted e platform for transparency and communication with people. This platform was divided into some sections to assure the equal involvement of all actors:

Major public presentation / The first open public hearing was organized the 15-th of March 2016 at the local university of "Luigj Gurakuqi". The meeting was open to everyone and announced in various way 15 days before the date of the meeting. The meeting presented the main analysis of the territory and it had a twofold aim. Firstly, to confirm the analysis with local stakeholders and secondly to start a process of dicusssion about the most imminent challenges that Shkodra faced. Following that four more meetings were organized the local university of "Luigj Gurakuqi" which were associated with different stages of the plan.

Focus Grups / As part of the focus groups, different meetings were conducted with the arts and culture actors, developers, youth, environment, university staff and students. At different times during the process of drafting the plan, many more meeting took place with the regional directory of Environment, Agriculture, Crises management, Water management and Infrastructure. Also many cross border meeting took place such as with municipality of Ulqin and meeting with the municipality of Podgorica.
In addition, due to the large territory focus groups were organized also with the representatives of the different administrative units (former communes). Pult. These former communes are mostly rural and have the bigger economic and infrastructure bariers, so the discussion has concentrated into their quality of life and services, in the tourism development and sustainable use of resources, the agricultural development and production isssues as well as rural development.

Social Media and local news stations / Special attention was paid into the media communication were menbers of the working team, discussed and explaind the various aspects of the planning process. To be able to get more feedback from all citizen, an online open questionnaire



about the city was made and lunched into several platforms including Facebook. Some of this findings were also included in the proposal of the plan.

Scenarios Shkodra GLTP

Since the muicipality of Shkodra is an important landmark for the northern part of Albania, the team created and stimulated scenarios of development to better understand the implications of each scenario. After careful consideration the group selected three main scenarios that would be presented to the public hearing and put for discussion. The purpose was to choose one of this scenarios as future guideline for development.

The first scenario / Monocentric development

This development is based in the idea of centrality, concentration of good services all in center. This development would encourage people to migrate to the main city giving and rapid expansion to the urbanization of shkodra.

The second scenario / (sprawl) Monocentric development

This development would be following the current development trends, with

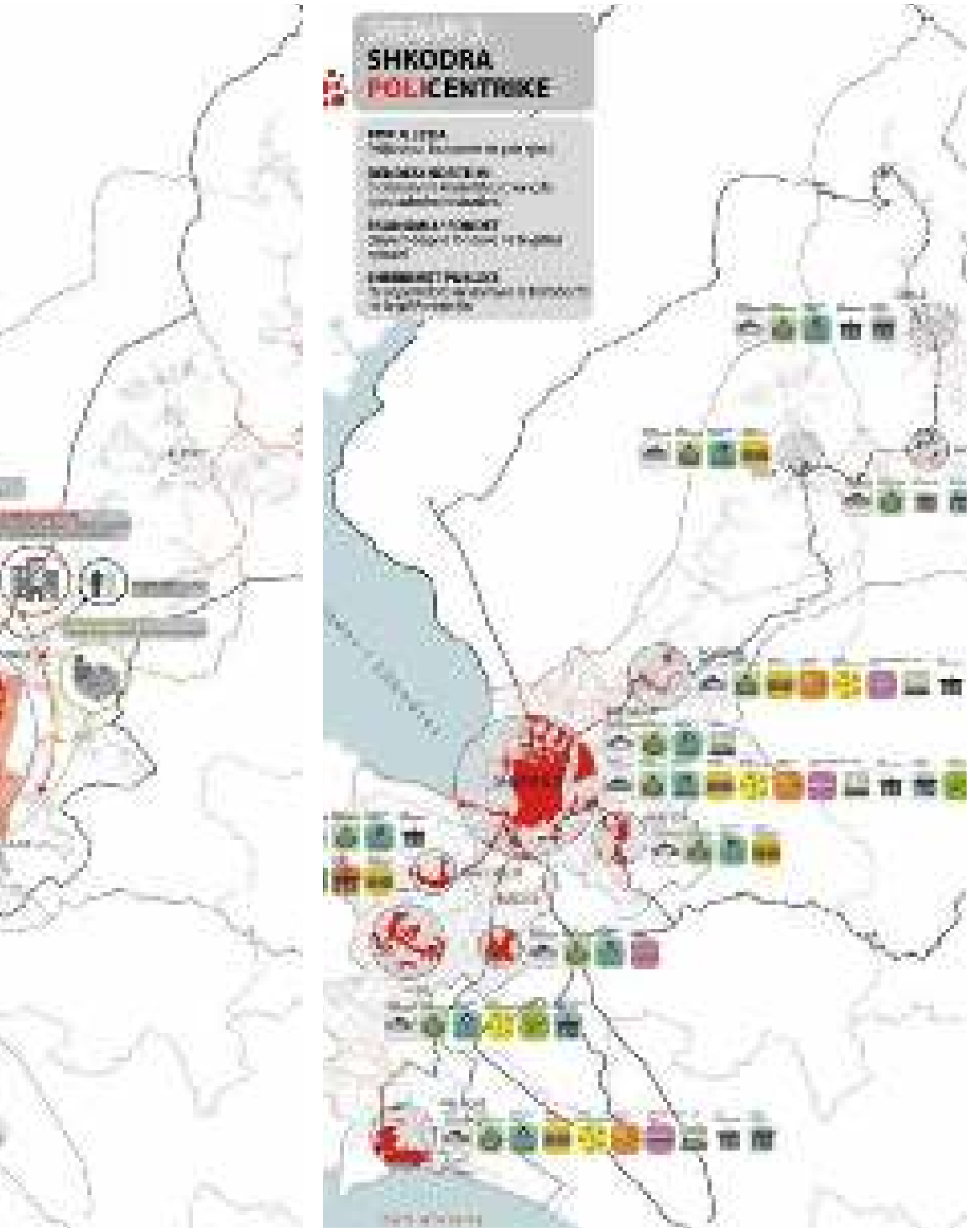


Fig9 / Shkodra's scenarios: monocentric (left), monocentric and sprawl (center), policentric (right) source / the authors

very little control over the development leaving everything in the hands of the free market. This would further encourage the uncontrolled development threatening the agricultural and natural lands.

The third scenario / Polycentric development

This development would be based on the planning principle of subsidiarity, giving the opportunity of development, but within the established regulation. This would bring the services closer to the people discouraging the concentration of people in the center, but offering equal service to all.

Vision and objectives

The vision for the 2030 city of Shkodra is: "Shkodra municipality in 2030 will be an important center and a gate to the western Balkans in terms of mobility and infrastructure. This municipality will be the main economic pole of Shkoder-Lezhe-Podgorice region, as a sub region of tourism and nature.

Shkodra a municipality with an integrated territorial development, which provides equal service and access to its citizens and visitors'. A primary center with a high quality of life, were water resources and historical heritage are the focus. A

city of international model of cycling, multimodality, economic development, cultural heritage and natural resources.
The yearlong tourism will be an added value in the local economy, guarantying multi-sectorial development with ecotourism, agro-tourism, and cultural tourism of Sea and mountain. A municipality which supports and promotes new entrepreneurship attracting local talent. Shkodra a clean environment that lives in harmony with the protected areas and water resources.
To fullfull the vison of shkodra 2030, the team established five main objectives based in the three principles of the GNTP. The principle of Green and Resilient shkodra, Smart Shkodra and Liveable shkodra.
The objectives of this vision are drafted to be achievable and measurable. To this porpuse are established some also monitoring indicators. The main objectives are:
OBJ 1 / Improving accesses and regional relationships
OBJ 2 / Territorial cohesion and service equality
OBJ 3 / Improving competitive advantage and economic development
OBJ 4 / Improving quality of life and urban development
OBJ 5 / Environmental protection and risk management

Main Policies

To implement the strategic objectives and their specifications they were divided in specific policies and projects which for the purpose of this report will be presented only a few of them.

Urban Development / Shkodra main aspects on urban development focus on the creation of new centralities within the municipality in order to create a better and more polycentric structure which offers better services and options to the citizens. These policies are complemented with the regeneration and restructuring of main urban and rural centers. For all villages, specific projects have been identified which aim at the improvement of the centers of the villages, a typical and traditional gathering point for the community. Meanwhile at the urban level, regeration aims at improving quality of life and public spaces. Especially in the inner parts of the city, public spaces are absent or have been occupied by other activities. Therefore, the plan aims to improve and further enhance these aspects. Another important aspect of the city of Shkodra are also historical neighbourhoods which

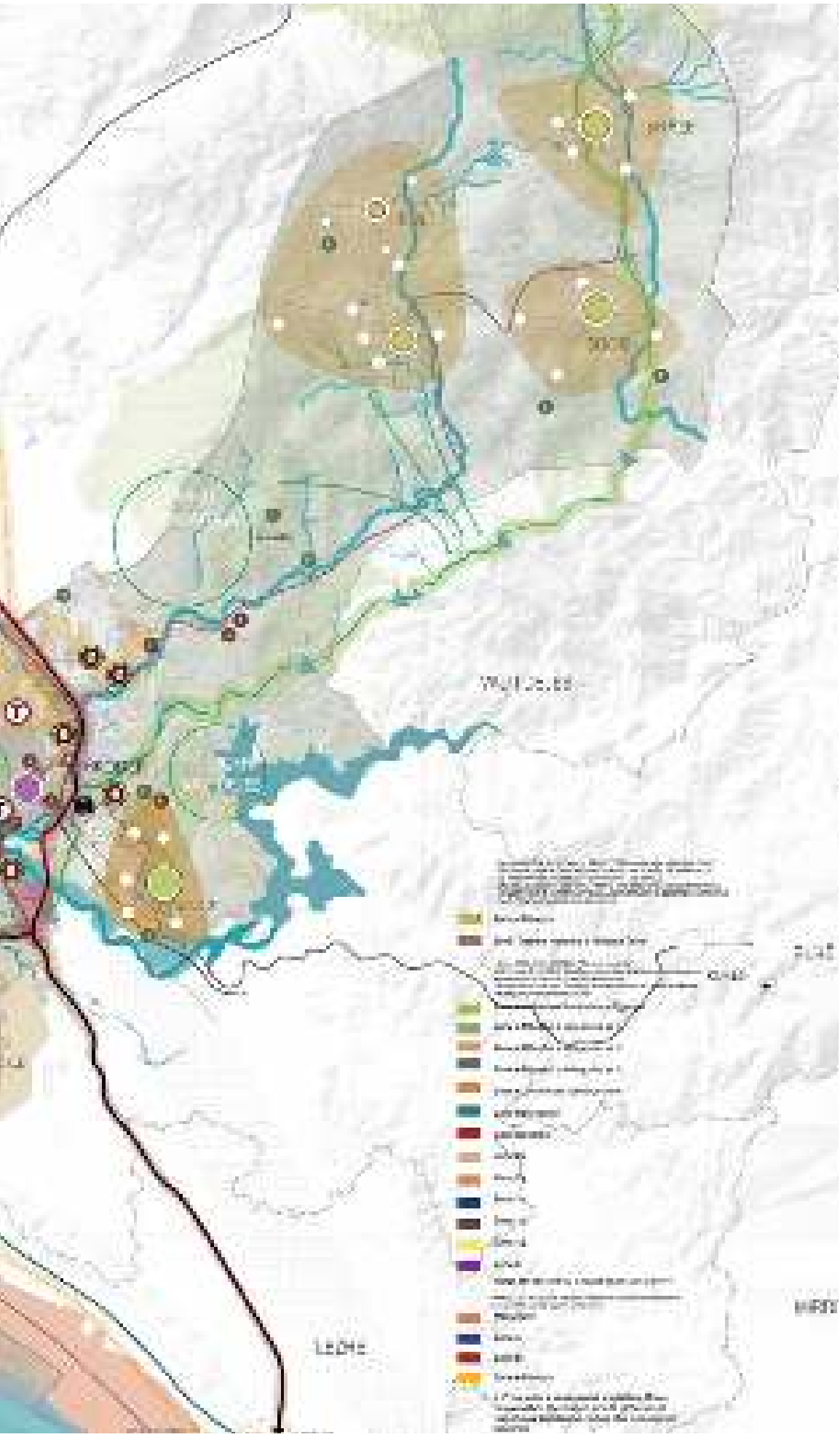


Fig10 / Vision Map of Shkodra
source / the authors

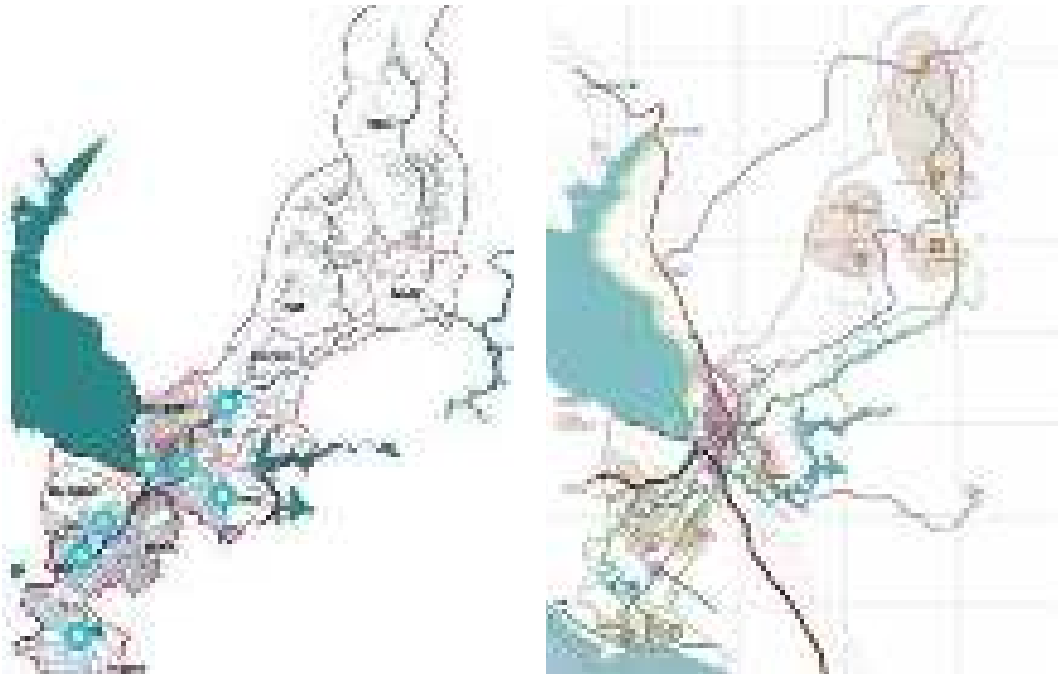


Fig11 / One Stop Shops (left), New economic areas / near new centralities (right)
source / the authors

do not all have "protected area status". The plan aims to promote these areas for their architectural and urbanistic features. One of the main elements in this respect is to create an itinerary which connects the historical parts of the city. Designed with a high quality of streetscape this itinerary can be a promotor and serve as a catalyst for their preservation and development. Lastly urban development policies focus also on the governance side. The idea is to create platforms where the public, citizens and other stakeholders can engage with each other in order to collaborate for the future development of the city. Besides community planning, a platform of e-governance which gives better access to the public in decision making has been proposed.

Tourism / Tourism has been identified as one of the main economic drivers for the municipality based on its high potentials to offer a high variety of activities within a confined territory. The integration of the different types of tourism into one coherent scheme is the key in this aspects. The creation of different thematic touristic itineraries is one of the small scale high impact interventions proposed. These itineraries connect the natural, historic/ cultural and water potentials in the territory. The people of Shkodra are seen as a key element and success factor in the development of a sustainable tourism within the municipality. Ecotourism is seen as a potential in the northern part of the municipality. Lastly, it is also important that these activities are also connected together with a clear and well defined branding strategy. Another soft measure in this respect is also to improve the signs in the city and the municipality in order to better orient citizens and tourists regarding the different elements and itineraries.

Environment and Flooding / The biggest environmental challenge in Shkodra is flooding. This is expected to even exacertabe in future years. Initially the plan proposes to draft a detailed plan of water management and to create centers that manage emergencies and provide safety in case of flooding. These centers also are meeting point for evacuations in case of emergency. The latter should be complemented with the requalifying of the river riparian areas thorugh vegetation. Other important environmental policies include creating and promoting green connections (corridors) and local parks. Waste management is also another important factor while the improvement of sewage system is the largest challenge.

Infrastructure and Mobility / In terms of improving connectivity and accessibility from a regional to a local level a series of new roads are proposed such as the road connecting Shkoder to Theth, the road connecting Shiroke- Montenegro and the new "by-pass". The existing by-pass has been envisioned closed to the lake of Shkodra and it is supposed to act also as a dam for the protection from flooding. However, it was argued that this bypass neither provides protection from flooding and neither does it solve any traffic issues. In fact, the way the project has

Fig12 / the Waterfrot of Shkodra
source / the authors

Fig13 / Interventions for Addressing Flooding
source / the authors

evolved through years it has become one of the biggest environmental and socio-economic problems in the city. The plan proposes a new by-pass on the eastern side of the city. This will avoid all traffic going into the city and does not create any environmental problems. Meanwhile the current investment in the by-pass should be slowly transformed into a semi-natural space which partly serves as a dam and partly as a public area. Besides infrastructural improvements the plan also proposes a network of multi-modal stations which will help the city and the

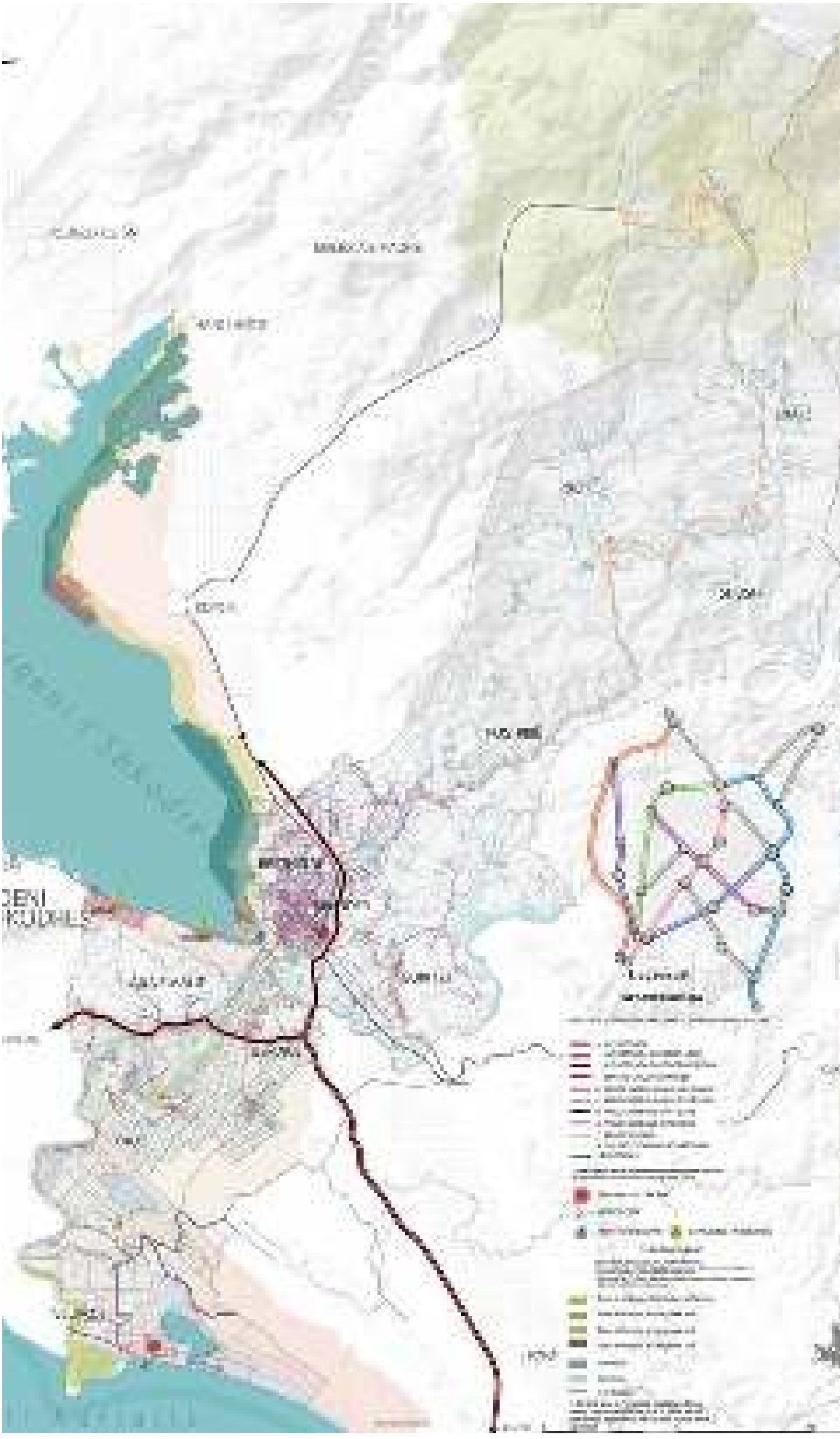


Fig14 / Infrastructure Network Map
source / the authors

municipality to improve mobility in the territory. Lastly, a strong focus has also been placed in improving cycling routes and upscaling them from a city level towards a municipality and region level routes.

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4
workshop

Projecting Shkodra / Operative fragments between lake, river and sea

report edited by Enrico Porfido / PhD researcher POLIS University

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PhD students / Sara Codarin, Kejt Dhrami, Valentina Frighi, Gian Andrea Giacobone, Eranda Janku, Gerdi Papa, Giuseppe Resta, Saimir Shtylla, James Stevens

Introduction

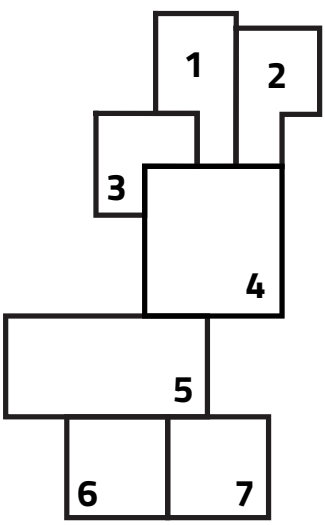
The international PhD POLIS/Ferrara in Architecture and Urban Planning, organize for the 32nd cycle a new Workshop trying to explore deeper, some of the recent research fields already active in the previous years within the Department of Applied Research (OMB) Observatory of the Mediterranean Basin FKHZ Faculty at POLIS University. Base of the discussion for this year it will be the idea to develop a critical and analytical capacity of each PhD student to find, within a given planning project, tools able to generate new architecture design processes for the future development of Shkoder city in Albania.

Following the previous experiences, elaborated during the past International joint PhD POLIS/Ferrara – e.g. Albania 2030 (2014), Durana project (2014), Albania Riviera (2015) and When the River Flows (2016) - it is now the moment to deeply investigate, the city of Shkoder, one of the most important city of north Albania, which in the last year it has been studied by POLIS University to develop the new Regulatory Plan (see attached pdf). Despite been an important historical centre, the entire municipality of Shkoder is located in a specific geographic spot where the main morphologic characterized is defined by an urban development in between river, lake and sea.

In order to continue the planning project proposal by POLIS University, the next step is to shrink, select and projecting in the future hidden relevance already present in the Shkoder Urban and Landscape patters. At PhD student will be ask to elaborate a critical though on a specific quadrant belong of the Municipality of Shkoder trying to generate consistent architectural design concept in a way to open new theoretical debates and to elaborate proposal for the future development of Shkoder.

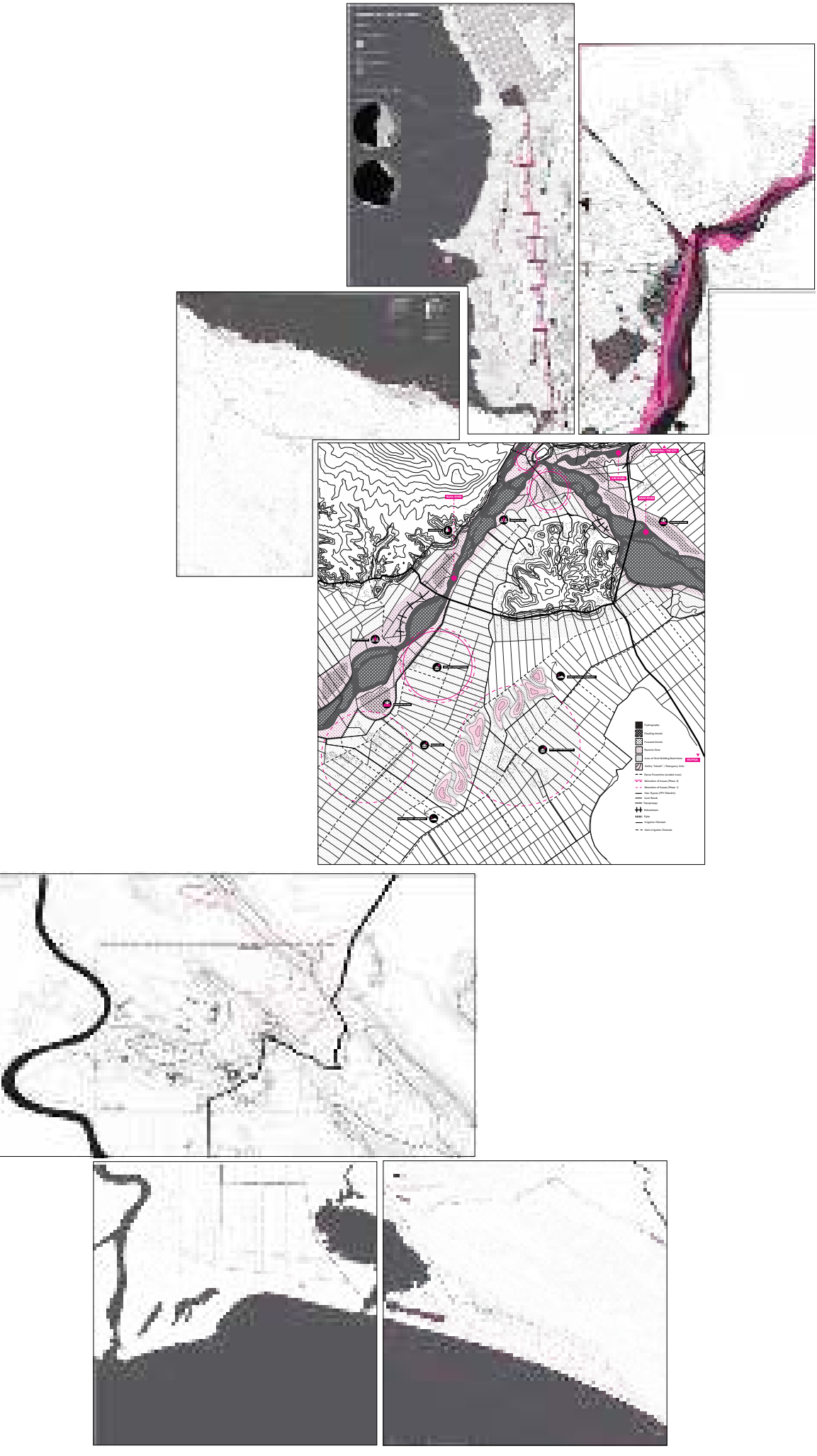
In this framework the workshop intends to address the topic of Shkoder urban development with a strong accent on working in fragments as a method to observe and intervene in a closer scale on certain specificities belonging to the Albanian Landscape. The idea is to focalize the attention in three different parts of the site project: The historical city center, the lake waterfront + river and the sea waterfront. Instead of concentrating on a global vision of the territorial area (as above mentioned already deeper studied in the project plan proposal) this workshop considers the entire area from Scutari until the sea, in terms of smart fragments in order to easily achieve the architecture scale. According to the main topic drawn by the planning proposal, the entire site will be divided in 7 quadrants each of them will be object of study of the workshop.

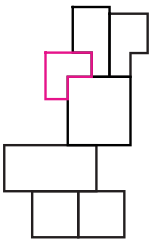
Fig1 / Exhibition "Projecting Shkoder"
source / PhD students



Fragments Legend

1 / (Un)margin
Sara Codarin and Saimir Shtylla
2 / Sewing Identities
Valentina Frighi and Kejt Dhrami
3 / LOW COAST
Gian Andrea Giacobone
4 / Hydro Response
Eranda Janku
5 / Commerce + Comfort
James Stevens
6 / Amphibious Devices
Gerdi Papa
7 / Envisioning Nature
Giuseppe Resta





1 / (Un)margin

Sara Codarin and Saimir Shtylla

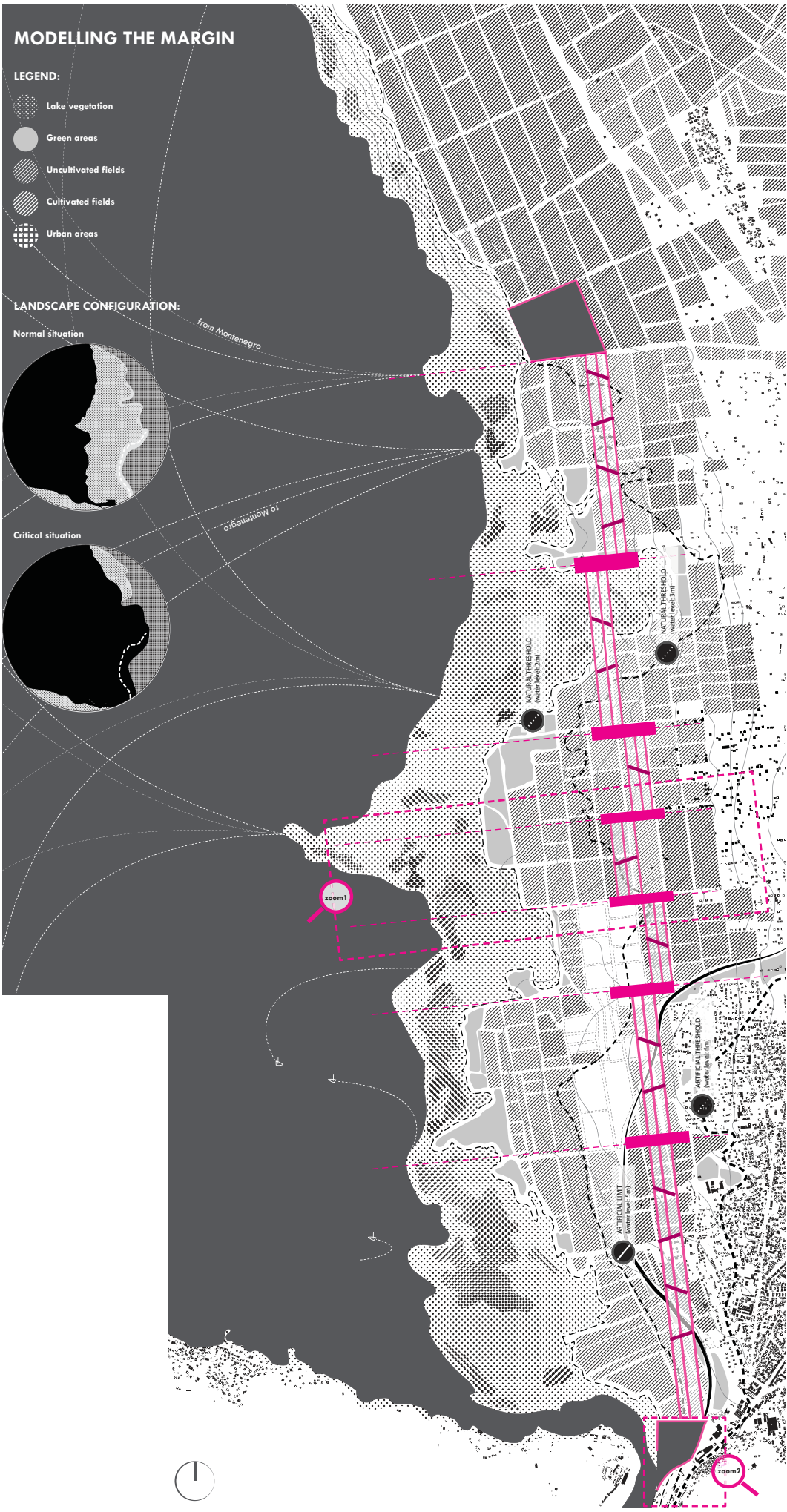
The project proposal deals with two critical issues: the necessity to protect (margin) and the necessity to preserve (un-margin) the relation between Shkodra and the lake. A city which is strongly related and constantly threatened by its homonym lake, as well the main factor of the past and probably future floods that run over during Autumn and Winter months. The western part of the city is a protected area but its lower slope that facilitates the flooding action of the lake, somehow needs interventions to provide protection from floods.

The Dike is a friendly margin because of being respectful to the regular natural grid made by the draining channels that were built years ago, preserving the natural protected areas the best way possible because of being positioned to the limit of the city. Unlike the linear dikes, its fragmentation made by the mirroring of its building section, facing the lake and the urban, suburban and rural territories of Shkodër in other tracks, is an attempt to avoid the sensation of boring and never-ending linearity common for the "basic" dikes.

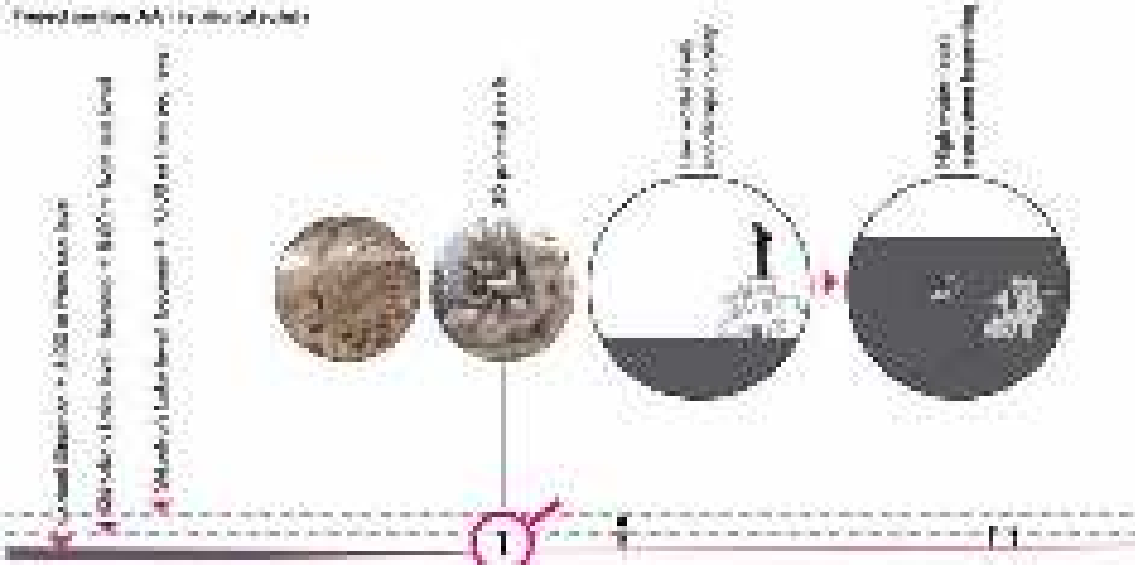
The building section of each track is different from the basic well-known solutions, too. Despite of making a gradual-stepped or a variable slope section dike, its height is divided into three parts where in between there are two "natural" pools that may retain the sediments to facilitate the grow of green plants and trees when water retires, as well reducing the visual impact of dike by distributing the five-meter height in proportion with the slope of the area.

The connection between city and the lake is not only preserved but is enforced even more along and across the dike. In the ending points of the dike there are the new port (South) beyond the Rozafa's castle and the natural pool near Vraka's channel where dike assumes the role of an "blue" axis connecting. The transversal paths are provided not only with the purpose to strengthen the relationship between the lake and the urban, suburban and rural parts of territories of Shkodër but they establish in the same time a relation with the dike as well. Precisely in the intersection between the dike and these paths there are public spaces that fragment further this blue axis.

Fig2 / Masterplan of the fragment n°1
source / Sara Codarin and Saimir Shtylla


MODELLING THE MARGIN
LEGEND:
Lake vegetation
Green areas
Uncultivated fields
Cultivated fields
Urban areas
LANDSCAPE CONFIGURATION:
Normal situation
from Montenegro
Critical situation
to Montenegro
NATURAL THRESHOLD
(water level: 2m)
NATURAL THRESHOLD
(water level: 3m)
ARTIFICIAL THRESHOLD
(water level: 6m)
ARTIFICIAL LIMIT
(water level: 3m)
zoom1
zoom2

Margin remodelation scheme
Scale 1:2.000



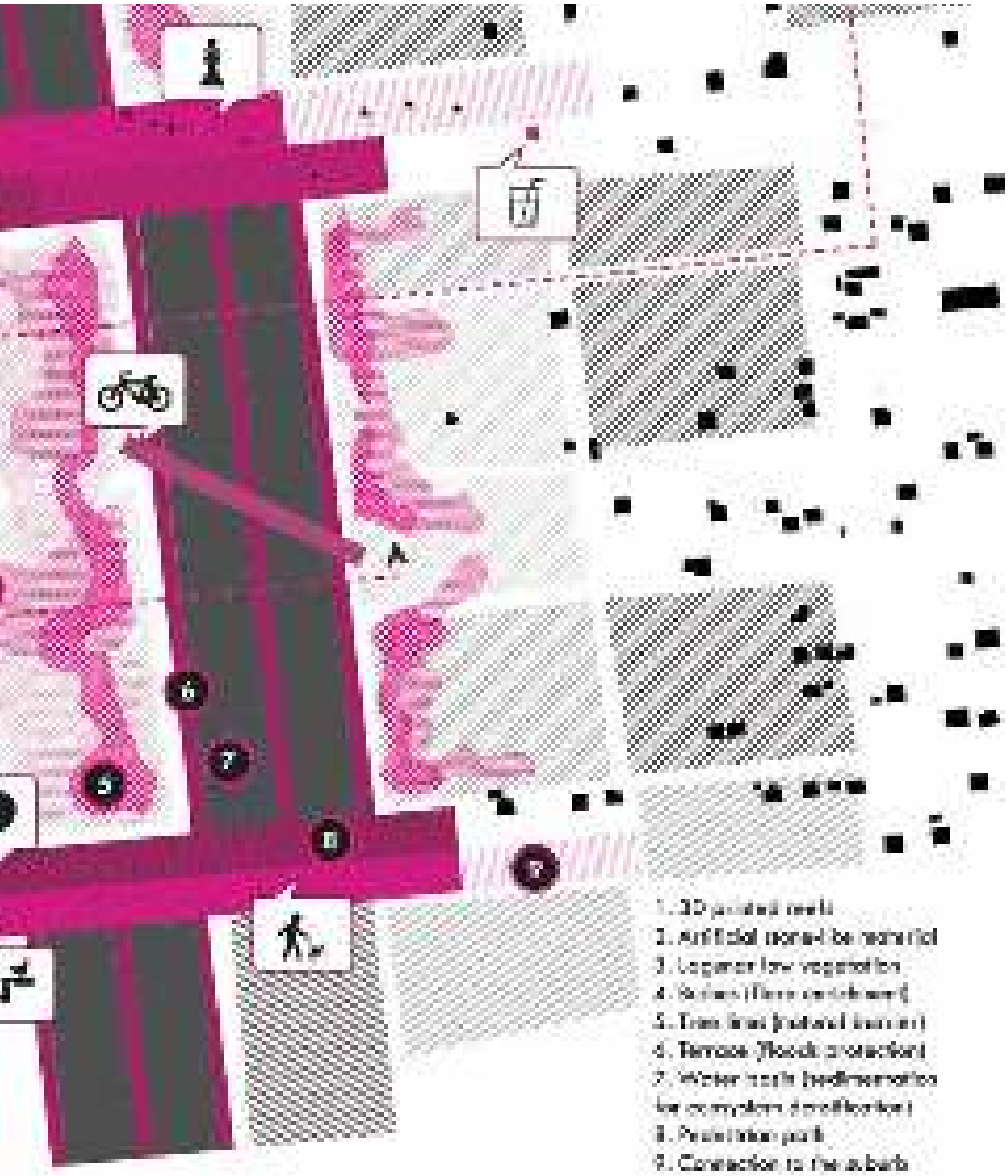


Fig3 / Zoom on the project area
source / Sara Codarin and Saimir Shtylla

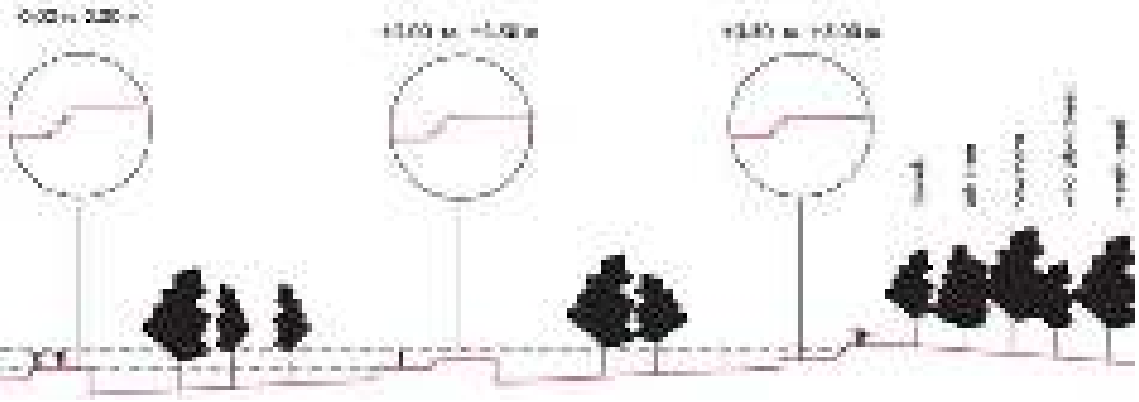
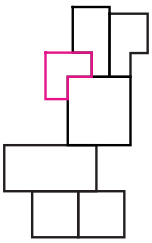


Fig4 / Project area profile
source / Sara Codarin and Saimir Shtylla



2 / Sewing Identities

Valentina Frighi and Kejt Dhrami

The fragment under investigation focuses on the main city of Shkoder and on the relationships between its surroundings and the river Kir. The plot, located in the north-east of the general area, comprises the main access-roads to the inner city as well as the biggest industrial site of the whole municipality.

As starting points of the work has been taken in consideration the previsions of the existing plan for the municipality of Shkoder, in order to understand what could be the main criticalities on which reasoning on. The proposals concerned the realization of an infrastructural bypass - in order to pass the east of Kiri river and unload the traffic through the historical city center -, the improvement of the connections between the train station, the rest of the area and the waterfront and the regeneration of the riparian areas. Downstream of these considerations, the project proposals concentrate mostly on the inner city, on its northern part and on the riparian areas of Kir river.

Regarding the first, the work started with an analysis of the squares system (already identified by the local general Plan) and of the existing pedestrian paths within the city center, trying to understand how to replicate their features in other parts of the city. Furthermore, a recognition of the main points of interest and historical sites of the inner city has been made in order to provide new pedestrian connections between them.

Thanks to these analyses the main critical issues was figured out, leading to the definition of a two-scales intervention strategy both at the urban and at the building scale. Regarding this last, the problems identified were connected with road systems and with the need to guarantee access, light and visibility to all of those dwellings hidden by enclosure or other buildings. Other questions identified concerned maintenance and re-functional issues of communist blocks.

On the other hands, regarding urban and functional issues, the decision made was to work on the empty spaces, often present along central roads, intervening on them through informal activities or functions able to give them back to Shkoder inhabitants.

Finally, several classes of actions have been developed in order to respond to the issue stated above. The first deals with building identities and provide interventions in order to refurbish communist blocks and to develop new connection solutions through the urban fabric. The second class of actions deals with the empty rooms at the floor level and provide suggestions in order of take advantages of them through their re-use for commercial or leisure activities, also informal. Last actions, at a more urban scale, were the ones concerning the in-between spaces, that propose to use abandoned buildings or empty spaces to establish inside them cultural or leisure time activities, such as informal libraries and small thematic gardens. Also suggestions of introducing new functions within the city center and re-distributing the already existing ones in order to enhance pedestrian routes has been provided.

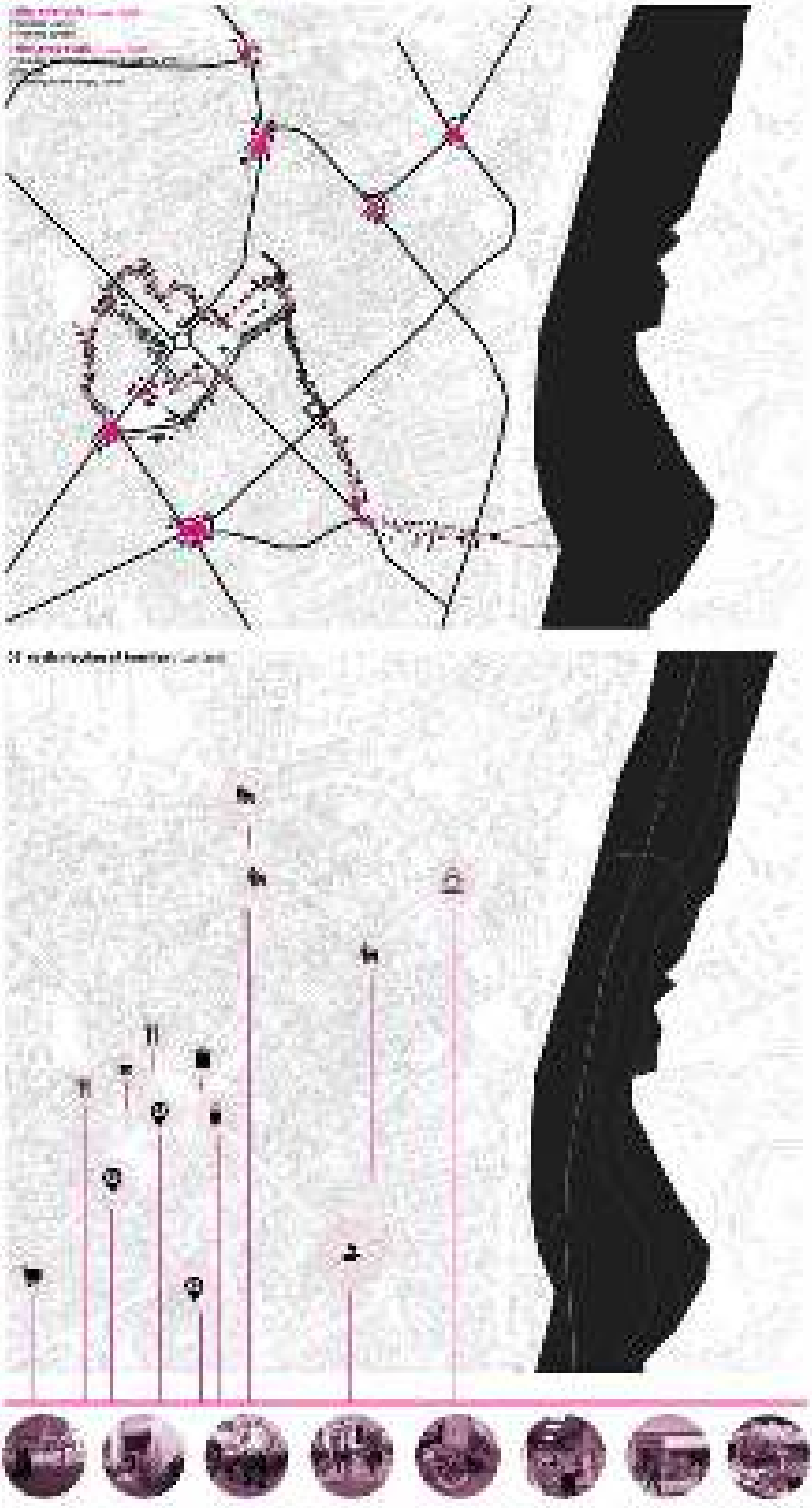
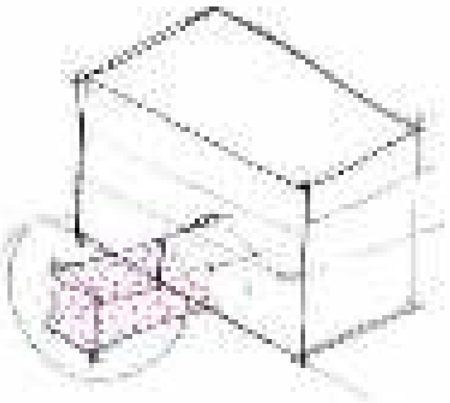


Fig5 / Masterplan of the fragment n°2
source / Valentina Frighi and Rejt Dhrami

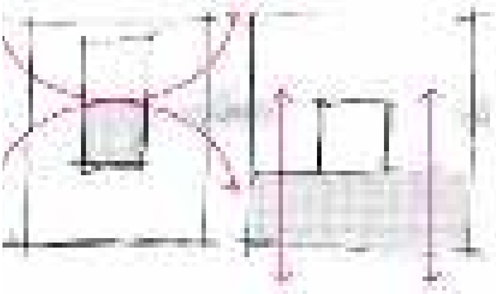
/ classes of action for the inner city /

01_building identity
refurbishment of communist blocks
improving the access to those ancient buildings now hidden



> Low intervention of energy efficiency and facade-painting

> Introduction of new light-removable elements acting as courts/entrances in order to respond to several issues.

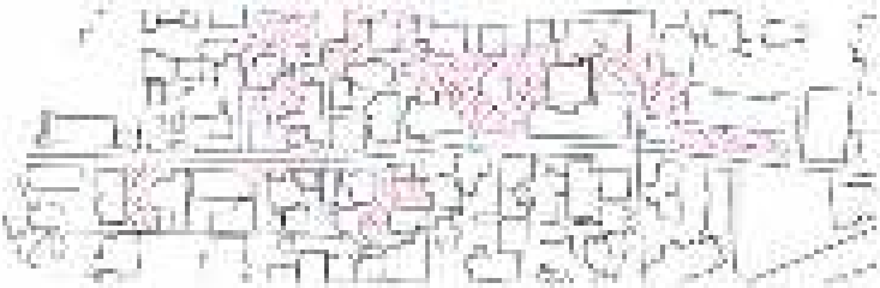


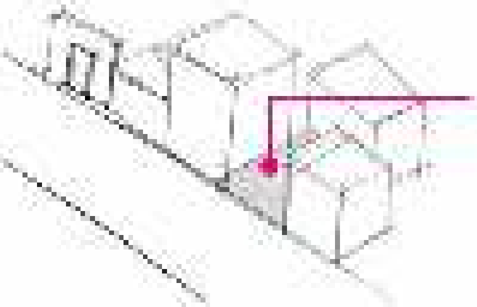
> Provide connection solutions for hidden ancient houses

02_old roads system

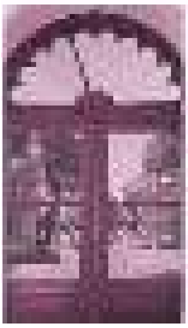
> Enhancement of ancient roads and drainage system
> Improvement of the pedestrian area using traditional and local permeable materials, providing seating and green areas.

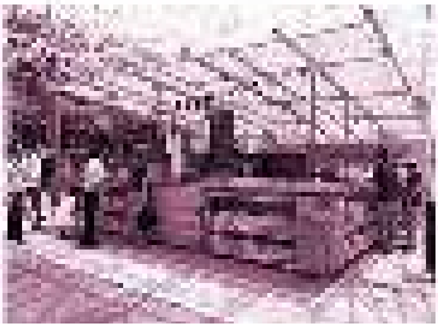
03_working on the in-between spaces



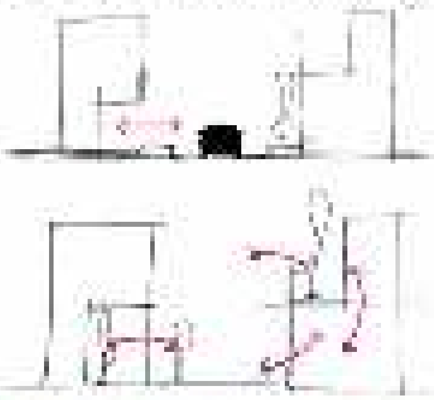


> Using abandoned buildings or empty spaces to establish informal cultural or interactive activities such as libraries, small thematic gardens.





04_two levels of intervention / upper floor vs. street level



> Improving connection between the two sides of pedestrianized roads by leveling out the street level;
> Take advantage of empty spaces at two floor levels, with the insertion of social interactive and culinary (street raw and cooked food) activities.

Fig6 / Project actions
source / Valentina Frighi and Kejt Dhrami

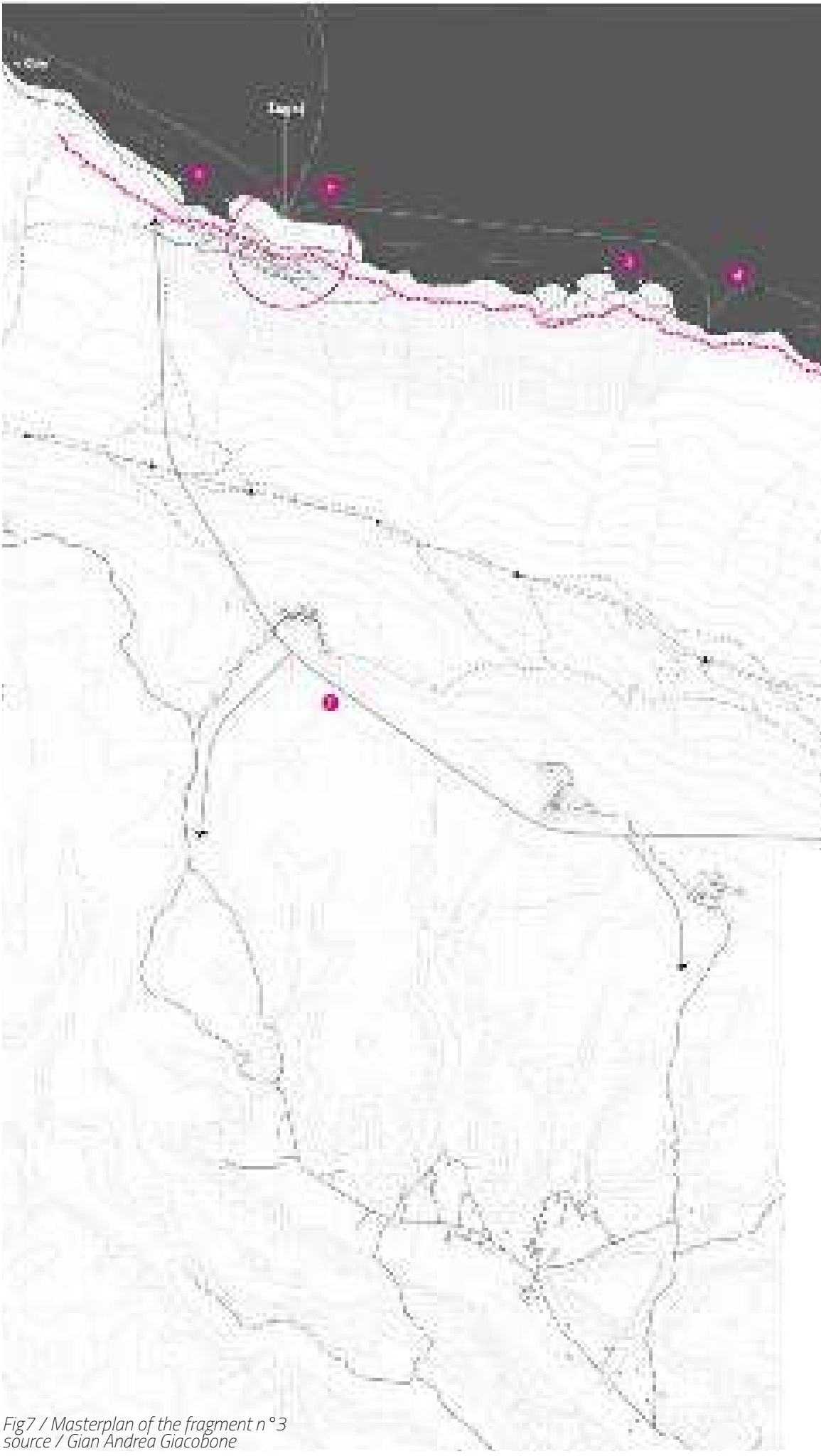
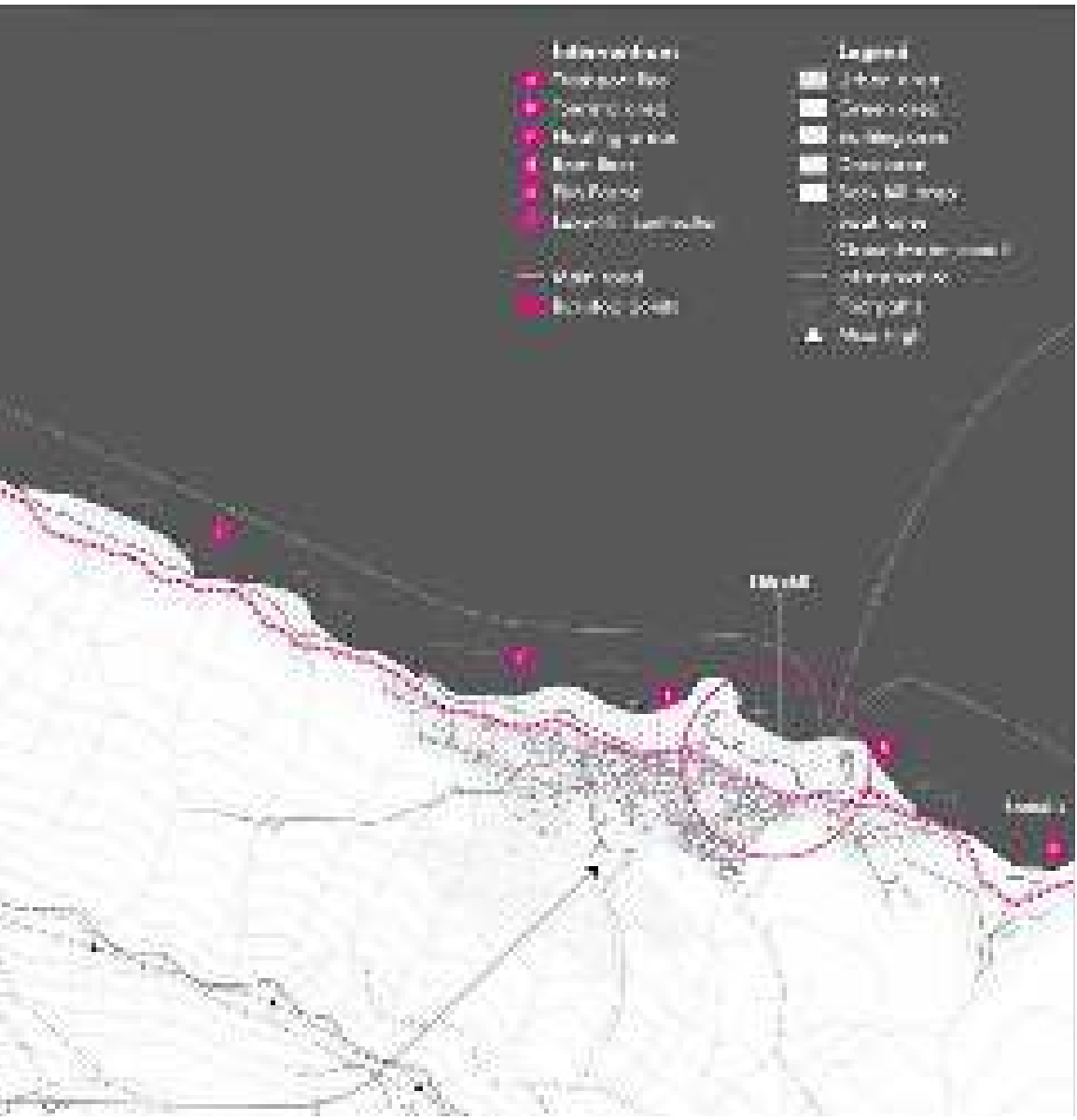


Fig7 / Masterplan of the fragment n°3
source / Gian Andrea Giacobone



3 / LOW COAST

Gian Andrea Giacobone

The project proposes the urban redevelopment of the southwest part of the town of Shkodrä on the border with Montenegro, which is located along both the lower shore of the homonym lake and the final portion of the Tarabosh mountain range. The interest is focused mainly on the enhancement of the two cities Zogaj and Shirokë that arise within the area examined.

The great value is certainly the huge touristic and landscaping potential that the area offers through the conformation of its territory. Most of the lake coast can be used as a seaside stretch, while the topography of the landscape allows you to develop, on the hillside, several activities in contact with nature as the practice of hiking or mountain biking. However, the main issue that has been analyzed is the lack of a proper and connected infrastructure between the area (and its related cities) and the main center of Shkodrä, which prevents the segment to be reached or left accessibly by all. There is not even a direct and reciprocal relationship

Process

between the valley overlooking on the lake and its related hinterland belonging to the municipality of Ana e Malit.

The proposal wants to give an answer to these problems by creating slight changes such as the creation of a network of connections that they can exploit and foster the slow mobility and do not disrupt the natural landscape. The entire project area is under protection by general local plan because thanks to the peculiar environmental characteristics of the territory, it has been possible to grow a precious and vast biodiversity that needs to be preserved.

The project adopts the main street that runs along the coast as a communication route both for the cycle lane and the public transport line.
Along the way they have been identified four strategic points as possible stops that make the bathing areas and the cities of Zogaj and Shirokë more affordable to reach.
For the internal area it's provided a reunification between the two sides of the hill through the extension of pedestrian and bicycle trails with panoramic or refreshment points, to keep the experience in contact with the autochthonous nature of the territory.

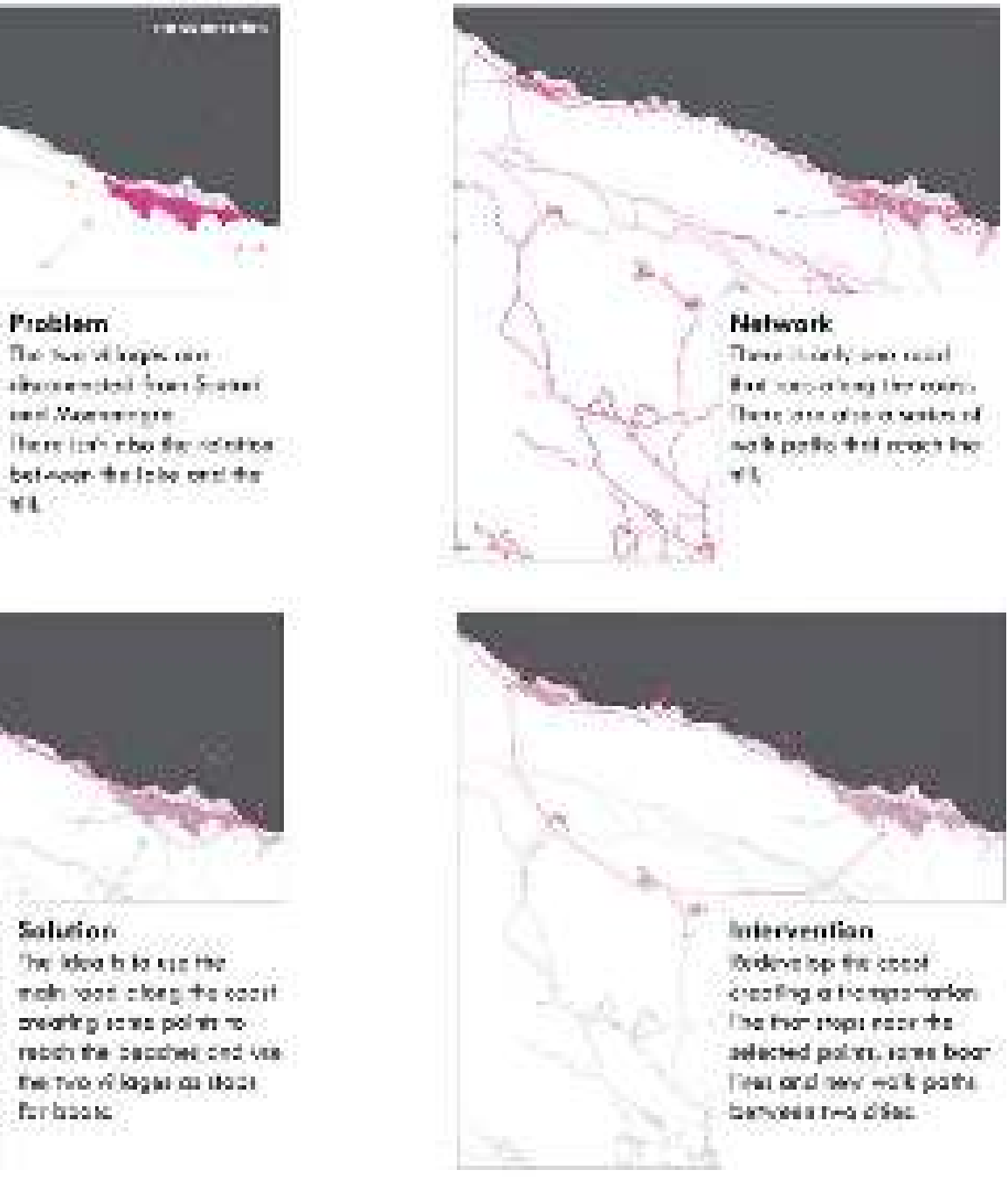


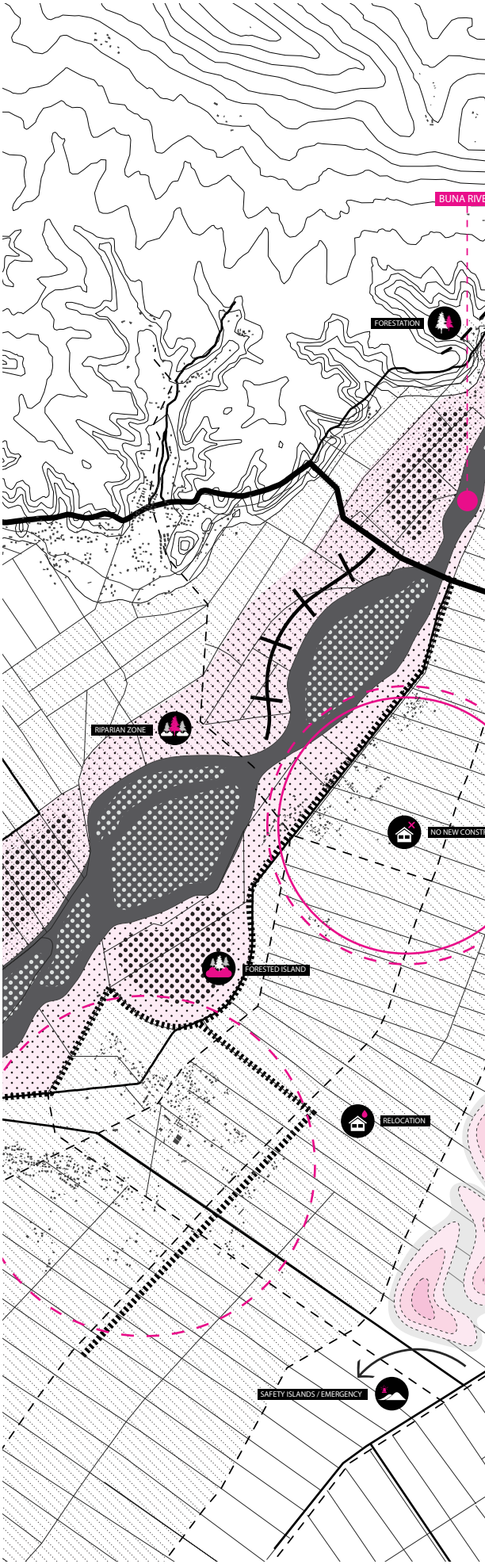
Fig8 / Project process
source / Gian Andrea Giacobone

It's also provided an intervention within the two cities through a hypothesis of regulation of building area to do not allow informal urbanization, based on a circular grid of terraces longer correspond to the real shape of the land. Some paths at the end of the hypothetical area of urbanization delimit the boundaries of its expansion. A series of squares have been provided as focal points to rethink the viability within the city centers, enhancing some streets already existing.

In both cities have been thought two small harbors to reconnect the observed area to the other places passing along the lake as well. Being the city of Shirokë a place closer to the center it is more accessible to visitors, so it has been designed a touristic harbor including a protected bay created through some natural floating shelter, in order to take advantage to the resort area longer. While for Zogaj (where there is already a small fishing community) has been designed an expansion of the harbor and the creation of a section dedicated to fish farms in order to boost the local economy through the creation of small fish markets, or gastronomic activities related to the ichthyic husbandry of the place.

4 / Hydro response

Eranda Janku



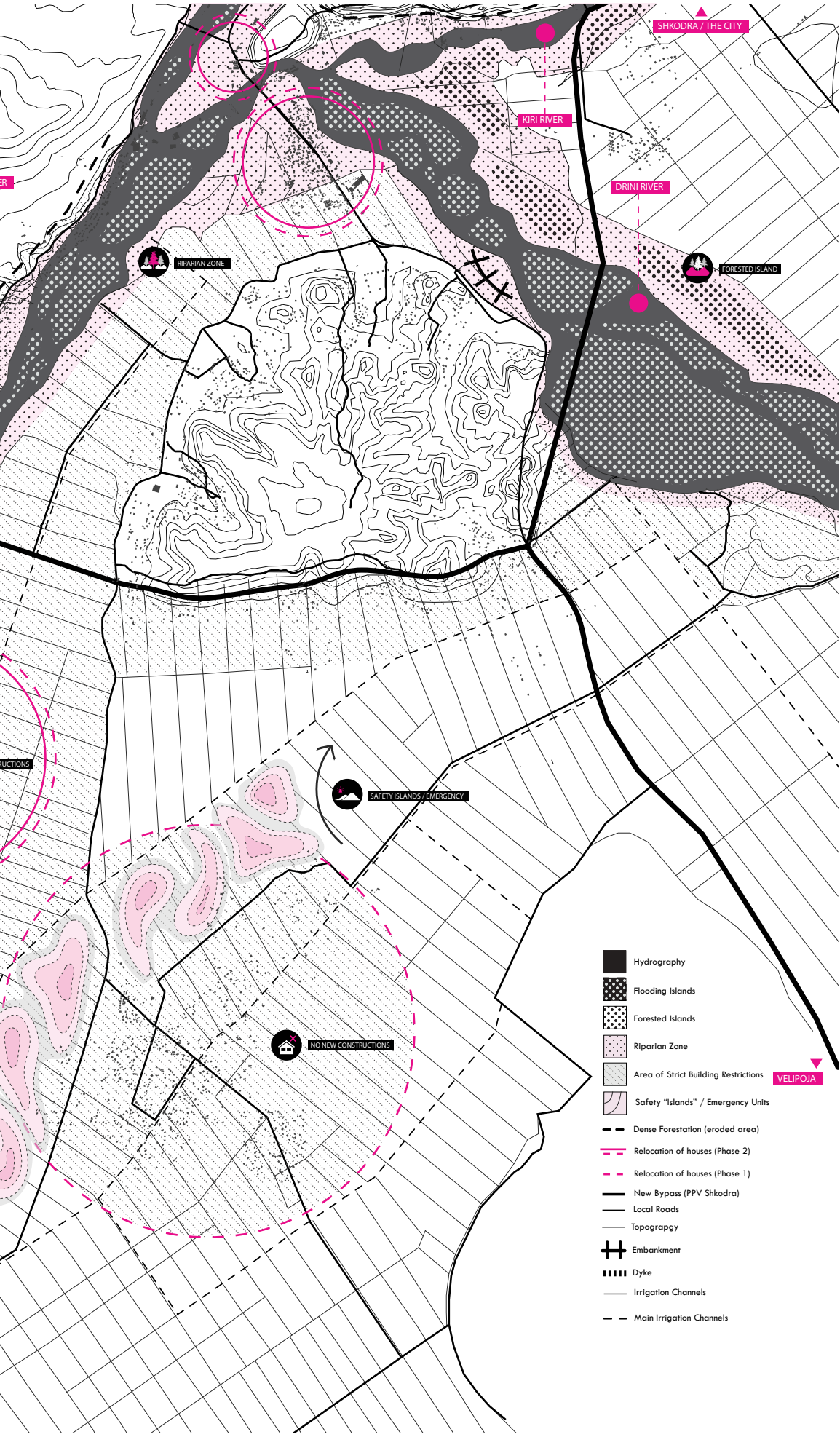
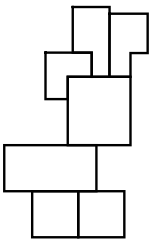


Fig9 / Masterplan of the fragment n°4
source / Eranda Janku

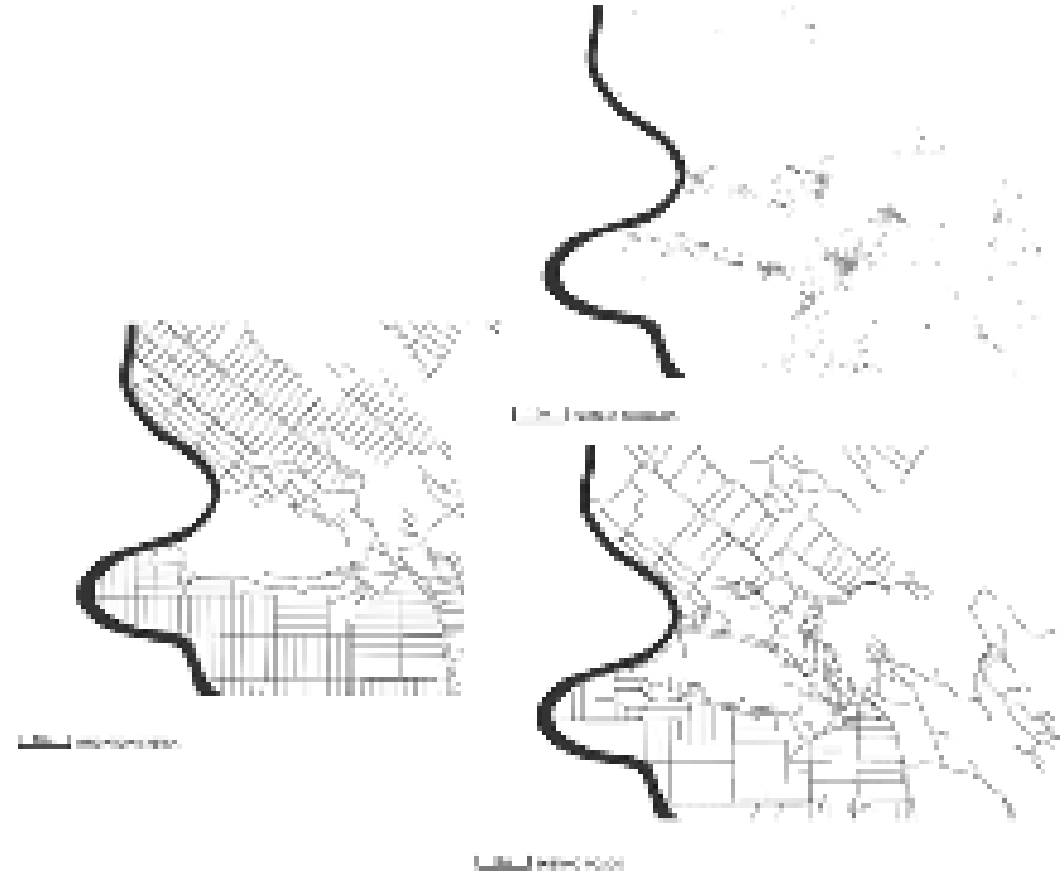


5 / Commerce + Comfort

James Stevens

The unique conditions warrant an agricultural proposition of balance between polyculture farming and consolidated farming. This balance will provide both the volume necessary for Albania's farmers to be regionally competitive by maintaining a volume-to-yield ratio that is sustainable, and provide possible export surplus. The profits of this industrialized product should be used to subsidize polyculture farms dispersed in the same landscape. This will not only sustain the fertility of the land, but also preserve the epistemological knowledge of farming so that it remains in the domain of the people - not the government or corporations. This balance can and should be achieved through land division that not only maintains the percentage balance, but ensures proximity and intermixing of polyculture and industrialized farms.

The industrialized and polyculture farming balance suggested can be debated in their proportions, but the potential outcomes are clear: local produce continues to prosper and the peasantry's purpose remains. A designer's contribution is one that embraces the slow in Slow Valley and encourages visitors to shift their speed to accommodate that of the context. The design proposal for Slow Valley is not heavy-handed infrastructure, but a simple and slow trail. The trail meanders through the valley, and the features along the way serve to tease out the beauty and assets of this unique place while supporting both polyculture agriculture and the new tourism industry. The proposal is described through a series of vignettes consisting of trail and landscape condition, each facilitating a strength of the land's time and place by addressing the needs of the peasantry and the visitor equally.



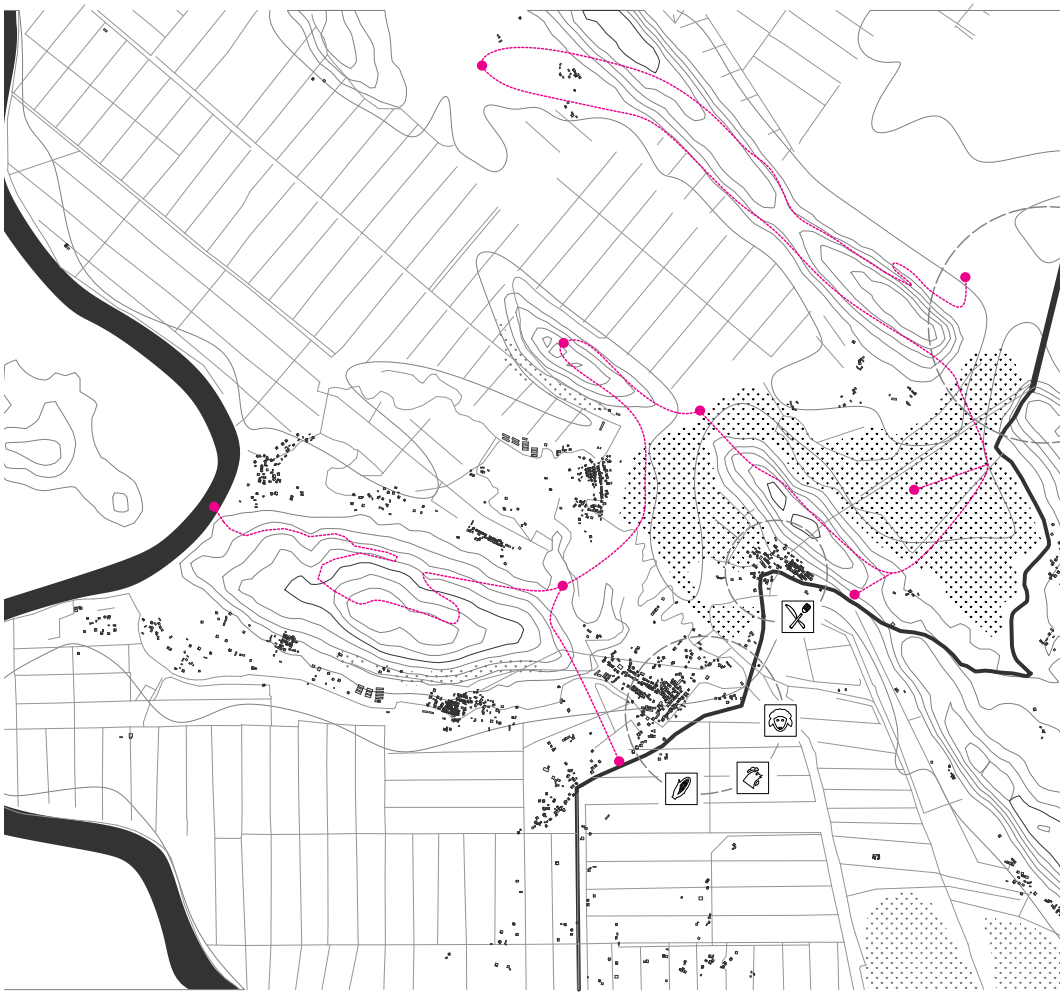


Fig10 / Masterplan of the fragment n°5
source / James Stevens


LIVESTOCK REFUGE
WETLANDS TRAIL
RIVER DOCK
0m
10m
20m
TRAIL TOOLKIT
DISTRIBUTED FOREST

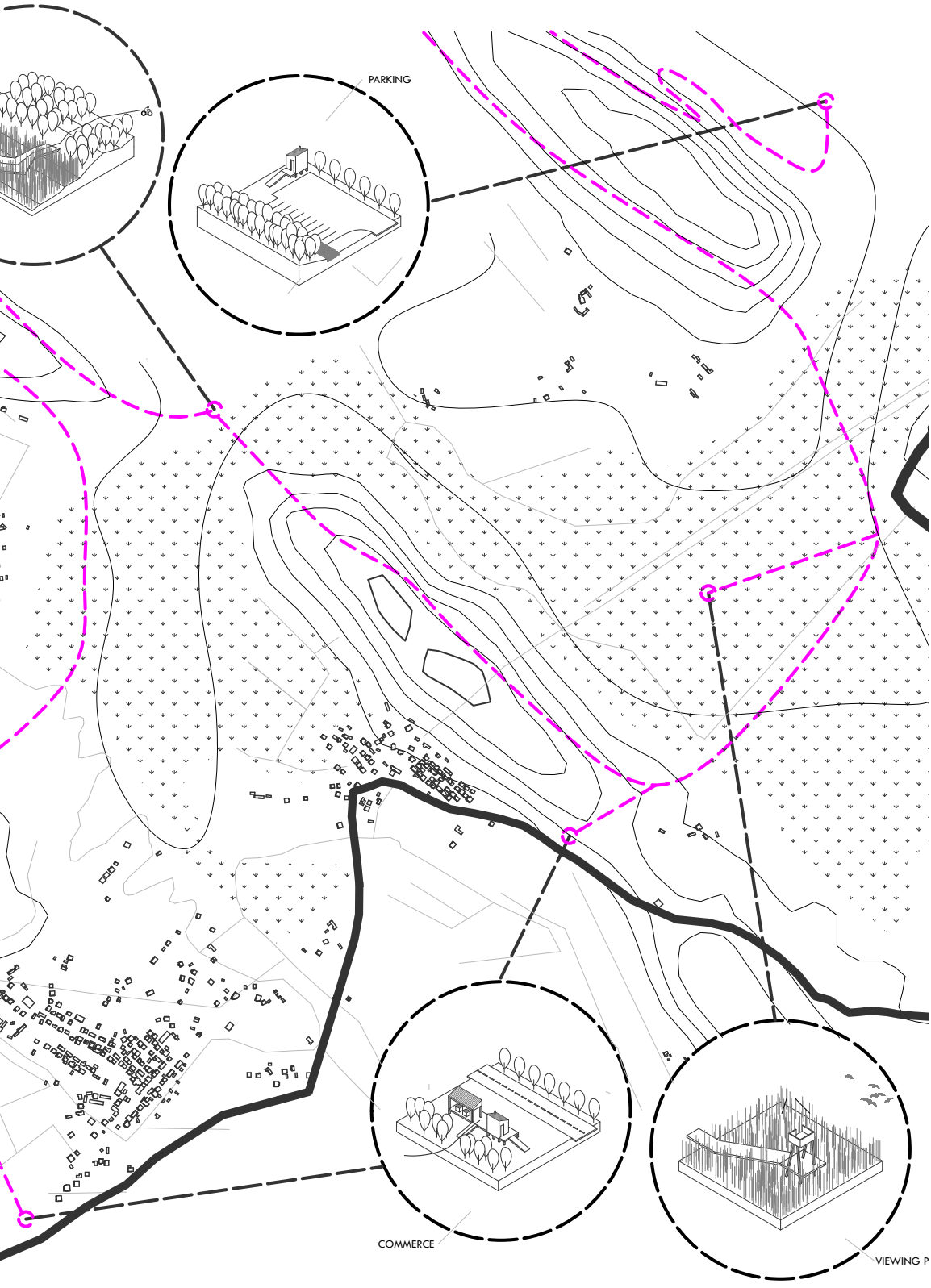
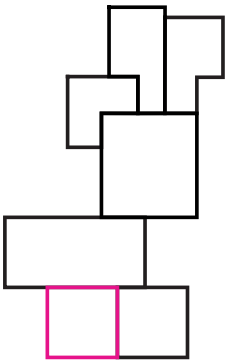


Fig11 / Zoom on the project area
source / James Stevens



6 / Amphibious Devices

Gerdi Papa

The intervention aims to address some of the main issues that the Shkodra sea shore is facing. One side the informal Velipoja is pressuring the still not urbanized part of the sea line. On the other side the area is constantly with floods, destroying the few homes of the locals and also erosion from the sea and land has been a factor to the constant decline of the sea line. Pollution as well as the fact that the area has been declared a protected landscape and is home to rare birds asks for a particular approach.

Amphibious Devices aims to create tools to co-exist operations to preserve the coast through artificial and improve the current conditions. It offers a set of sand dunes and a barrier of reef balls and also the mountain using local vegetation. The wetlands present in the area have been the home of rare species of birds and amphibious devices aims to reinforce the current landscape to create better conditions for the local species to breed and live in the wetlands that can also be nicknamed as "Bird Airport", which in turn can also create a touristic attraction for people who love bird watching.

The last amphibious operation proposed comes in the form of Amphibious Housing. As flooding is well known and common problem in Shkodra, and something that doesn't seem that will be fixed anytime soon, necessity requires for new housing solutions. The proposal presents a tried prototype of a floating house that rises with the water level. The house itself remains undamaged while the platform floats on the rising levels of the waters, being kept balanced by the vertically moving columns. As the Amphibious House is designed to last in emergency situations, where stranded habitants can wait for days for rescue, the house is equipped with solar panels, food storage and a small lifeboat.

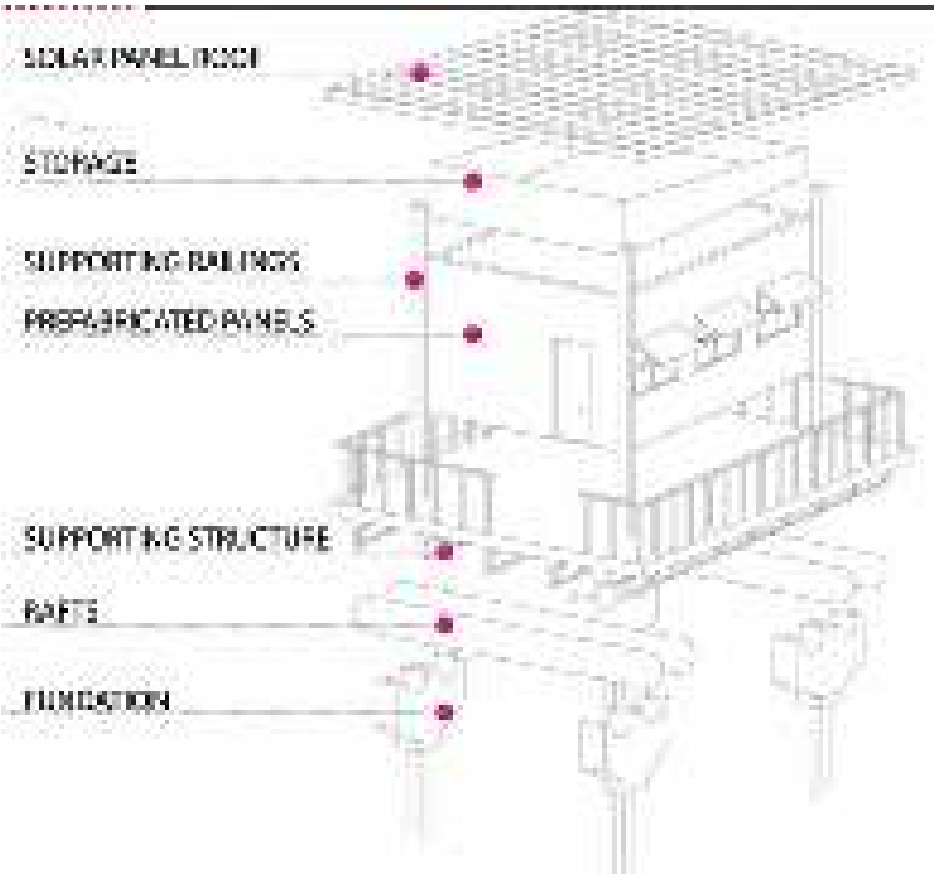


Fig12 / 3D representation of the device designed
source / Gerdi Papa

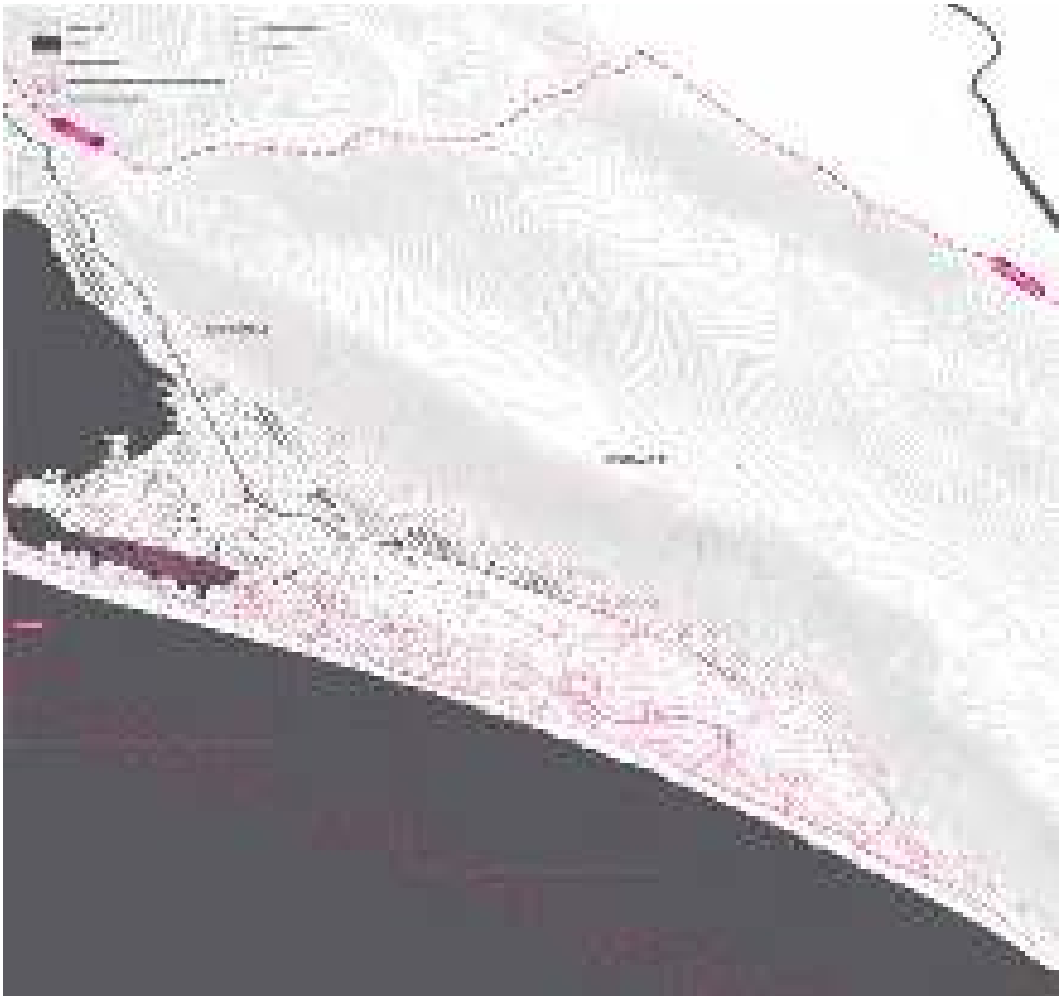
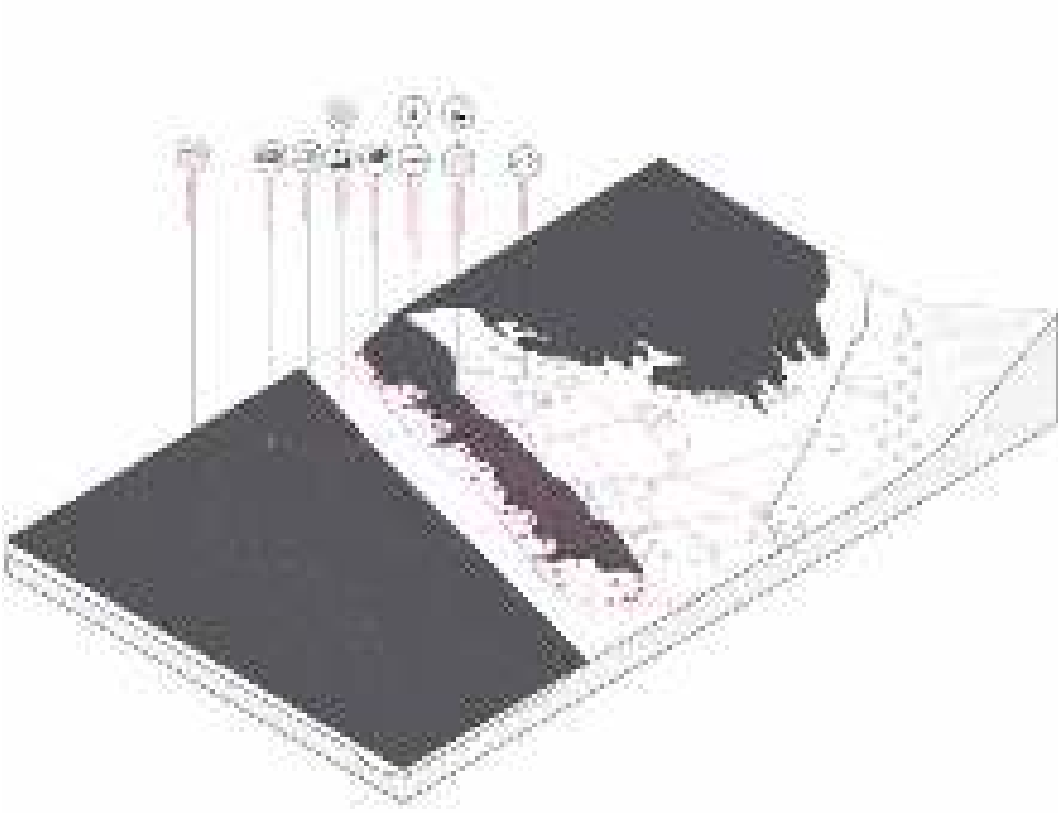
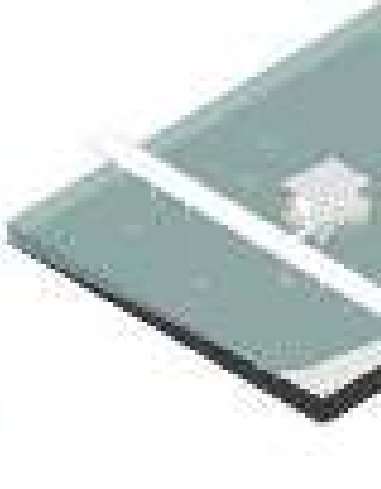


Fig13 / Masterplan of the fragment n°6
source / Gerdi Papa




NORMAL WATER LEVEL



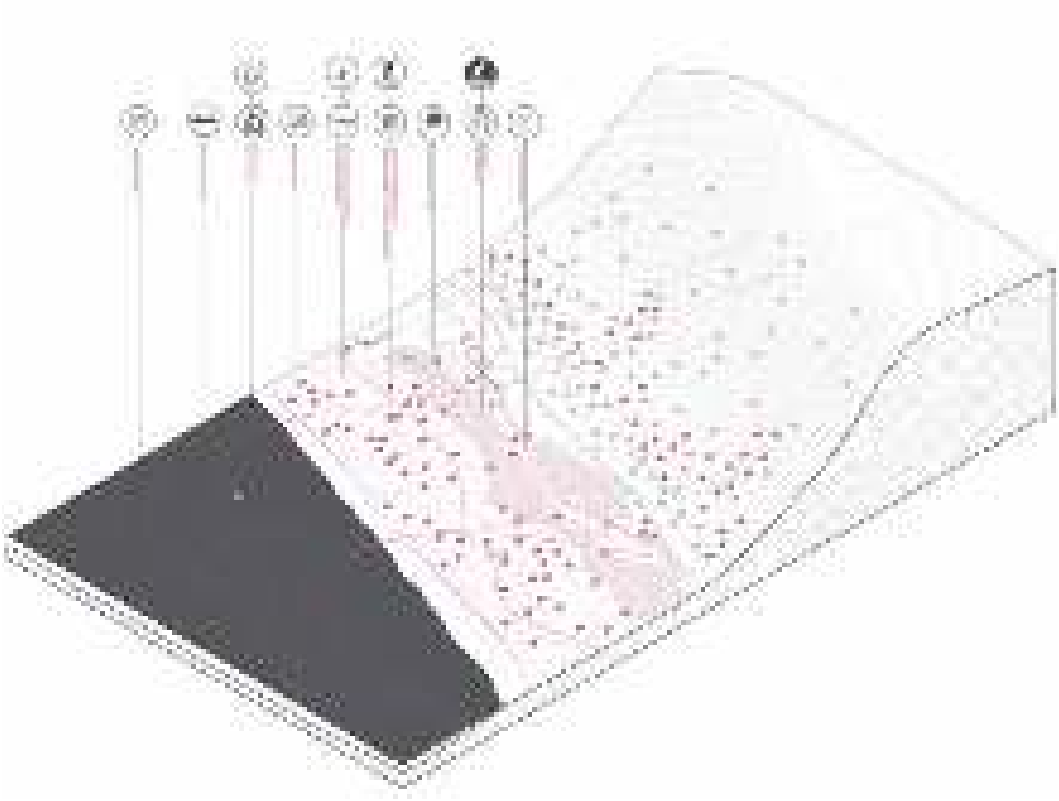


Fig14a / 3D sections of the project area
source / Gerdi Papa

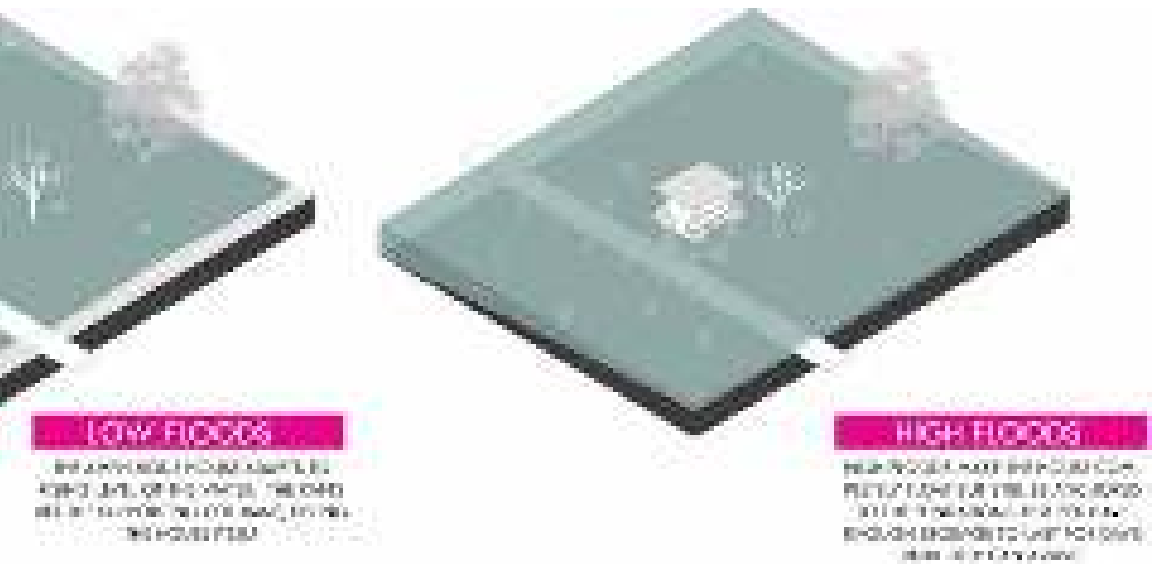
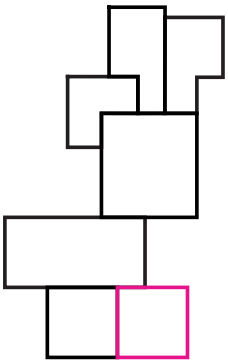


Fig14b / Project scenarios
source / Gerdi Papa



7 / Envisioning Nature

Giuseppe Resta

The seventh fragment frames the mouth of the Buna River, ranging from the Albanian part of the delta to the western side of the marsh. The project called “Envisioning Nature” is a soft landscape infrastructure that enhances the natural diversity of the area (wetland, meadow, rural area, coast, urbanization), though addressing natural and human threats.

Since flooding phenomena and informal constructions are strongly interwoven, an integrated plan of action should be implemented. It is based on a multiscalar toolkit, which combines water and air quality assessment, emergency structures, and watchtowers. The proposal about Velipoje area follows the "satellite concentration" strategy in relation to Shkoder: given the predominance of residential informality, urban area requires clear limits, amenities and strict measures to regain the balance with the natural environment. A Pedestrian promenade would reduce coastal erosion and the designed paths would retrace the existing rural network to limit further agricultural fragmentation. Agricultural land is meant to be consolidated, while a riparian corridor establishes a better protection of the land from flooding risk. This action would include a pattern of woods to establish a strip connecting the two main ecosystems: the delta of the river and the marsh, nonetheless defining a green belt to confine urbanization. Such landscape-scale toolkit would enhance pavement permeability and the regeneration of the irrigation channel network.

In the rural area, a large logistic structure is provided for collecting agricultural goods and storing agricultural machinery. In the residential area, informality is addressed with the consolidation of the urban form, introducing compulsive services and green areas connected to the elevated pathway of the project. In the center, a bazaar would define a flexible space for periodic markets, fairs, exhibition and large-scale events.

The architectural-scale toolkit provides a series of landmarks, each one focusing on a different landscape typology. Such network of environmental observatories recalls the forms and the functions of the ancient Albanian watchtower system to supervise the territory. In this case, watchtowers are meant be used for bird watching and landscape photography, even relating to the historical tradition of Shkoder and that of the Marubi museum. At the same time, these structures would monitor water pollution, measure flooding risk, and check wild life related practices. In case of natural threats, the tower shelters animals and food stocks.

In the frame of the possibility to make Buna River navigable again, one of the architectures is placed on the bank, functioning as river dock; while another landmark, a circular platform by the sea, can be used during the summer. Envisioning Nature is structured on a suspended pathway over the ground, whose structure functions as a pier, in order to be still operative in case of flooding.

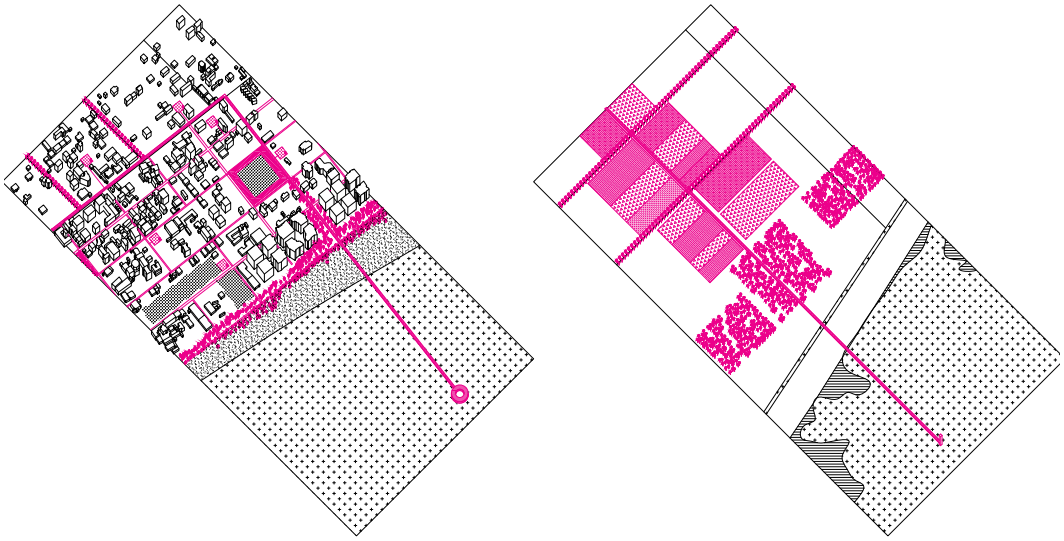


Fig15 / Zooms of the project area
source / Giuseppe Resta

Fig16 / Masterplan of the fragment n°7
source / Giuseppe Resta

3D printing technologies for a biomimetic landscape design / Rapid prototyping for the renovation of Shkoder's waterfront

keywords / 3D printing, digital fabrication, biomimetic design, landscape renovation, territorial emergenciesk

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Abstract

The advancement of digitisation has set the foundations for the definition of new economic and cultural assets in different sectors. Among them is the construction industry, which has stood out for having experimented new automation technologies to update and optimise some key stages of the traditional realisation process, with the aim of refining the overall quality of the results. The most widely used systems, which are able to process printable materials following the information given by three-dimensional digital models, allow a range of possible operations, such as the computer-aided motion, installation, subtractive sculpting or additive creation of manufactured elements. In particular, over the last decades the additive construction tools, also known as 3D printing or rapid prototyping, have demonstrated to be efficiently applicable, at any scale, for the elaboration of an innovative design and a simplified realisation methodology, in accordance with the increasing demand of sustainability requirements. 3D printing is therefore a valuable option to help reducing the environmental impact and improving the design morphology of the outputs, in compliance with the local natural peculiarities of a given location on intervention. This article aims to contribute to the debate on the potentials of the most advanced tools to generate a qualitative contribution to territorial regeneration strategies, especially in protected areas, where building constructions or landscape structural projects are prevented. Rapid prototyping is defined here as a repeatable technique to create territorial components in damaged natural frames that need recovery measures, due to the imprint of uncontrolled human activities. Indeed, urbanisation, infrastructure connections, and constructions spreading - in particular when they are not driven by regulatory plans and sustainable land management policies - are the principal reasons for environmental losses, especially in those contexts that are not capable of absorbing the changes to which they are subjected. To substantiate our arguments, a case study is used. It is the city of Shkoder, located in the Albanian shore of the namesake lake and included in the Ramsar List of watersheds to be preserved. The reasons for selecting this case is its complexity: the misuse of the soil in Shkoder's area caused by the human imprint (permeability modification, consumption of the local flora, and pollution) allows frequent floods to run over the city during autumn and winter months causing significant damages and consequently the lowering of the coastal landscape quality. We will argue that 3D printing helps to define new scenarios for recovery projects in wetlands or shoreline zones that change settings due to the variable level of water, by using low-cost, reversible and compatible materials (sand conglomerates, raw clay or reconstructed stones) with the surrounding environment. Following biomimetic design principles, a rapid prototyping technique can be used to create free-form reefs and walking paths, as landscape characterisations when they are exposed, or underwater natural habitats in the event of flooding. The definition of punctual or integrated projects for the renovation of Shkoder's coastal lands, therefore, can be considered as an opportunity to develop a more resilient and adaptive landscape, able to react positively to potential background modifications.

Fig1 / A lagoon area of Shkoder's Lake, in a current state of degradation. The wetland has an unexploited landscape potential because the context lacks of updated territorial policies source / photo by Sara Codarin

The use of 3D printing technology as an opportunity for landscape renovation

Last decades have witnessed the development of digitised technologies in the production sector, from the realisation of design objects to the definition of large-scale components. This trend can be framed within the aspects of the so-called second digital revolution , a change currently taking place in the field of industrial and handicraft manufacture through the possibility of "turning data into things" (Gershenfeld, 2012) by reading the digital data and then processing their spatial characteristics with physical matter.

The most advanced digital tools have caught the interest of companies because of the chance to build prototypes (study models for the elaboration of goods for mass production) in order to enhance and customise their own fabrication chain, goals otherwise unattainable using traditional methods.

Moreover, modern society is developing circular economic models (Lacy, 2016) aimed at decreasing the use of resources without income losses. This development stimulates companies to invest in additive construction technologies, also known as 3D printing or rapid prototyping, as appropriate procedural systems to reach costs and times reduction in works realisation (Lipson and Kurman, 2013).

In a broader framework, the automation machines used within the construction industry [Fig.1] are computer-aided, semi-automated, and automated equipment intended for the soil moving (handling diggers), for the shaping of construction components (installation, forming, and subtractive robots), and for the definition of customised volumes (additive construction systems). They have recently found an application within building site operations as a chance to update the standard building process (Bock and Thomas, 2016). In particular, the additive 3D printing technology provides the opportunity to manage the creation of complex shapes and volumes by depositing overlapping layers of proper printable new mixtures. It allows operating a large quantity of information coming from specific software and ensures the accurate measurability of the resources involved in the realisation and the forecasting of all implementation steps (Codarin, 2016).

Latest large-scale fabrication systems are mainly divided into cold extrusion and powder-bed deposition and both of them allow the simplification of realisation processes from the design phase to the digital model elaboration, to the output definition. Cold extrusion machines consist of an extruder calibrated to lay strata of a viscous blend that solidifies instantly. Powder-bed deposition technique, instead, provides a system of mechanical jets programmed to set down alternate layers of a base material and a

1 / The first digital revolution refers to economic, politic and social changes due to binary-language introduction. The second digital revolution, according to Neil Gershenfeld's (2012) definition, is related to the development of technology in matter.
2 / For further information see: http://cba.mit.edu/docs/papers/12.09.FA.pdf (accessed: 15/04/2017).

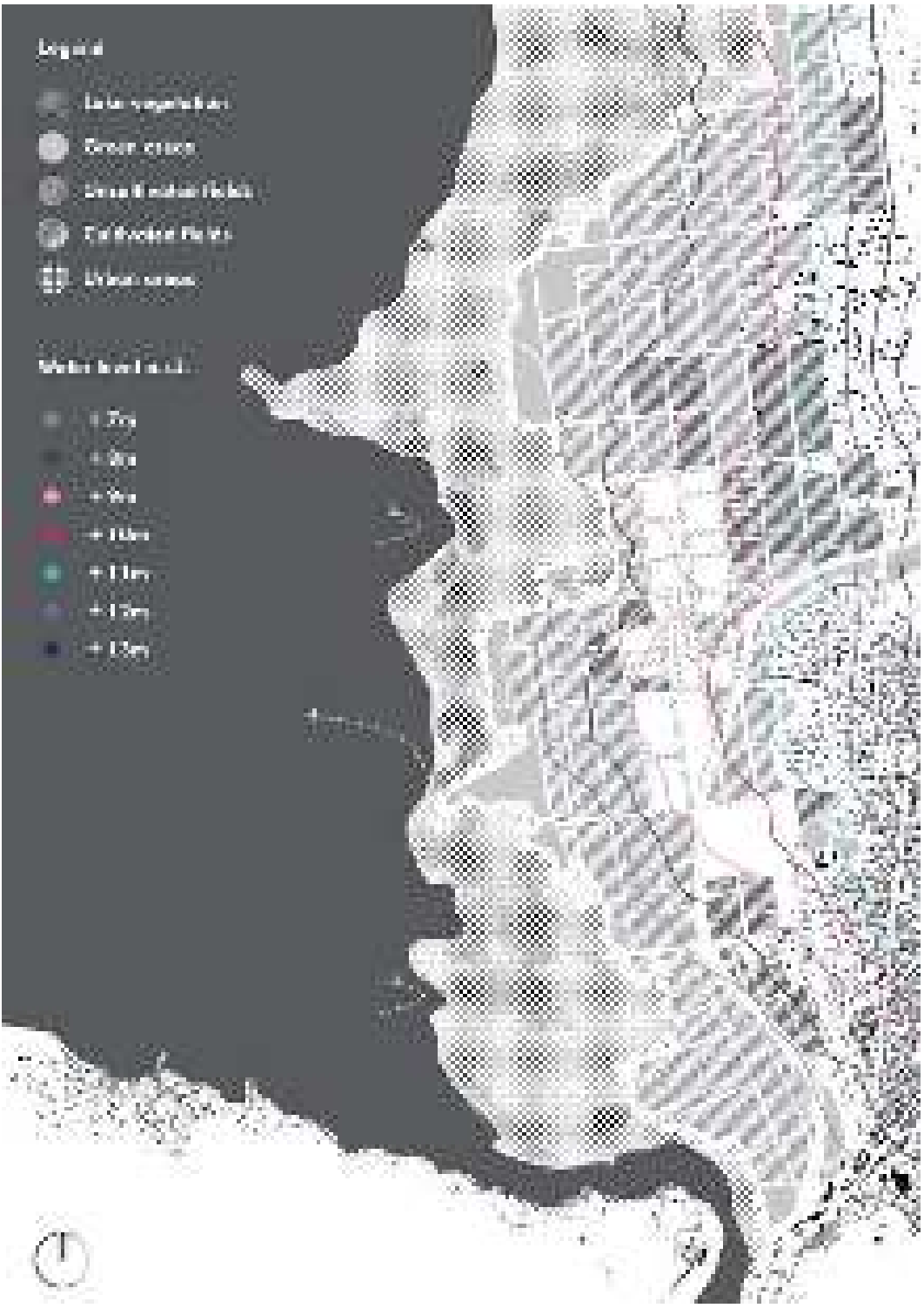

Fig2 / Masterplan of Shkoder's shoreline. The image shows the transition of landscape features from the surface of the lake, through the protected natural area, to the city edge. In the event of flooding, water level can rise from 4m above the sea level (normal situation) to 13m, causing damages both on the Natural Heritage and urban land
source / the author

binder [Fig.2]. These advanced 3D printing systems are able to process new materials that are environmental compatible and multi-scale adaptable (Beorkrem, 2013). For this reason, we can consider these technologies a potential not only for architectural realisations, but also for landscape renovation projects with the aim of defining innovative constructive scenarios. A possible application could be recovery measures for damaged natural frames as a consequence of impactful human activities.

Human imprint is responsible for growing stress on land and water with, consequentially, territorial degradation, since urbanisation, infrastructure connections, and constructions spreading are the principal reasons for the pressure of landscape quality. A specific attention should be pointed on wetlands, which are contexts that more than others require attentive analysis to prevent environmental issues.

Fig3 / 3D printer that works with powder-bed deposit. It allows the definition of free-form volumes in any direction. The printing resolution is variable according to the features of the machines source / photos of Dshape

In Europe, plurennial strategic programmes play a key role to encourage aquatic ecosystems protection, green networks realisation, energy consumption optimisation and sustainable tourism promotion. The programmatic agenda includes the EUSAIR (European Strategy for the Adriatic and Ionian Basin) for the monitoring of coastal areas in the EU Member States as well as non-EU Countries, in order to strengthen the quality of the whole geographical territory. The EUSAIR programme embraces several complex systems of the Balkan Peninsula, such as the watershed of Lake Shkoder and River Buna (counted in the Ramsar List of Wetlands of International Importance), which is strongly affected by unsustainable land-based activities on shoreline areas and aquatic ecosystems. It is considered a significant context to be taken as a case study. [Fig.3]

A complex environmental system: the case of Shkoder

The city of Shkoder is located in a valley that contains a wide variety of natural features, classified within the AKZM , such as the lake, the rivers and the coastal lagoon, the freshwater marshes, and the alluvial forests. Shkoder has a significant potential for future tourism development, which is not fully exploited for various reasons. Uncontrolled city sprawl, water pollution and vegetation impoverishment hamper the attraction of tourists. During the last years, several flooding events had ran over the city on a regular seasonal basis, causing significant damages on buildings and natural areas. Nevertheless, because of the watershed topography, floods represent a given condition that the landscape and the urban settlements have unavoidably to deal with. Shkoder's environment raises issues on land management, biodiversity protection, and public space organisation in protected areas. Its complexity represents an opportunity to transform local problems into potentials. Shkoder is delimited on the south by the river Kir, a tributary of the Drin that flows into the Buna. The latter derives from Shkoder's lake and flows in its delta in the Adriatic Sea. The intersection of the rivers is a critical node during rainy periods, as the outflow stream is not sufficient to face water income due to weather conditions. Indeed, according to UNW-AIS dataset , the level of the lake rises in January and November forcing the

3 / The Ramsar Convention had the objective to develop and maintain an international network of wetlands that are important for the conservation of global biological diversity and for sustaining human life through the maintenance of their ecosystem components, processes and benefits/services. For further information see: http://www.ramsar.org/ (accessed: 10/04/2017). Albania joined the Ramsar Convention in 1995 and, in 2006, it has taken the opportunity to designate its third Ramsar Site, the watershed of Lake Shkoder and River Buna. Available at: https://rsis.ramsar.org/ris/1598 (accessed: 12/04/2017).

4 / National Agency of Protected Areas in Albania. It has the objective to protect natural areas from land misuse and promote soft tourism development. Available at: http://www.akzm.gov.al/index.php?option=com_k2&view=item&id=200:skadar-lake&Itemid=437&lang=us (accessed: 12/04/2017).

5 / Available at: http://www.ais.unwater.org/ais/aiscm/getprojectdoc.php?docid=1445 (accessed: 12/04/2017).

6 / At the following link http://reliefweb.int/sites/reliefweb.int/files/resources/5660FD9F6FBE2DD1C12577F2002CF10B-map.pdf (accessed: 12/04/2017) it is possible to find the map of the flooding events that occurred over the city of Shkoder in 2009 and 2010. The graphic shows the impact of a change in the local water level on the environmental system.

Fig4 / The 3D printed pedestrian bridge experimented in Madrid by Dshape and IAAC, through powder-bed deposit processing. It represents the first landscape component realised by the application of large-scale rapid prototyping.
source / photos of Dshape

water to run over coastal lands, suburb areas, and the city centre [Fig.4].
Local administrations have realised a gravel dike (a structural landscape intervention) to face the issue of flooding, as an attempt to contain the problem, even though it is not related to any wider-scale strategic planning. Indeed, this construction has caused a modification of the existing natural features: during floods, water is forced to flow under the soil where often stagnates, unbalancing the shoreline ecosystem assets. In addition, from a nature point of view, Shkoder's watershed is affected by water pollution (primarily determined by urban wastewater and illegal discharges) with long-term effects on flora (shortage of nutritive substance and sedimentation in water), fauna (scarcity of living organisms), and habitats (deterioration of the biodiversity). These effects involve also water flows that, during flooding events from the lake to the urban land, do not get slowed because of the absence of coastal vegetation, that should act as a shielding element.
On the basis of this environmental framework, it is possible to conceive new scenarios of landscape renovation interventions, as pilot projects for other similar contexts (Pazzi et al., 2015) including the enhancement of the overall environmental quality and the enrichment of the local ecosystem, by using 3D printing tools.

A proposal for a repeatable unitarian strategy of intervention

An approach is proposed that aims to provide an effective operative tool that goes from mapping the primary emergencies of the study areas, to design elaboration, up to realisation.

In the case of Shkoder, the aim is to find an effective methodology that can help systematize the renovation of the lakeside, starting from the recognition of the peculiarities of the context and their eventual level of damage. To achieve this result, we should set multi-dimensional and multi-targeted objectives (spanning from a simple landscape unit to larger territorial elements), to be organised in different phases.

3D printing technologies can generate a sustainable landscape renovation intervention (on site or in nearby production centres) through a procedure which is assumed to be repeatable in critical backgrounds comparable to those examined, according to the following expected results:
- redefinition of the coastal margin through 3D printed components (walking paths, observation platforms) and proposal of a low-cost qualitative design to strengthen its identity, based on the application of non-structural interventions and the use of compatible materials, with the objective to achieve a unitarian readability of the fragmented landscape pieces [Fig.5];
- reconnection of the shoreline with urban and suburban lands;
- physical and social integration between the city and its periphery, to encourage the local government to promote the realisation of renovated spaces suitable to be used by the community;

Fig5 / Sections of the 3D printed pedestrian bridge. The organic-shaped volume follows forms of nature with the aim of optimising the mechanical performances and the use of resources by recycling the raw material during manufacture source / photos of Dshape

- promotion of an innovative landscape planning to attract nature tourism by developing activities based on ecosystems observation;
- enrichment of the biodiversity of the protected natural areas. 3D printed components (reefs or artificial margin) can represent an instrument to encourage the liveability of the underwater environment (once the lake surface overflows) and the reinforcement of vegetal settings, acting as a sedimentation collectors (after the water level returns to its normal configuration). Flora densification is, therefore, a key factor to restrain water flows during floods [Fig.6];
- definition of a resilient shoreline which is adaptable to the different seasonal configuration, due to water level changes, to limit irreversible environmental damages and economic losses.

In Shkoder's framework, the powder-bed deposition system, enables printing of organic-shaped blocks made of a sand-based material and binders. In this study, we consider it the most suitable system to generate landscape technological components for renovation processes.
Recent experiments have shown that 3D printed elements resist effectively atmospheric agents and water pressures, without losing material consistency or aesthetic quality. This aspect is fundamental to promote long-term intervention actions.

Realised experimentations analysis: limits and potentials

The 3D printing powder-bed deposition technique, which allows the printing of monolithic shapes in morphological continuity with the environment without geometric constraints, in 2008 led to the construction of Radiolaria, the first architectural full-scale prototype, designed by Dshape in collaboration with Shiro Studio. It was composed by a single three-dimensional block made of 5mm-layers, which represents a transition towards the use of free forms in architecture.

The experiment signified the possibility to initiate new construction scenarios by using a load-bearing stone-like material, composed of sand, metal oxides, and inorganic salt-based binders, which refers to the current European regulations about natural stones (porosity, compressive and flexural strength).
From this starting point, researchers -supported by promising market forecasting- focused on the possible adaptation of different 3D printing systems for large-scale realisations (based on production optimisation and

7 / There are a number of adaptation options that could be used for reducing the vulnerability of a coastal system. One way of classifying these adaptations is as structural and non structural interventions. Structural interventions attempt to change the physical conditions of the natural system. They seek to use engineering to make the natural environment more capable of withstanding extreme events. Non-structural approaches employ land-use controls, information dissemination and economic incentives to reduce or prevent disaster vulnerability.
8 / Prefabrication of assembly pieces can be addressed either moving the machines or their products. The subdivision of the design system into a finite number of transportable and storable parts raises new challenges in innovating the established key stages of the construction process.

Fig6 / Reef prototype and its experimental positioning underwater. It represents a natural habitat for the aquatic ecosystem. The geometric layout is also effective to strengthen the morphology of the coastal margin
source / photo by Dshape

waste reduction) in order to find a new market segment between the artisan and the mass production (Sennett, 2008).
Several companies have therefore developed printing machines for building construction, to perform pioneering experimentations encouraged by the fact that beyond the initial investment to buy the machine, any tests are feasible only considering the price of the material, which is the major cost component (Rindfleisch, 2017).

Recent large-scale 3D printed realisations have been carried out (Stevens and Ralph, 2015) by using concrete (multi-level building designed by Winsun Company), clay (residential unit by Wasproject) or sand (emergency residential module by Dshape).

However, in order to meet national or local regulations requirements, new constructions need the hybridisation with traditional techniques for structural reinforcements, as printable materials are not yet mature to bear considerable flexural and tensile stresses. In fact, the search for 3D printable mixtures is still under way.

A representative case study for landscape interventions, developed by Dshape and Boskalis Companies , concerns the 3D printing of underwater free-form reefs, aimed at restoring deteriorated coastal habitats [Fig.7]. These objects, prototyped as full blocks (not assembled elements), are characterised by a complex geometry suitable to create an artificial environmental system for aquatic living organisms. The realisation of monolithic volumes, in fact, avoids the installation of incompatibles elements with the surrounding natural background (Teizer, 2016). For each experimentation in different contexts (the reef has been positioned experimentally in seabed and coastal underwater environment of Monaco Principality, Bahrain, and Rotterdam), the reefs have been produced by ensuring durability over time and hydrostatic forces resistance. Compared to the usual systems used to enhance underwater habitats (perforated volumes made of concrete), 3D printed reefs can be realised with a more complex geometry, that means more similar to the real habitats, with minimal material waste.
These construction procedures respond to the principles of the biomimetic design, which is a technological application of the biological key features of nature (by identifying those principles that enable resilience, material adaptability, and load bearing efficiency) within the implementation of complex shaped objects (Reichert et al, 2014).

The powder-bed deposition leads to the creation of organic structures, which can be integrated both on the land or water bottom, by simulating the formation of sedimentary rocks in the underwater environment. At the same time, the fabrication process allows defining monolithic massive elements (instead of plural units), characterised by mechanical properties that are attributable to natural-origin models.

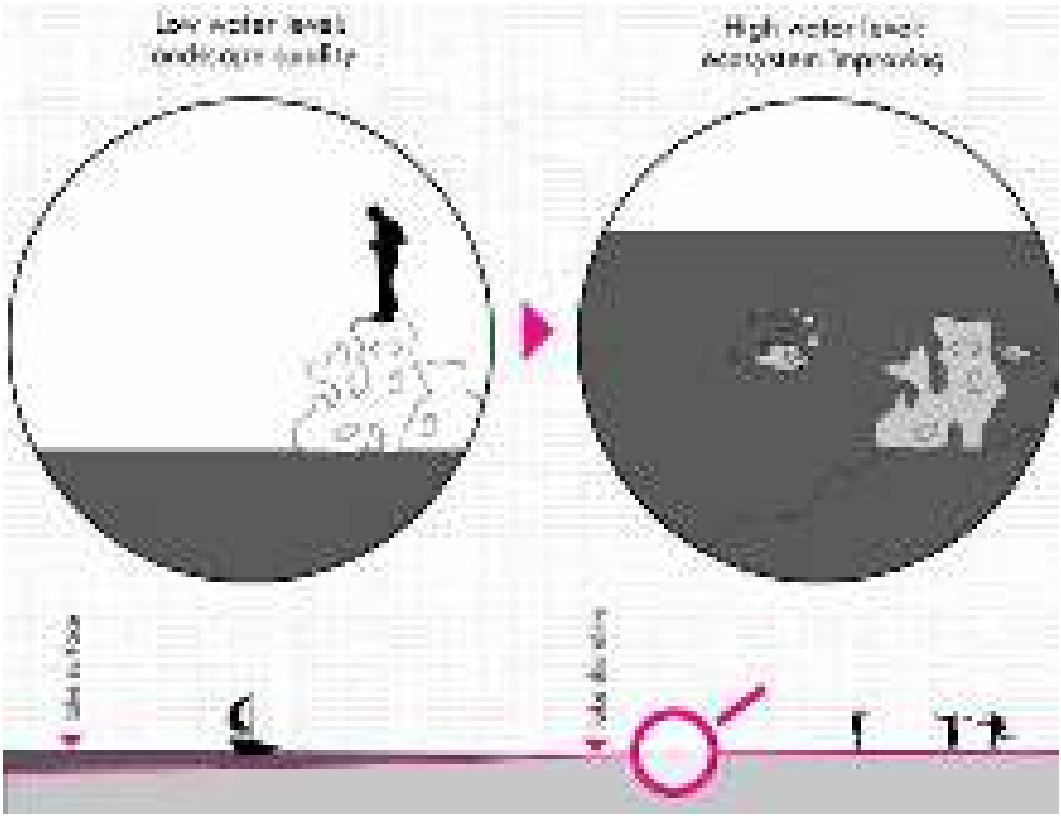

Fig7 / 3D printed organic shaped reefs as a landscape project proposal for Shkoder's Lake shoreline. The intervention is intended to be resilient to the changes of water level –according to the biomimetic design principles- and effective to provide both territorial quality and biodiversity enhancement source / the author

A next developing step may provide the possibility of using case-by-case local sands as the principal inert of the printable mixture, matching with the natural context, which should be tested to ensure the proper mechanical resistance.

For instance, chemical-physical composition of Shkoder's soil could influence the amount of binder needed for the base material for powder-bed deposition and, as a consequence, the precision and the geometric layout of the resulting prototype.

Moreover, the dimensional scale of each 3D printed component should follow specific studies on the dynamics of the surrounding natural context, such as the speed of water flows in case of underwater positioning or the resistance to the local atmospheric variable conditions, when the printed components are exposed.

Conclusions

3D printing processes are considered as a potential innovative approach to face Shkoder's emergencies in the framework of a compatible landscape planning within a natural, protected area. This, in compliance with European regulation that are being developed on the theme of the use of new automated systems for building constructions and landscape components. It is possible to prefigure the realisation of a 3D printed soft-infrastructure (such as the first 3D printed pedestrian bridge realised in Madrid by Dshape and the IAAC) that can link the most valuable units of the context [Fig.8]. In this way we can manage to connect the non-functional spaces between the city and its surrounding settlements. The objective is to define a non-interrupted territorial system as a potential for the foreign and local tourism, addressed along the designed paths to focus on naturalistic activities. Moreover, in order to revitalise Shkoder's

9 / For further information see: https://3dprinting.com/news/winsun-uses-waste-3d-print-houses-4800-dollars/ (accessed: 02/07/2017).
10 / For further information see: http://www.wasproject.it/w/en/3d-printed-houses-for-a-renewed-balance-between-environment-and-technology/ (accessed: 02/07/2017).
11 / For further information see: http://design.repubblica.it/2010/11/22/la-casa-tutta-di-un-pezzo/ (accessed: 02/07/2017).
12 / Available at: https://magazine.boskalis.com/issue03/3d-printed-reefs (accessed: 14/04/2017).
13 / The project was presented at the 13th International Coral Reef Symposium. For further information see: https://www.researchgate.net/publication/311615466_3D_printed_reefs_as_an_enrichment_for_natural_habitats (accessed: 15/04/2017).
14 / The present case study represented a successful experimentation of the large-scale 3D printing in urban spaces, so that this technology will be used to realise the street furniture for Dubai 2020 masterplan. For further information see: https://d-shape.com/ (accessed: 14/04/2017) and https://iaac.net/ (accessed: 12/04/2017).

waterfront biodiversity, the positioning of articulated reefs, appropriately sized based on simulation of incident forces in the lake bottom, can result in a qualitative factor, able to adapt to different landscape configurations, according to the requirement of landscape adaptability. During floods, the stone-like structures belong to the underwater environment, while in non-emergency conditions they act as emerged sedimentation absorbers, to encourage coastal habitats enrichment. Based on available technologies and open issues, the proposed innovative intervention approach can represent a key point for future insights.

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Fig8 / Project proposal for the shoreline of Shkoder's Lake, composed of 3D printed landscape components made of a stone-like material mixed with local sands and realised through powder-bed deposition processing. The walking paths and the organic-shape reefs contribute to create a soft biomimetic infrastructure, compatible with the character of the natural protected area source / the author

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(Un)margin the Shkodra's gate / An opportunity to regenerate an important landmark

keywords / Shkodër gate, urban regeneration, lake, dike, crossborder cooperation

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Abstract

The Shkodra's gate is located in the southernmost point of the city, where there is the confluence of Buna, Kiri and Drini Rivers. This gate is not a simple access to the most import city of the North, but the Albania's main gate, towards northern and central Europe. The countless postcards produced through the years, mark its importance by figuring the two main symbols of this landmark: the Rozafa's castle, positioned in a very strategic point at the top and the Buna's river that springs from Shkodra's Lake. During the 19th century, its strategical position and the navigability of the Buna's river, encouraged the creation of city's harbor, tied Shkodra economically with many European harbor cities of the Adriatic basin such as Venice, that lately encouraged the concentration of many small artisanal enterprises and birth of the local market, too.
During Socialism, the centralized economic model implemented in the country banned private activities because of being in contrast with the ideology of the regime and it couldn't be different in Shkodra where the harbor, the local market and the surrounding buildings were blown away, erasing an important piece of history. Nowadays, this area isn't in a good condition because of the constant flood risk and the abandoned building that were expected to host economic activities are a clear demonstration of the lack of attention and investments from the public administration and the central government. The so called "bypass", supposed to act as dike to prevent floods, is no less than a huge amount of gravel placed in the limit of the city.
Despite suffering this quasi-miserable condition, a regeneration is vital to rebirth the lost identity and to assure protection from floods. The project proposal doesn't consist in the (re) building of a new harbor, as an attempt to restore the lost memory, but as part of a series of interventions to protect the city from the lake's and Buna's river behavior during their peaks also aiming to preserve and improve further the relation between them and the city.

Historic importance: preserved and erased fragments

Shkodra's southern gate, highlights through its history the importance of the geographical position to protect the city from the permanent risk of occupation and guaranteeing its protection and stability for centuries, too. Positioned in point where the Drin and Buna river meet, historical documents and archeological findings have been very useful to historians to reconstruct the most important historic events. Even though data are limited to map the city's limits in Antiquity, Skodra was an important and a very difficult center to conquer and one of the main reasons was the difficulty to access from south. Indeed, well-known roman historian Titus Livius (Weissenborn, 2018), documented the several attempts of the Roman army which revealed to be unsuccessful to conquer it and from his witness emerges that Shkodra was surrounded by walls and its gates were narrow to prevent the city from eventual attacks, and there were also present towers.

Fig 1 / Shkodra's gate before 1945
source / www.shkoder.net

Another important witness from him concerns with location and consequently the intersection of the rivers, stating that the two rivers that surrounded the city: Klausalit (Kiri), the river and by the Barbana (Buna) river that springs from Lake Labeat, flowing East and West respectively, both ending in the Oriund (Drini) river. This is absolutely important, because it reveals that the past Drini river's location was different from the current one beneath the Rozafa's castle and its continuous mutation covered the early traces of the old city. Traces of the Illyrian wall, built of carved stone blocks disposed on each other on dry, are present at the entrance of the castle, in between the first and the second gate. This polygonal-shaped wall, 12 meters long and 2.2 meters high, represents the first convincing evidence "of the transformation into an important civic and economic center between IV-II BC".

In 1988, the archaeological excavations leaded by Albanian archaeologist Gëzim Hoxha (Hoxha, 1986), brought to light a substantial portion of the perimetric wall of the Roman period in the south-western part of the castle's hill, considered to be the continuity of the Illyrian wall. Despite their immense value, it's almost completely destroyed because of the lack of maintenance and protection.

Another important evidence from this period is the Rozafa's castle built between the IV-II BC (Historia e Shkodrës, 2016). Located in a 130-meter-high hill, undoubtedly can be considered as the striking element of this landmark of city and has been determinant for the protection of the city from the twoconsecutive sieges from ottomans after its definitive fall in 1479.

During the middle ages, the city under the Balshaj family and the Venetian Republic's rule reached important political and economic peaks, where in particular the last ones, made big struggles in order to preserve their control over the city. In fact, several marine expeditions made by the Venetians to suppress the local uprisings are the evidence of the importance of harbor of Shkodra and of the strategic connection between the lake and the Adriatic Sea through the Buna River.

When the ottomans conquered the city, many Albanians abandoned their homes and many historic buildings were ruined, but the city's importance remained unaltered through the years. Between 1499-1500, the first bridge on the Buna River was built there. The southern gate preserved its importance and nearby grew the local market called "Pazari i madh" [the big bazar], proving the growing interest for this area. For more than four centuries it remained the economic pole of Shkodra, among the most important of the Adriatic basin, transforming it into one of the most developed Albanian centers. Unfortunately, after Albania's Independence from the Ottoman Emperor up to the end of WWII , this area underwent through very tough times. Starting from the siege of 1913, where after a six-month siege the Montenegrins destroyed the

Fig2 / Ruins of the old Bazaar after the siege of 1913
source / www.albanianhistory.net

bazaar (Fig. 2) representing the first shock in terms economic decay and architectural heritage, that took years to be restored.
But the worst had yet to come, because immediately after the end of the WWII, the socialist regime implemented the centralized economic model and because of being in contrast with it, the entire bazaar was totally blown away from the authorities erasing a precious piece of memory that permitted Shkodra to reach an unseen development. Since then, it has still been the main access from South with the difference that the road was widened to facilitate the vehicles traffic and the plot of the old bazaar was transformed into a public space, a configuration to be considered optimal for the urban design the city took, but totally unjustified for the memory erased.

Economic importance and attempts to restore the past

Despite being in its early years known and exploited for defensive purposes, the southern gate of Shkodra became the economic pole of the city. The harbor has been fundamental to facilitate the navigation in the Adriatic Sea and around the Lake Labeat - the old name of Shkodra's lake, transforming the city into an important economic center and capital of the Illyrian kingdom, too. Precisely the navigability of the Buna river, was the main factor that ships from the most important harbor cities of the Adriatic basin such as Venice and Ulcinj could have access to Shkodra's inland and vice versa.
Obviously, its activity became even more intense and catalyzed the concentration of several artisanal shops and the creation of the local market. In the XIX century, its economy grew at high rates and the local bazaar counted 2500 shops (Abdyli, 2008) built in Persian style, where the most common products for export were national dresses, fabric, leather, tobacco, gunpowder, caviar. There were not built housing units but only shops distributed in 1,8 km distance and dived in different "sokake" - the streets of the old bazaar, according to the craft or product offered by the artisan masters. Between 1807-1809, the "Bexhisteni" - a cluster of small shops - was built by Ibrahim Pasha and continued by Mustafa Pasha Bushatliu. It was a real modern gallery and it would have remained so if it would have not been blown away, contained 40 shops mainly for gold and antique precious objects of that time.
Unfortunately, after the proclamation of independence from the ottoman empire, the local market was seriously damaged in 1913 (Kisch, 1925) by the Montenegrins during their attempt to conquer the city, marking the beginning of the decay of this precious part and economic heart part of this 2500-year-old city. The final knock down, was given by socialist regime, considering it a bad example contrary to its ideology and by blowing it and river deck as well. The place where the Bexhisten used to be became a public park were citizens and tourists could spend a nice time but it was totally unjustified damage for its history.
Fall of the regime in early 90's, was followed by a transition into a democratic political system and to the liberal market

Fig3 / Buna river spring source / the author

economy. Unfortunately, there was no balance and control of the high desire to invest on private activities and to plan the private activities, respectful of the urban standards, heritage and natural parameters of this area. Many illegal activities were settled on the lake front and beneath the Rozafa's castle by lowering its attractivity. It took years to demolish most of them but the new legal ones proved to be non-rentable and in particular the new complex of mix activities where previously was the old Bexhisten has currently many unsold/inactive shopping units because of the lack low quality of the area.

Natural and touristic potential

The area has an enormous natural potential that makes it very attractive for tourism and it is not a casualty that it is very preferred by citizens and tourists as well. In less than a one-kilometer distance, there are present different pieces of landscape: from the riverfront to the lakefront; from the Shirokë and Tepe hills to the agricultural lands; and the wetlands on the side of the lake that are important in diversity of the ecosystem. The Lake influences the most the city's climate especially the humidity with values higher than 75 % during the cold moths (November and December) and drops around 55% in the hot moths (July and August) (Dhora, 2016). With a total drainage area of 5490 km² (Dhora, 2016), its surface varies from 350 up to 500 km2 and its level from 4,6 meters up to a maximum level of 9.8 meters. The Albanian part of the lake is estimated to be 142.5 km² (38 % of the overall surface) and with drainage area of 1030 km² (38 % of the overall surface). It is considered an important hydrological stabilizer because of supplying the Buna (Fig. 3) river when Drin river's supply is lower. Actually, there are present three habitat systems: the Lacustrine system, including limestone and littoral habitats; the Palustrine system, with habitats that differ in vegetation and presence/ lack of water; and the Riverine system, which includes continuously non-continuously flooded habitats.

Because of being shallow, most of its mutations occur on the surface rather than into the depths. This means that in the warmer seasons, especially in the northern, eastern and southeastern parts large marshland areas are developed and consequently vegetation there is more developed than in other parts. On the shore or wet soils that are covered by the water, only during the period with heavy precipitations do the communities of high-body plants dominate (Phragmites, Scirpus, Typha, Sparganium, Cyperus, Carex) that together with the flotation plant community (Nuphar, Nymphea, Trapa) meet in the marshy and shallow waters are also the main biomass and main lake production.

All the characteristics mentioned above make it particular and very attractive for tourism, meaning that the entry of Shkodra can be considered a natural gate too, because of the enormous natural diversity. Traditional food, culture, architecture and breathtaking landscapes are other strong reasons to pay a visit here. Sport water activities can be also performed more frequently, but the

actual infrastructure has to be improved somehow and most important by being respectful of the ecosystem.

Ongoing decay

Fall of the regime, established the democracy and enabled the possibility to develop private economic activities as well, but the attention and vision to restore the past importance the area had, was missing. Except a few interventions for the modernization of road infrastructure like the new bridge built in 2011 connecting Shkodra and Shiroka and the broadening of the Mbreti Gent street leading to city's center. New private activities built legally and illegally on both sides of the main street did not have a positive impact in the attractivity of gate.

Most of private activities shut down because of the low attraction that the surrounding spaces, proving that for the lack of attention toward it has been very evident. Only citizens grown up and living in the city since they were born don't abandon it because of having childhood memories. Besides admitting to dislike this situation, they cannot handle to ignore it because the strong affection they have with this piece of city makes them act like this mess is not present. The ongoing decay of this area can be summarized into main aspects: natural configuration of the area and lack planning.

The western part of the city (eastern part of Lake) where is clearly visible its slow inclination and the continuous mutations of the Lake's surface, make it the most affected area from these natural dynamics. Furthermore, the main sewage channels of the city ending up in the lake, represent not only an historic pollutive problem for the lake, but also a main reason of high risk of flooding. Another relevant aspect, is the fact that this area is a protected natural area and interventions are banned but initiatives/ action to deviate them have been missing. Despite the environmental restrictions, the central government and local administrations through the years have a huge responsibility for the current decay of the area proofing the inefficiency of the planning tools, too.

Improvised structures like the bypass (Fig. 4), as an attempt avoid the flooding action of the lake, is a clear demonstration of the absence of sensibility toward the southern gate of Shkodër. This mass of gravel (Fig. 5-6) is neither a protection measure nor a promenade for a walk or even a public space to attract people. Illegal dwellings and private activities like petrol station for example beneath the Rozafa's castle hills, are far from the configuration of the old demolished Bazaar and are strong reason to avoid this part of the city on the future postcards.

If the old bazaar was blown away for being an opposite model for the regime, the broadening of the gate for the vehicle traffic might have been an indirect reason as well. The disorganized infrastructural system is another point to work on because the absence of a real bypass to avoid the main vehicular traffic flow coming from: the city's center, rural centers or even to Montenegro (and vice versa) pass through this gate. Its construction must not be seen as a priority concerning only Shkodra, but it must be included in broader vision for an interregional infrastructure like the Blue corridor which cannot pass through the Adriatic coast because of the presence of the Buna's river protected area and so the only solution is passing from the eastern part of Shkodra.

(Un)Margin. A Strategic intervention for a better future

As emerged from the analysis, this gate has not only an important historic value, despite being mutated through the years, but it is the one and only gate of Albania toward central and northern Europe on road and probably in a near future on water, too. It's difficult to handle with a piece of city that has been drastically transformed many times and now it's in a desperate need of regenerative and requalifying interventions (Fig. 7). Before programming an intervention, there should be made some valuations on the base of the analysis made, in order to develop a strategic vision for this area. This approach should be based on these three main issues: mobility, nature and heritage. The first issue is fundamental for the future of the area and for the city as well, because it eases and drastically reduces the vehicle's traffic by making it a proper public space. The project of the Blue corridor, an ambitious project of the highway starting from Croatia and ending in Greece is constraint to pass from east of Shkodra for the reasons mentioned above and most probably it will be so. If this project will be implemented, in Shkodra's gate will also be necessary an intermodal station with parking spaces, too. The most suitable location is nearby the gate, in the area of the former railway station, in order to prevent the tourists' buses and daily visitors' cars to choke the entry of Shkodra, but to make the gate more pedestrianized above all. Another important benefit, will be the prevention of traffic jams on the way to Zogaj and Shirokë, by consequently stimulating tourists to use non-pollutive alternatives like the use of bicycles or

Fig4,5,6 / The bypass (above); the draining channels of the bypass infrastructure (center); and the lakefront (below). source / the author

Fig7 / Pedestrian bridge on the Buna river source / the author

maybe by having a walk on the river front. Furthermore, the bypass will help even more in the logic of not choking the gate with traffic jams by deviating the vehicles flow, regardless of their destination.
The other two issues: nature and heritage are resembled in the (Un)margin strategy that is focused on two main goals: the necessity to protect (margin) and the necessity to preserve (un-margin) the relation between Shkodra and the lake. Even though the strategy is focused in the two issues mentioned above, it doesn't exclude mobility, but it is totally based on it and on the necessary measures described above, in order to facilitate the other interventions for the improvement and revaluation of the historic heritage and natural potential of the gate.

The first goal, consists on protecting the city from future floods that run over during Autumn and Winter months. As long as the western part of the city, it is a protected area, but its lower slope facilitates the flooding action of the lake, too. The Dike (see the workshop report) is a friendly margin because of being respectful to the regular natural grid made by the draining channels that were built years ago, preserving the natural protected areas the best way possible because of being positioned to the limit of the city. Unlike the linear dikes (Fig. 8), its fragmentation made by the mirroring of its building section, facing the lake and the urban, suburban and rural territories of Shkodra in other tracks, is an attempt to avoid the sensation of boring and never-ending linearity common for the "basic" dikes. The building section of each track is different from the basic well-known solutions, too. Despite of making a gradual-stepped or a variable slope section dike, its height is divided into three parts where in between there are two "natural" pools that may retain the sediments to facilitate the growth of green plants and trees when water retires, as well as reducing the visual impact of the dike by distributing the five-meter height in proportion with the slope of the area. The connection between city and the lake is not only preserved but is enforced even more along and across the dike, through the public spaces located in different tracks, giving to the dike a more social feature. In the ending points of the dike the new harbor (South) beyond the Rozafa's castle and the natural pool near Vraka's channel are positioned, where dike assumes the role of a "blue" axis connecting the transversal paths that are provided to strengthen the relationship between the lake and the urban, suburban and rural parts of territories of Shkodra.

Precisely in the intersection between the dike and these paths there are public spaces that fragment further this axis. This dike will also affect positively the accessibility of the most well-known monuments like the Rozafa's castle or the religious building nearby from tourist and local inhabitants. So, it will not only become a protective structure against the floods but it will strengthen the relation among the city with the lake, historical heritage and its natural attractions, thanks to the introduction of these measures.

The new harbor. An impulse for a cross-border and urban development

The new harbor (Fig. 9) is proposed to increase the attractivity of Shkodra's gate and to become the catalyzer of its gradual regeneration. It is not a throwback that aims to the rebirth of the old memory like the historic bazaar blown up in the 40' s, but to create a public space full of life, attractive for tourists and for its citizens, too. In order to guarantee the expected outcomes from this important project proposal, a shared cross-border strategy between the Albanian and Montenegrin authorities is necessary as long as they share Shkodra's lake and Buna river. The reactivation of the navigability of the Buna river, in order to guarantee the access in the Adriatic Sea requires consistent investments, but it cannot be sustained by a single country, in this case the Albanian counterpart. Obviously, this implies a series of investments in particular in the adaption of the river basins and in the construction of intermediate stops in order to increase the territorial accessibility but with a high attention toward the environmental issue as long as the river is part of homonym natural park. A similar approach can be adopted for the navigability on the lake, even if in this case only intermediate stops are needed and eventually a main harbor (in the Montenegrin part) to guarantee the access in the towns on both sides of the border. Another important outcome from this eventual collaboration, will be promotion of several investments in tourism from local inhabitants and the promotion of their typical products by also creating commercial ties between them. As long as the two countries have signed many agreements regarding the Buna's natural park and Shkodra's lake, the (re) building of the harbor in Shkodra's gate can give a new impulse to the future of the cross-border collaboration between Albania and Montenegro.

Focusing on the impact of this infrastructure on the local scale, referring to the city of Shkodra and nearby towns, there are expected positive outcomes, too. First, the blue corridor (intended as the blue routes along the Buna river and along the lake) will represent an alternative route to explore the territory and to strengthen the connection of the towns with main center (Shkodra), developing tourism and creating economic ties, too.

Second reason is the environmental issue, because it will induce people who want to visit those places to use a valid transportation alternative than driving their car. Especially for the villages on Albanian side, in particular Shirokë and

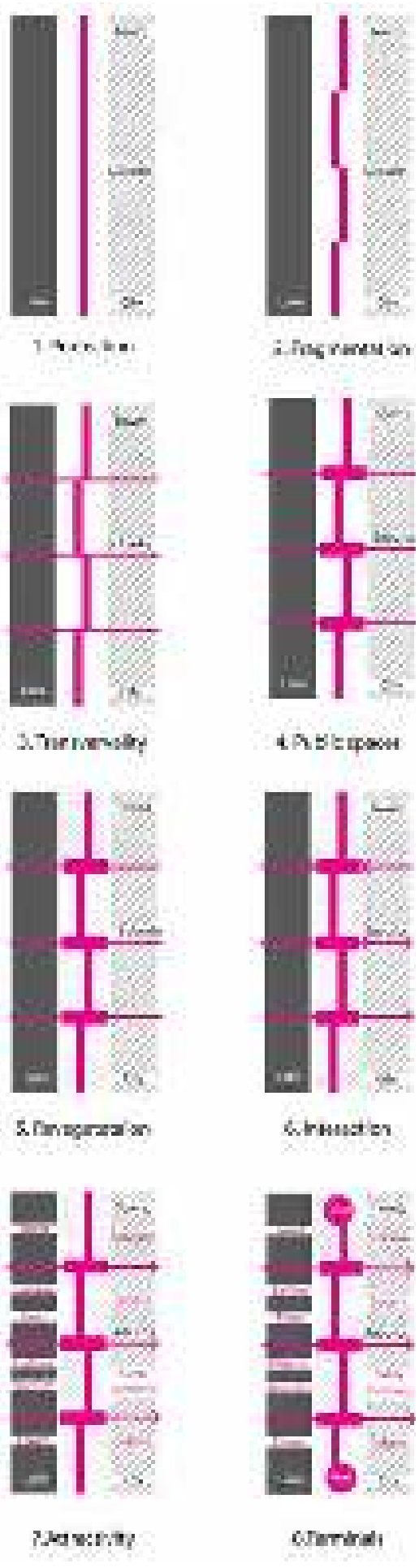

Fig8 / Conceptual diagrams of the masterplan source / Saimir Shtylla and Sara Codarin

Fig9 / Masterplan of the new harbour
source / the author

Zogaj, that are connected through a narrow street and by considering that the morphology of the territory they are located doesn't guarantee parking spaces for all and in fact most of the tourists or weekend visitors park their cars at the side of the main road. Investing in the restoration of this road may be a reasonable intervention but the adaptions for new parking spaces is not economically and environmentally sustainable as it is the building of the (intermediate) deck to assure the connection with the main harbor in Shkodra.

Third reason and most important, it will encourage local inhabitants to invest on their home town and to pull them out from the pessimism that they are abandoned and not supported by central and local authorities. The intermediate stops in the small towns will offer an alternative territorial accessibility and consequently the possibility to promote trade of local products even in remote towns where road infrastructure is not good and eventually making them accessible for tourists, too.
Fourth reason, its impact in the touristic promotion of the city will be evident, because the area beneath the castle will be a 24-hour active due to the impulse it will give and through the attraction of private activities. It will not work on daily base as it was in the past, acting as the economic pole of the city in the 40s. In the urban regeneration optic, the harbor will contribute in the reopening of the closed/ inactive shops of the new Bexhisten complex built not a few years ago.
Regarding the design, the harbor is not expected to remain a random infrastructure for its main shipping activity concentrated in the management of the arriving/ departing boats or eventually private ones for fishing, sport activity etc. In fact, it is designed as public space accessible in every hour and connected to the dike that as mentioned above is also a promenade with several intermediate squares ending to Vraka's pool that somehow can be considered as a "mirrored" version of the harbor in the North. Its section (Fig. 10), made with a series steps is divided on three levels in order to break the monotony that would have been in the case of repetitive-stepped section and to adapt to the different scenarios related with the water's level. If the water's level is low, then the boats will anchor at lower level and in the upper steps people can rest. During the peaks, the boats may anchor at a higher point and can normally perform their arrival/departure from the harbor. Last but not least, is the flood preventing aspect of its section that is designed to avoid the maximum level of 9.8 meters assuring the protection to nearby areas.

Conclusions

The future of Shkodra's gate, is closely related to environmental safety, economic importance and touristic attractivity of the city. A shared vision between local actors and central government is necessary to address the future development goals for this area. Simultaneously, a cross-border cooperation between Albania and Montenegro should be taken seriously into consideration, because it may reveal a turning point for the towns around the

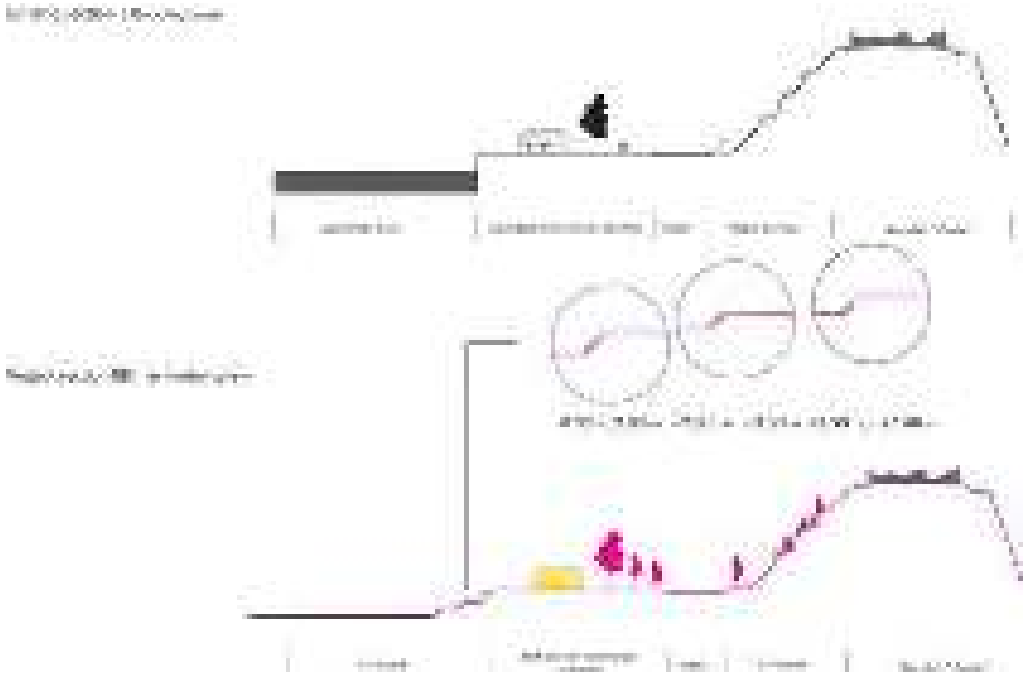

Fig10 / Sections of the state of art (above) and the project proposal (below) source / the author

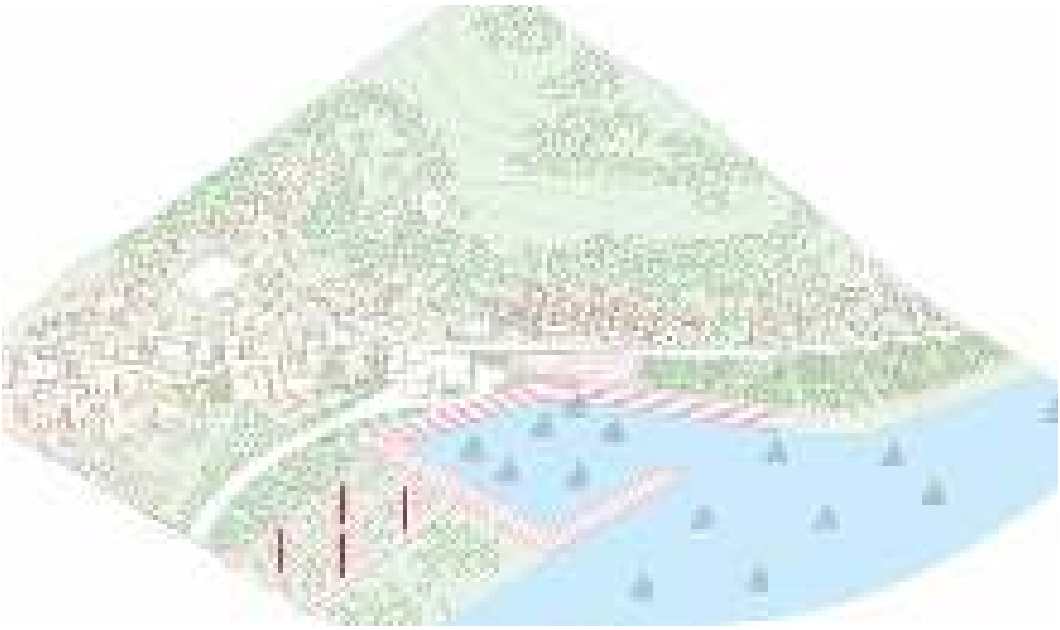

Fig11 / Birdview of the project proposal source / the author

lake, stimulating local inhabitants to invest on tourism and local activities. So, the (re)building of the new harbor is strictly related from cooperation at cross-border, national and local level because it will guarantee not only its best performance during its operativity but even the opening of other harbors of different scale on both sides of the border (Fig. 11). As it is part of general vision, that also involves the construction of the dike to protect the city from future floods, it expects a series of public spaces to furtherly strengthen the relation between the city with the lake and the Buna river. On these bases it can become a catalyzer for the renewal of the entire area even though the rebirth of the erased memories is practically impossible.

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Strategies for urban regeneration through the intervention on the existing buildings / A proposal for the city of Shkodra

keywords / urban regeneration, existing building stock, reuse and refurbishment, urban quality, sustainable developmentk

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Abstract

A strategy for the urban regeneration of the city of Shkodra has been developed for answering to the actual critical issues identified.
The proposed approach aims to define effective sustainable strategies for the urban regeneration of the historical town through the development of a set of interventions for the revitalization of the inner-city spaces and the recovery of the obsolescent existing buildings.
Starting from the previsions of the General Local Plan, already in force, classes of light actions to respond to the above-mentioned critical issues has been developed in order to intervene on a more detailed scale.
The intended strategy seems also suitable for all that contexts with similar problems due to the low impact these kinds of intervention have, able to minimize costs, meet community needs and avoid an excessive consumption of resources.

Introduction to the case study: the city of Shkodra

The city of Shkodra (also known as Shkodra, in Albanian language or Scutari, in Italian one) is located in the north-west of Albania, in a geostrategic position between the Adriatic Sea and the rest of the Balkan region, just across land-routes and access-roads to other important cities in the surroundings.
It is one of the oldest and most historic places in the whole country and its municipality covers an area of about 870 km2, extended from the Albanian Alps to the Adriatic Sea.
Always considered the cultural capital of Albania, the city of Shkodra has been chosen as a case study due to its historical importance as well as its location, within a singular geographic surrounding rich in complexity as a result of the existence of an urban development in the middle of a watershed area between lake and rivers, thus characterized by the strong presence of water and by the great impact that it has on the whole territory.
The municipality, main urban development of the area, is located in the north-west of the region, into a valley between the Lake Skadar, the largest lake in Southern Europe – on the south-west border – and the river Kir, that skims the city along the east border and enters a distributary of Drin river just below Shkodra.
During the last years, and especially since the communist regime has collapsed, the whole community has radically changed. Starting from the 1990s, mainly its peripheral areas but also the inner-city core, has witnessed great demographical changes as well as migration phenomena from the mountain area that led to a huge increase in population.
Thus, it has resulted into the conversion of a big amount of land from rural to urban use with the consequent development of wide and informal occupations, coupled with several forms of illegal buildings, mainly consisted in individual houses built by new migrants coming from surrounding rural areas.
As a matter of fact, most of new

Fig1 / Areal picture of the city of Shkodrataken from the Ruzafa Castle
source / the author

Fig2 / Development of the city of Shkodra, before (on the left) and after (on the right) the fall of the communist regime in 1985 and in 2015
source / Krymbi E., Kopliku N. and Bosina I., 2015

constructions recently[1] built, that take approximately 40% of the whole total housing, are informal systems of poor quality located in the suburbs. Although part of these developments are now almost fully incorporated in the urban pattern, these informal areas still require specific actions to become integrated with the historical nucleus through connections and infrastructures between them.

Shkoder's features and critical issues

Starting from the previsions of the General Local Plan, the initial work upstream to this proposal started with the recognition of the main features of the municipality of Shkodra, analyzing the historical city, the watershed area and the informal settlements mainly developed in the northern area.

The GLP indeed, properly identifies strategic objectives to be pursued in order to make Shkodra a sustainable city with livable building and spaces. The plan's directives ranging from proposals for the infrastructure (for which has been recommended the improvement of the connections with Montenegro maintaining the north-south corridor), for the existing pathways that connect the Kiri riverside with Shkodra's lake and for intermodal connections between the train station and the city center.

The first author's exploration concerned

1 / The statement refers to all of those housing stock built after the fall of communist regime, since the early nineties.

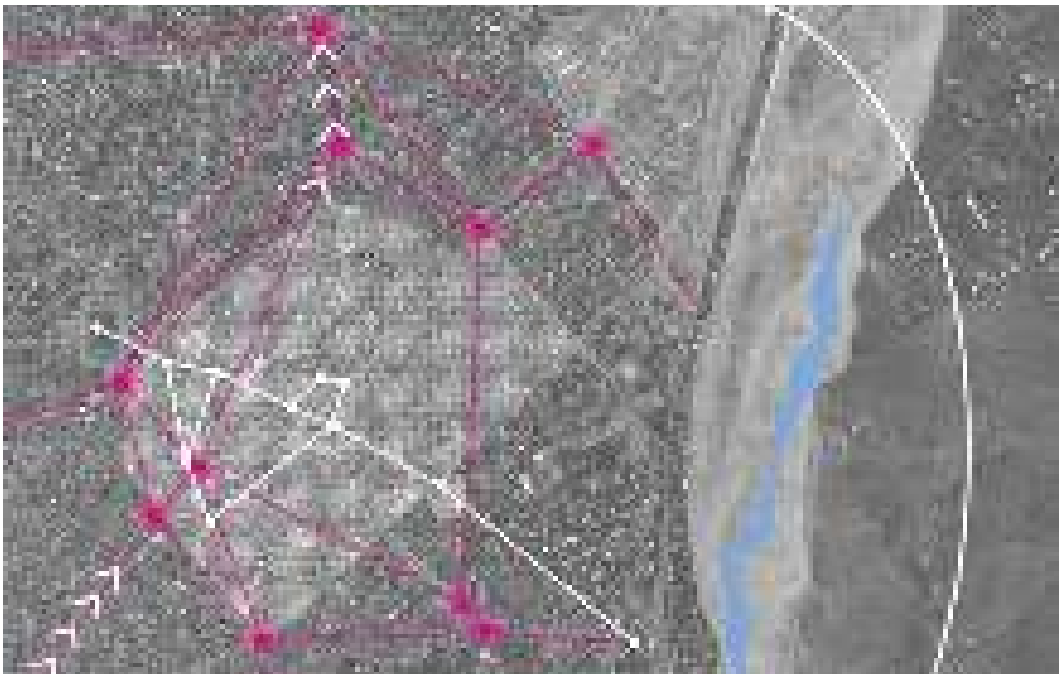

Fig3 / City plan concept after proposed intervention's strategies: in the 1:5000 map the three main areas analyzed have been indicated (the historical city, the watershed area and the informal settlements), the proposal of the infrastructural bypass and the improvement of the existing pedestrian routes through the city center (thanks to the enhancement of residual spaces as well as the linkage between the main city squares).
source / the author

exactly the city center, analyzing its urban pattern, the traffic and pedestrian routes and the vocational capacity of each area taken into account.

As many other historic city, Shkodra's ancient town is characterized by road systems made of narrow streets, lined with high stone-walls. Therefore, part of the critical points identified – coincident with issues stated by the existing plan – concerned transports and infrastructures, connections between the old town and its edges (Shkoder lake and Kiri river) as well as with the train station, recognized as a potential interchange hub to integrate different forms of sustainable mobility and promote strategic connections through the center and its surroundings.

To overcome these criticalities, actions in line with the GLP proposal have been suggested. The first concerned the creation of an infrastructural bypass on the east side of the municipality, in order to unload the heavy traffic on the main axes to access to the city, providing in this way a corridor between south and north Albania and Montenegro.

At the same way, in order to facilitate the connections between the two banks (lakeside and riverside), sewing interventions on the historical town through the enhancement of the existing pedestrian routes has been proposed.

The aim was to provide new pathways, using local and permeable materials, to strengthen connections between the two borders of the city by passing from it; another point was the will to link the main city squares (already identified from the GLP due to their distinguishing identities) in an integrated walkable and functional network able to capitalize the relations with river and lake, thus taking advantages from the natural qualities of these landscapes. Also the proposal to restore the ancient canals that flow away from the River Kir down to the lake has been made, in order to give them visibility especially due to the strict and complex relationship that Shkoder has with flooding.

Secondly, an analysis of the built and of the physical quality and conditions of the urban fabric has been carried out.

Basically, it has been recognized that building stock within the historical city center is a mixture of several construction products with different quality, maintenance and identity features, expression of city's history as a reflection of the multitude of culture that passed through it over the years.

The majority of Shkoder's building stock is composed of old constructions that belong largely to the period between 19th and 20th century and of buildings constructed after the Second World War in the rationalist style, made of concrete frame structures – often pre-fabricated – and linear building typology, with a completely different architectural aspect compared with ancient constructions.

Multi-story buildings with large floor spaces (currently often non-occupied) stand near modest buildings in a very poor

Fig4 / Existing housing stock in the inner city of Shkodra
source / the author

state of repair; also referring to historic homes, just few within the central area have been restored, while several was torn down, ignored or renewed in modern styles. During the communist regime indeed, as much as after the Second World War, the common idea was that any ancient construction had a small value; this, in addition with the economic and social pressure on the inner city, led to a great elimination or alteration of the older housing stock.

Nowadays, most of buildings concentrated in the inner parts of the city are in a state of physical deterioration although there are exceptional cases as for instance the Shkodras Historical Museum, a typical ancient merchant's home surrounded by fortified walls, constructed in 1815 and recently restored to its old state.

In addition, as part of the efforts made from the Local Authority to improve the living conditions of the residents of the old city, an area of more than 22.000 square meters of pedestrian alleyways and streets have been paved over the past eight years within the historic fabric, located among the Kol Idromeno street and the area Gjuhadol and Dugajt e Reja.

This area has now a strong identity, due to the presence of buildings recently restored, and it's fully experienced during the whole day by Shkoder inhabitants thanks to the presence of several meeting places, bars and street-front commercial activities that have significantly increased its vitality.

Classes of actions for urban regeneration

The main critical issues figured out from this analysis, related both to the urban as to the building scale, have led to the definition of a two-scale intervention strategy for the inner city and the neighboring housing areas, in order to improve the urban quality of these places.

First, regarding urban and functional issues, the strategy proposed wants to deal with empty residual spaces between buildings, often present in central areas also in streets with pedestrian priorities.

The proposal is to reuse them by providing new cultural and recreational functions (such as, for instance, informal libraries or small thematic gardens) to improve livability of the inner city through the revitalization of its public spaces. Also the existing abandoned buildings have been considered in order to revalorize the city's heritage, proposing to reuse these structures to generate new forms of urban life.

These actions seem, at the same time, able to preserve the value that these spaces have and to enhance the cultural and heritage tourism in the city. Furthermore, they aim to improve the quality of the whole urban space, avoiding the deterioration of free abandoned spaces that, if characterized from a disorderly appearance, could lead to the generation of physical and social disorder which, in the long-term period, would determine a perception of insecurity due to the decrease of informal social control[2] as well

Fig5 / Existing housing stock in the inner city of Shkodra
source / the author

as the loss of identity of these places.
At a more architectural scale, other problems pointed out were the ones connected with road systems and with the need to guarantee access, light and visibility to all of those dwellings hidden by fencing or other buildings, therefore not easily accessible from the street front as a result of additional objects that prevent their view from outside.
Due to the high density of the city and the access systems, primarily by means of narrow alleyways between fragile fabrics (often made of disarticulated and disorganized spaces), the resolution of these criticalities faces significant logistical and technical challenges, because it entails the reorganization of the spaces between blocks.
The city indeed retains over years its characteristic appearance made of historical narrow streets that reflect its architectural heritage even if part of this ancient arrangement has recently been transformed with straight wide streets and tall residential and public buildings.
For these reasons, a series of interventions of development and an improvement of free spaces between buildings have been proposed, with the aim to preserve spatial density, respecting the structure and the texture of the streets, and to maintain the character of the areas while improving connections throught the urban fabric by means of the creation of new corridors, to facilitate the access and fruition of the pedestrian across the city center.
The opening of new passages through the neighborhood can also help in reducing the energy metabolism of the buildings by improving the air circulation during summer, in order to obtain the dissipation of the heat in excess, while contributing in a positive way to the internal environmental comfort of dwellings. Also the insertion in the street-networks of obstacles, built or natural, or of vegetation with perpendicular development with respect to the wind-direction, can have positive results in the protection from dominant winds. In contrary case, those winds that directly affect the buildings can significantly influence their thermal losses, proportionally with their speed. Arranging open, semi-open or protected spaces can determine compelling changes in wind-speed and flow directions.
Other questions identified concerned the maintenance and the re-functional issues of communist blocks that are currently suffering for high density and lack of identity.

At the moment, these buildings constitute the majority of the housing stock in the inner Shkodra and require to be restored to meet the change of actual social and housing needs.
Due to the fact that demolition and reconstruction interventions constitute a really drastic decision that involve very critic logistic and economic aspects – connected with the need to re-allocate residents, at least in a temporary way – so much that they constitute a witness of the history of the country, more light interventions of refurbishment and re-adjustment have been proposed, in order to prevent their increasingly obsolescence.
Classes of actions that deal with building

Fig6 / Shkodra historical house, now becomes the city's Historical Museum source / the author

identity could be proposed and divided after the recognizing of common elements, trying to define different and precise line of interventions to optimize and reduce built energy consumption, providing for instance an improvement in thermal insulation, the replacement of fenestration systems with better performing ones (by using, for example, Insulated Glazing Units energy consumption can be significantly reduced) as well as the installation of renewable energy systems such as thermal solar and PV panels.

Subsequently, actions that encourage urban complexity of these housing areas have been proposed. They aim at intervening on ground-level spaces in some identified and strategical buildings (both new and old), providing suggestions to modify the use of them through the establishment of commercial or recreational activities.

The identified buildings have to be selected after an inventory of the different activities already existing in these areas, understanding if subsist the good combination of uses and functions and if the current social structure can sustain the introduction of new uses.

To prevent the consolidation of an urban layout that contributes to urban disintegration (as, for instance, area where is not realized an adequate functional and social mix) it's important indeed to provide a mixture of uses and activities rich enough to ensure the city's public and social contacts, able to give to ground-level activities the right importance while ensuring the continuity of urban plots, essential to confer spatial and perceptual unit to the urban fabric. Also enhancement of the pedestrian routes is an action that has to be pursued to avoid negative consequences on traffic and pedestrian fluxes intensity because the breaking of these passages can easily determine a strong decrease of the vitality of the streets.

Finally, suggestions of introducing new functions within the city center and re-distributing the already existing ones in order to enhance pedestrian routes have been provided, following the vocational capacity of each area given by the GLP.

Conclusions

The proposed approach consists in a set of general actions to promote urban regeneration and to enhance local culture and history of the city of Shkodra, providing solutions to the identified problems and improving the life quality of residents while generating a positive economic impact on the whole territory, protecting the cultural asset of the city for future generations and preserving the genius loci and sense of place that gives to the historical nucleus its individuality.

In addition, the strategy has been developed to a specific inner-city traditional neighborhood but it could be applied to other ones hence taking into consideration their particular features.

2 / This mechanism, defined "Theory of broken windows" has been described for the first time in an article of March 1982 in The Atlantic journal, entitled "Broken windows: The police and neighborhood safety" from James Q. Wilson and George L. Kelling.

Fig7 / Current aspects of the pedestrian area along Kol Idromeno street after the re-pavement occurred in the last years
source / the author

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Fig8 / Author's photo-merge that provide a suggestion about the proposed public spaces' uses
source / the author

To code or not to code? Investigating the urban-rural transect and other Smart Code instruments in the territorial development context of Albania. Case Study: city of Shkodra

keywords / urban-rural transect, form-based codes, Smart Code, land development, comprehensive integrated approach

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Abstract

Following the subtle tendencies of 'europeanization' of planning traditions in EU member countries, Albania has seen some drastic changes in the way it approaches spatial (territorial) and urban planning. The level of normativity has increased, and the responsibility to establish norms and standards is shared between the central and local governments. Even though the system is supposed to be more flexible, it adopts various concepts of the post-New Urbanism planning framework, including zoning, form based codes, etc. These concepts are part of a unified framework widely applied in the US states, called Smart Codes. This paper aims at investigating these morphology-based tools in the case of Shkodra city, as a way to discuss on the need for coding and normativity in land management.

Tackling the discourse of normativity in land management

One of the most unsettling questions of modern planning, that has emerged in recent decades, especially in the face of housing informality and planning for resilience, is: 'Do standards make planning practices rigid and inflexible? Do they do more harm than good?' According to Kevin Lynch (1981), normative theories of urban design can help us 'to know a good city when we see one', by creating the best urban environment. This is why, throughout city development history, normative planning has been present, in implementation and, in some cases, in theory also. Urban indicators are one of the most common and widely-used tools in worldwide planning practice. It is important to underline that there was a considerable paradigmatic shift that occurred in the planning process, from the 60's and 70's, when the approach was technocratic and rational, to the mid 70's, where planning was seen as a political discourse, and finishing with the 90's, where this approach was taken into extremes.(Pissouris, 2013) All these aspects emphasize the relation between forms and codes in spatial planning, and confirm the fact that, albeit it is rather 'refused' by the theoretical discourse of the last decade, normativity is still a very important aspect of spatial planning systems, especially land development.

Furthermore, we can differentiate between 2 conceptually different contexts in planning, namely in Europe and in the USA. In the latter, post-modern planning is focused thoroughly on New Urbanism principles in the last 30-40 years. This movement emerged as one of the most comprehensive theories on planning, encompassing both formal characteristics (following concepts like 'Collage City' by Rowe and Koetter, or 'Wholism' by Alexander); and environmental ones, like 'livable streets' from Jacobs and Appleyard, and 'Urban Quarter' by Krier. The 'strength' of this approach lies in the fact that new urbanists believe it is important to match the physical development characteristics of a place within the appropriate typology

Tab 1 / Use of planning and development standards in different planning traditions, Europe
source / author

for that place (Bohl, 2000). This means to fully coordinate spatial typologies with development standards, in a bilateral way. This can be only achieved in a very 'unified' development model, as it is represented by the typical American city. In this case, the principles of New Urbanism argued against the massive suburbanization and expansion of cities.

Obviously, in Europe this was not the case. Not only do European cities have completely different challenges in terms of urban form, but they also don't refer to an integrated approach to land development. The reason behind this is obvious: planning is considered a process that is closely linked to a country's history, institutional culture, legislative system, etc. Thus, even though the EU issues specific mandatory directives on sectorial issues, like water management, common agricultural policy, etc, the approach to planning is more flexible. The only unified instrument that regulates planning in EU is the European Spatial Development Perspective, which merely suggests principles for sustainable planning. Land development is even less regulated/unified, with instruments varying from Euclidian zoning and development regulations, to flexible zoning and well-established negotiating processes in land development. This is also linked to the categorization of spatial planning traditions from EU Compendium of Spatial Planning (CEC, 1997) into 4 models: land use planning, urbanist tradition, regional economic development and comprehensive integrated approach. Table 1 gives an overview of how rigid land development and normativity can be in European countries, based on their planning tradition. Therefore, it is needless to say that it is challenging to develop a comprehensive model for land development in European countries, as it is suggested by the New Urbanism approach.

Smart Code, as the new frontier of form based codes

Smart Code is an integrated land development ordinance, created by Duany Plater-Zyberk in 2003, with the aim of having a more 'new urbanism' oriented legal model of city development. Essentially, it is a form-based code that incorporates Smart Growth and New Urbanism principles. But what does the term 'form based code' refer to?

Form-based codes are a land management instrument used in the USA that falls into the category of zoning, but also differs considerably from conventional zoning. This coding system divides the territory into different districts based on the character and intensity of land development, as well as the desired urban form. Zoning usually regulates only land use, and development standards (maximum building height, distances, FAR, coverage ratios, etc.). But form based codes regulate things that are not typically part of zoning, such as the design of streets, sidewalks, and other public spaces, which conventionally would be regulated by subdivision manuals, or public work manuals. Thus, Form based codes bring all these manuals together, in an integrated document that addresses

Fig1 / A typical urban-rural transect, divided into zones
source / SmartCode 2003, Duany Plater-Zyberk & Company

land use, development indicators, provision of public/non-profitable services and subdivision regulations. The integration ensures that these documents are coordinated and coherent with each other. (Marshall, S., 2011)

Thus, also Smart Code is a unified development ordinance, but it addresses development at all scales of design, from regional planning down to the single building. This extended, comprehensive approach, which incorporates integrated ideas of how parts of a city should be linked to each other, in addition to how each part should be developed, stems from the concept of the Rural - Urban Transect. (Center for Applied Transit Studies, 2016)
This makes Smart Code a very innovative instrument compared to separated-use zoning, thereby able to integrate a full range of environmental techniques. The ideology behind Smart Code, as envisioned also by New Urbanism theories, relies on the fact that expected/desired outcomes are based on known/successful patterns of urban design. Therefore, the document is very efficient in terms of preparation and implementation, and was adapted by more than 50 cities in the USA, since its development in 2003.

The Smart Code is a model code, a template, with metrics designed to create a generic medium-sized American city structured into walkable neighborhoods, which require a mix of land uses and public spaces with a sense of enclosure. Moreover, it emphasizes the need to set regulations on urban form, rather than on land uses (thus, it is a form-based code). The zoning principle within the Smart Code is designed to create harmonious habitats ranging from the very rural to the very urban.

According to this concept, Transect Zones are divided as follows:

T1 Natural Zone consists of land in natural state, or unsuitable for settlement due to topography, hydrology or vegetation.
T2 Rural Zone consists of sparsely settled lands in open or cultivated state, like woodland, parks and open space areas, with typical farmhouses, agricultural buildings or cabins.
T3 Sub-Urban Zone consists of low-density residential areas, adjacent to higher density zones that include some mixed use, with irregular roads that accommodate natural conditions.
T4 General Urban Zone consists of mixed-use but primarily residential urban fabric with a variation of single-family and row-houses, defining medium-sized blocks.
T5 Urban Center Zone consists of higher density mixed-use buildings that accommodate retail, offices, row-houses and apartments with a tight network of streets and buildings set close to the sidewalks.
T6 Urban Core Zone consists of the highest density and height, with the greatest variety of uses, and civic buildings of regional importance, typically associated with downtown (Duany Plater-Zyberk & Company, 2003)

Fig2 / Example of transect zoning in Handsboro Community Plan, 2008
source / Handsboro Community Plan

The shift in planning approach in Albania from a land development perspective

Can we find traces of this concepts in the Albanian planning legislation? Having a strong "urbanism oriented" approach towards city development, Albania has traditionally adapted regulations on urban scale, such as norms for public space, norms for commercial areas, intensity conditions, etc. In terms of land development, the concept of division of territories into urban groups, blocks, complexes, and neighborhoods, where each was part of the other and contained extra public/private services, was a theoretical way to control the city through form. Nevertheless, these concepts were rarely adapted, especially after the fall of communism: cities became more mixed, unprofitable land-uses were not provided by the financially-week municipalities, and the inner migration processes caused disbalances that were not predicted previously.

After 2009, a new law[1] was introduced, which had a more holistic approach to planning, taking into consideration the newly established private property regime, economic and social aspects, larger scale overviews, etc. This was accompanied by a refined model of land development instruments, which encompasses elements of zoning, form/based codes.

The General Local Plan (GLP) is the main local planning instrument, which defines all proposed interventions, development scenarios and investments for the next 15 years. Accordingly, it divides the municipal territory into structural units, which constitute the smallest scale where land development standards and norms can be applied. The structural unit is the equivalent of a zoning area. For each structural unit, the GLP determines a number of standards, as follows:

- Existing situation: land use categories, FAR PCR, PPCR and RCR, existing population[2]
- Proposed land use categories and subcategories / proposed functions / allowed, prohibited, and conditioned activities
- Proposed Spatial Typologies / proposed Interventions in the unit / proposed phasing
- Proposed Development standards: FAR, PCR, PPCR, RCR, max. height (in storeys and meters), min. development plot area, min. distance
- Proposed Planning standards: Projected population, No. of users, Parking area, Green area
- Use of innovative instruments (when applicable): use of Transfer of Development Rights, of Bonus FAR, of Detailed Local Plan, etc.

1 / Law No.107, dated 31.7.2014. On Territorial Planning and Development
2 / In this paper, the used development indicators represent the following:
FAR = floor area ratio: Ratio between built area and buildable plot area.
PCR = plot coverage ratio: Ratio between ground cover area and buildable plot area
PPCR = public parcel coverage ratio: Ratio between area of all public use parcels (excluding roads) and the total area
RCR = road coverage ratio: Ratio between the road surface and the total area

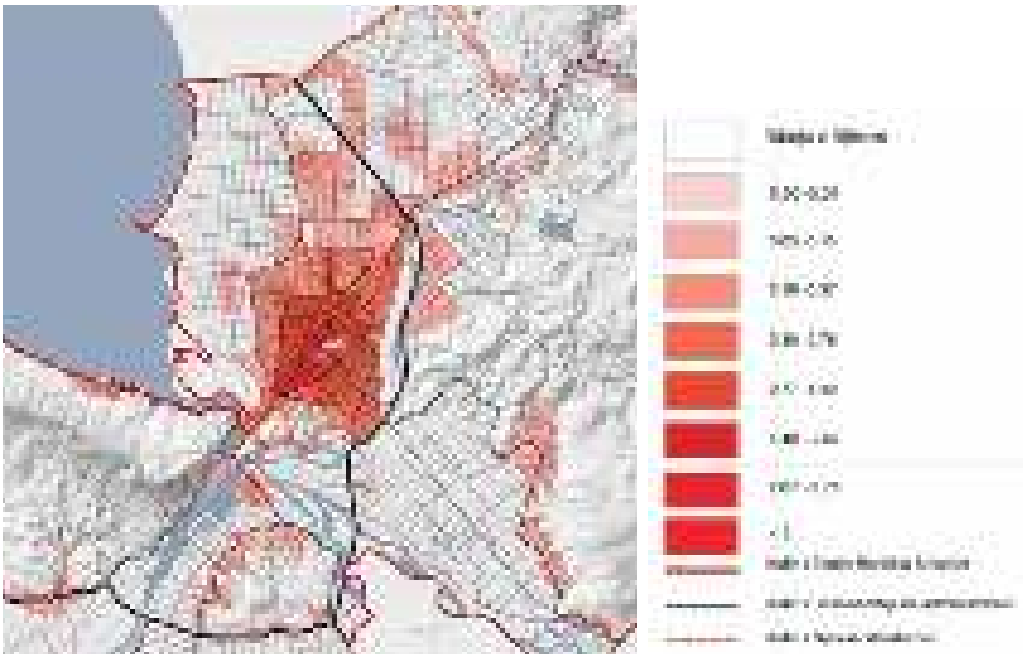

Fig3 / Example of division of territories in structural units: Fragment from General Local Plan of Municipality of Shkodra, map of distribution of proposed FAR per structural unit
source / Municipality of Shkodra, Polis University, Metropolis, Arizona State University, 2016

As it is obvious, the GLP contains a unified document of regulations (ordinance) that addresses proposed land use, typology, development standards and planning standards, as well as indications on innovative instruments,

Nevertheless, the GLP does not provide pre-determined spatial typology categories, and the link between the existing spatial typology zoning, and the division into proposed structural units, is not fully articulated. Structural units can have one or more proposed spatial typologies, respective to their character.

In the Albanian context, studies show that it is very difficult to link spatial typologies and urban form with development indicators, such as FAR, PCR, etc. This is mostly because new development rarely occurs in unbuilt areas. The most predominant typology of areas in Albanian cities are the ones with a mixture of tower typologies, with longitudinal buildings and single houses. In these cases, FAR values vary from 2.5 to 4, CPR from 50-80% and density 20-50 buildings per ha[3]. These values indicate considerable gaps, which means that 'unified models' are hardly adaptable in these contexts

Replicating the Urban-Rural Transect to Shkodra city

The Albanian legislation doesn't propose any land management instrument resembling the urban-rural transect. Nevertheless, the GLP of Shkodra provides with some principles similar to the form based codes: the division of the territory into structural units is done in a way that ensures more flexibility in setting standards. The proposed land use for each unit is mostly mixed, with indications of main categories. There is obvious tendency to limit the areas of informal expansion and to protect agricultural land. Anyway, the adaptation of the transect concept in the city of Shkodra would be very difficult, as illustrated in the following part.

The image below shows the layout of Shkodra city, as framed by the buildings. The only information visible is the height. Given only this attribute, and disregarding the actual development indicators in the area, or the existing division into structural units, this study tries to divide the territory into T-zones, as designated by Smart Code (in 7 main categories).

It is clear that, given the existing typology of the city, and the development dynamics (both in the center and in the suburbs), it is very difficult to have a gradual transition from one zone to the other. This is true with many Albanian cities, where development pressure has led to development in density in the core, and development in sprawl in peripheral natural and/or agricultural land. In terms of using the Smart Code as a managing instrument in this context, the effort would be pointless.

3 / For reference, see 'Territorial Typologies in Albania', Policy Document, Planning and Local Governance Project, USAID, with the contribution of the author, Toto, R., et al.

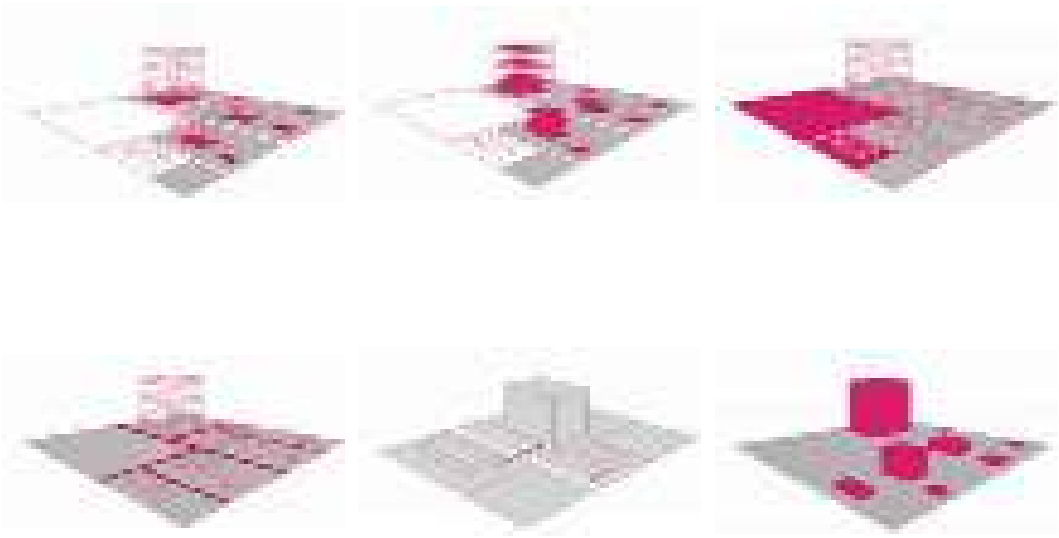

Fig4 / Representation of development indicators in the Albanian legislation (from top left to bottom right: PCR, FAR, PPCR, RCR, distance, density).
source / author

Fig5 / Fragment from General Local Plan of Municipality of Shkodra, map of 3 main proposed subcategories of land use per structural unit
source / Municipality of Shkodra, Polis University, Metropolis, Arizona State University, 2016

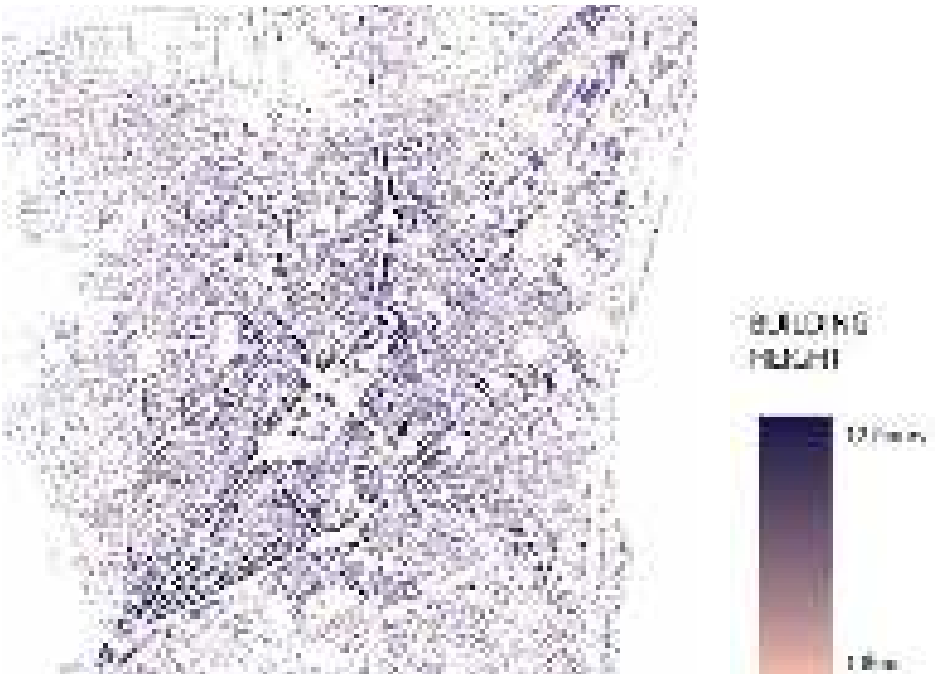

Fig6 / Map of building height in the city of Shkodra
source / author based on Municipality's data (2016)

The issue of property relations is also very delicate in this perspective: if you designate a 'sharp' border between two consecutive T-zones, and appoint high FAR to one, and lower FAR to the other, in order to create a 'fair' urban environment in terms of density, then properties in one of the T-zone will profit more. This situation is emphasized in the scenario of Shkodra (and any other Albanian city, for that matter), where there is obvious discontinuation between T-zones. Then the different development parameters would create major disparities, and in turn, speculations in real estate. In other words, this would replicate the problems of the 'containment paradigm' (a.k.a. the use of yellow line as border of urbanised area), but in larger scale – not only for the division of urban and suburban, but for every unit inside the city.

Following is an interpretation of the characteristics of each of the Transit Zones that can be replicated in the context of Shkodra:

The transect in Shkodra can be divided into 4 main categories (out of 6 provided by the Smart Code model) and 1 category of special use. This means that all zones ranging from T2 to T4, which contain mainly single houses, row-houses, low density, medium density, open spaces, etc., are merged into one entropic urban-agricultural-natural composition.

The urban center differs in typology from the 'typical center', in terms of building typologies. Medium density row houses are substituted by longitudinal buildings, mixed with single family buildings, and towers.

One other identifying element, is that the special district, which is supposed to be secluded from the residential areas, is situated very close to the center of the city in the case of Shkodra.

As far as the T1: natural zone goes, in Shkodra's case this mostly encompasses areas prone to flooding, and without any rendimental agricultural potential.
This overview shows what is also obvious from site observations: the shift from natural to urban core is not fluent.

Thus, it is very difficult to fully identify the transect areas in the city of Shkodra, based solely on the principles of typological and formal characteristics specified in the Smart Code. If we take into consideration the fact Transect Zones in the Code are given specific development indicators because of their inherent character, and are sub-categorized in a very detailed way in various Sub-T-Zones, then the discussion for Shkodra becomes very complex.

To code or not to code? Final thoughts

The issue of normativity in city planning can be regarded as challenging, nevertheless it is unavoidable to ensure provision of public goods and fair distribution of value captured from land development.

Smart Code is a very easy instrument to help draft land development regulations.

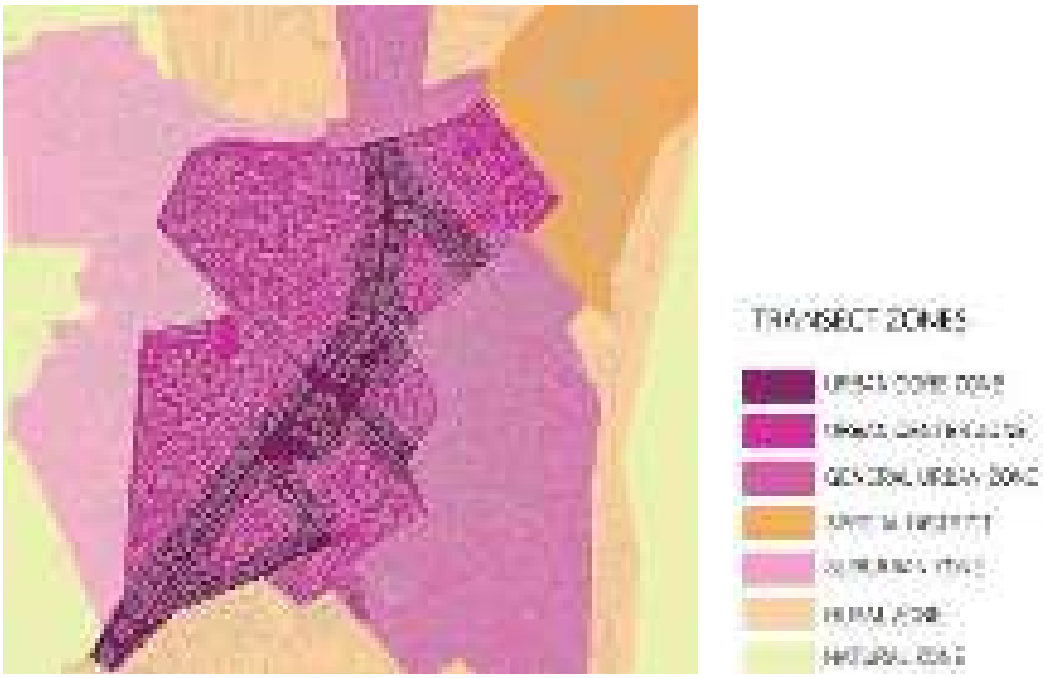

Fig7 / Possible division of the city of Shkodra into T-sections, as indicated by Smart Code
source / author

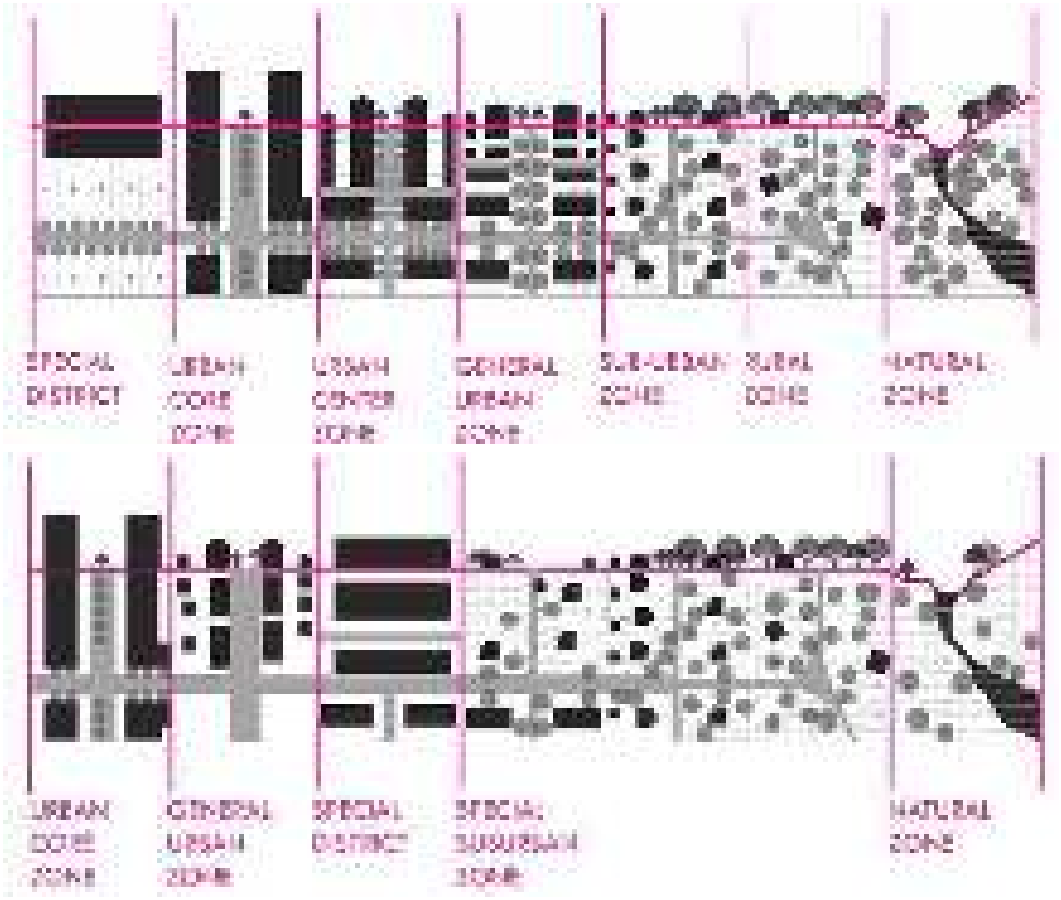

Fig8 / Comparative diagrams between the ideal transect as proposed by Smart Code, and the transect zones as can be found in Shkodra city
source / author based on Duany Plater-Zyberk & Company (2003)

Nevertheless, conventional zoning cannot be substituted in the whole territory. Given that Smart Code is supposed to be implemented in existing or potential walkable neighborhoods, all areas that do not fall under this category, cannot be successfully addressed by Smart Code (i.e. industrial areas, military areas, suburban areas outside the city, etc.)

These models encourage repetitiveness in urban form, and are based on the assumption that whatever density/ typology/land use works for a city, will work for another one as well. This is very difficult to replicate in the Albanian context.

The concept of the urban-rural transect addresses in an integrated way the question of 'where the city ends'. Transect studies help define the border between urban-rural, and the differences between urban, suburban, peri-urban areas.
Nevertheless, transect concepts don't take into account polycentric tendencies in cities, especially in terms of land value.
Even though the land development system in Albania is based on a wide array of standards, if they are not co-related to a given typology (spatial and building typology), then the outcome will be oriented from the developers, rather than from the city. Thus, models of typologies of space and building should be introduced more thoroughly in the Albanian legislation, both as mandatory or non-mandatory.
The division into structural units (as used in Albanian legislation) is by far the most successful method of zoning for the Albanian context, which, if used wisely, can be both flexible, as well as easy to implement. Nevertheless, there is significant lack of capacities of local authorities to implement the division of territories into structural units in a 'smart' way. This can cause, at the best, loss of large opportunities for development in certain areas, where the division of structural units, the appointment of unrealistic standards, etc., prevents development instead of encouraging it; and, at the worst, stepping back to the patterns of informal development, or corruption. Therefore, the situation calls for more 'standardized' models of division into manageable zones. They cannot be 'borrowed' by other models, but designed locally according to these enhanced models, and implemented in a timely way, through a series of trials and revisions. This way, the territorial dynamics and the citizen needs can be fully articulated in planning documents, and respectively implemented.

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Fig1 / Bird view of the city peripheries
source / Eranda Janku

Limita(c)tion – How to use the limit as a concept tool of sustainable development in Shkodra

keywords / Connection, Mobility, Sustainability, Economy, Tourism

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Abstract

Starting to the considerations made by the famous economist Serge Latouche about the meaning of limit, the article takes in exam the southwest part of the town of Shkodrä, in particular the part which is located along the lower shore of the homonymous lake, in order to create some own reflections around the concept of this important word.
The idea is to understand the meaning of limit and its boundary and then produce many possibilities to discover and use them, to drag a border between what are the limitations and what are the possibilities of the selected area. For the French economist there are some different types of limit which are economical, geographical, political, cultural, ecological, moral and of knowledge and then we have to know what are those better for our situations and use them to improve the whole system that manages the urban development.

Recently, Albania is experiencing a strong economic growth which is allowing a great overall development rather quickly. This factor allows the country to gain importance and competitiveness outside the national borders, but in the other side, it has to tackle the uncontrolled and confused urban growth which is producing informal urbanization, many infrastructure problems within the cities and incognizance of the environment preservation, in particular of the landscape. Indeed, the potential of the examined area is geographically limited by the disconnection from the main center of Shkodrä owing to the weak infrastructure of the territory, while his landscape is exposed to the urban informality derived by the political limits that are not strong enough to really control the edification in that area.

The aim is to raise the border of the economic possibilities of the fragment, stimulating one of the most profitable activities of the zone, as the tourism, through the creation of new infrastructure connections and facilities around the villages. This chance can initialize the communication between the fragment and the center to facilitate the exchange flow among visitor and residents. To increase the value of the fragment, it's also necessary rethink the mobility and its experience starting both from the ecological limits of the local ecosystem and from the laws of the general local plan, in order to preserve and promote a new sustainable development with a low impact multimodal mobility.

Introduction

Nowadays Albania enjoys a stable macroeconomic situation, maintained in positive by various sectors such as energy, construction, mining, manufacturing, agriculture, tourism and building.
However, this latter category, in the last decade, is the cause of fast development of the informal settlement in many Albanian areas. In particular, Shkodra with its suburbs is one of the cities which is suffering more the informal buildings due to the internal migrations in north of Albania in the transition period (Berxholi, 2000). Indeed, after Communist period, the political limits have fallen, which

Fig 1 / The southwestern area of Shirokë and Zogaj
source / Municipality of Shkodra

have allowed the rise of a chaotic and disorganized urban development that has led the historic centre to expand itself in all its directions, taking in part the areas close to the lake of Shkodra (Dibra, Kopliku, and Krymbi, 2015).
At this time of great growth and expansion, for the most part uncontrolled, the need but also the will of Albania is to re-qualify its territories by reconnecting urban pattern through new infrastructures. The possibility to improve the regulatory plan of the city would become an essential tool for urban and territorial management. In this case, the workshop of the XXXII PhD course held at POLIS University in Tirana has tried to tackle these issues and make concrete solutions to the problems encountered. In particular, this reading tries to put some reflections on the west side of Shkodra around the towns of Zogaj and Shirokë.

The methodology used is dedicated to an initial part of the analysis of the issues, partially faced up during the workshop and subsequently deepened in this article, using the concept of limit as a design tool. The limits are treated under four main themes related to the territory. They led to a phase of a list of possible interventions that could redefine the Shkodra's urban plan. In this case, it starts from the promotion of tourism in order to find different solutions on different plans both for landscaping, urbanism, strategic and architectural planning. The role of the intervention always keeps in mind a user centred design and an inclusive methodology.

Limits

The limit is an integral part of our relation with the project. In the operation of designing, simultaneously exists a process of projecting that is an act to look forward, overcome, but also foresee something beyond the present. It is a boundary that allows us to understand what exists at present but also all that we can shape in the future. The idea is to use limit as a strategic notion to understand and identify the boundaries between the current conditions of Shkodra and the transformation opportunities that the suburban area can offer after following the awareness of the problems encountered, in order to push further the project development beyond its potential possibilities.
In this case, the arguments of the famous economist Serge Latouce, become useful tools to treat some problems related to the territorial limits of Shkodra. He uses this term to make wise considerations especially in economical field. Setting limits here is the only way to give a radical alternative to our system of values. Its general guidelines can be even transposed into other adjoining intervention fields such as planning, whether urban or architectural. Latouce works on the idea of a cultural revolution that prefer qualitative assessment over quantitative measurements. Through his thoughts he identifies wisely several reflection points related to some important limits that affect our contemporary society. We can extract and use essentially four of them: Territorial, Political, Ecological and Economical.

Fig2 / The main road that connect coastal area with the inner city
source / photo by Sara Codarin

Territorial limits

The first limit is related to territory. The boundary defines a territory in space. The evolution of the relationship between space and human being transforms common spaces into social and symbolic groups such as cities, which in turn expand themselves beyond their main boundaries to widen their geographic areas. The globalism of modern society moves the limit towards a total overrun of the natural border, changing the social organizations of the territory (Latouce, 2012).
For our discourse, the expansion of Shkodra during the transition period has created an uncontrolled suburban growth without taking into account the infrastructural limitation that has permitted discontinuities between the western lands with the inner city. The territory subject to this phenomenon is mainly located around the towns of Shirokë and Zogaj, along the lower shore of the homonymous lake.

This disconnection with the city centre poses many disadvantages. A problem concerns the limitations of daily displacement to the locals, and another one is related with a difficult relationship both with the remaining part of Shkodra and between neighbouring territories of Montenegro, that create a partial territorial solitude with relative loss of economic value in many sectors, especially in tourism. In addition, the isolation also makes disadvantages during the delivery of public utilities such as rescue activities, including limitations on active participation in political, cultural and social activities, offered by the municipality.
The cause is associated with viability because across the length of the coast there is only one primary road. Despite it can be used in both directions, the space transit is only for one vehicle and the path finishes in Zogaj, more before of the state border, impeding the cross-border flow between the two neighbouring states and their relative socio-economic exchanges. The street is tortuous, difficult, creates traffic and risks of accidents due to its narrow width, causing problems and discouragements. There is also an exclusion of the local population from public transport service because it does not offer any facilitation. Moreover, although there is good access to the lake, there are no boat transport services that could partly solve the problem of viability in the Zogaj and Shirokë and there are not lake routes with other national or cross-boarder coastal towns that could generate an economic potential offered by the development of a touristic circuit around the lake.

Political limits

Human being, as a social animal, has always lived within a political entity that is closely tied to a space dimension (Latouce, 2012). Related with territorial limits, they are important for a good governance of society and act as a controller for good conviviality among individuals through regulatory and legal aspects.

As mentioned in the introduction, due to the drastic political changes that have influenced Shkodra's development, it

Fig3 / Harbor of the fishermen community in Zogaj source / photo by Saimir Shtylla

has been invested by several territorial changes that have allowed to overcome some political limits in favour to confused and informal urban growth with related issues.

The intense and rapid demographic rise and very weak control of local and central government over the territory, including the high level of corruption, has led the Shkodra's population to occupy abandoned spaces or to create new buildings without planning and building permits. Many areas first intended for agricultural land, industrial area, or river and lake shores now have become residential areas with a high density of population (Dibra, Kopliku, and Krymbi, 2015).

Although characterized by a lower urban descent, also Shirokë and Zogaj are the same subjects to the phenomenon of informality. In the area of the two towns it can be possible to identify in total, 199 illegal buildings (134 in Shirokë and 65 in Zogaj) around the Shkodra Lake with no urban planning or clear inventory of illegal construction on the Albanian lakeshores (Bosina, Kopliku and Krymbi, 2015). Moreover, the problem of informal development, connected with territorial limits, has also created a lack of engineering infrastructure: road network, power grid, telephone network, water supply, sanitation and sewage, but even in those areas deficiencies are significant (Bosina, Kopliku and Krymbi, 2015).
The problem remains an active concern of the government, but it can be solved by setting right limits by the regulatory plan.

Ecological limits

The ecological limits are certainly the most important and evident in contemporary society. Through modernity, our over-economic growth collides with the limits of biosphere (Latouce, 2012). Our society is extensively exploiting the natural resources of the planet. In the case of Albania, the landscape offers a large amount of natural spaces but which are endangered by the economical growth of country. As we have described, the informality of Shkodrä is putting at risk the lagoon ecosystem with a possible loss of biodiversity.
The lake and its landscape represent a great natural, scientific, economic and recreational resource. The peculiarity of the territory offers different types of conformation that pass from a mountainous landscape (including Taraboshi range) to a lagoon area, while the Mediterranean climate allows to accommodate many vegetative species and animals.
Thanks to these favourable conditions, in the area between Shirokë and Zogaj is preserved a great and characteristic biodiversity. In particular, in the natural mountainous of Taraboshi it is possible to find the natural vegetation (pomegranate, common hornbeam, juniper, oak etc.), sub-endemic shrubs, and cultivated ones (pines and cypress). It is also distinguished as a rich area of medicinal plants such as: rosewood, balsam, yellow and red primula, and in particular is rich in sage through all the Mount Taraboshi. There are also a lot of species of wildlife such as wolf, jackal, wild boar, hare, fox, squirrel, etc. Instead,

the urban part is characterized by several fruit trees (olive trees, fig, plum, chestnut, mulberry) and decorative ones located on courtyards of private houses, while many agricultural plots are cultivated with traditional fruit trees and vegetables.

The lake is also an important biodiversity reserve: the flora is made up of various species (willow, ash, poplar etc.) that are ecologically linked to fauna. By ichthyologic studies it is possible to see that the lake has 700 different species of microalgae, 60 species of fish classified in 17 families (carp, muggins, eels, etc.) including 15 endemic species, and 280 species of birds, 87% of the fauna in Albania (Mariç, 2002).
The area between Shirokë and Zogaj is the part of territory where it is still possible to enjoy the natural landscape. This territory is characterized by small fishing villages, inserted in an intact natural environment which, in the summer, become privileged places for holidays in the middle of nature. Compromising the ecosystem with unsustainable human practices means ruining an important part of the Albanian territory. The human interventions over the land cover change on opening new agricultural lands, informal constructions, cutting of shrubs and trees for fuelwood, uncontrolled grazing and summer fires, have led to a heavy degradation of the landscape, erosion and loss of biodiversity as well. Shirokë and Zogaj, are still subjects to illegal settlements that increase the urban area to the detriment of the natural surface of the landscape, while the lack of adequate infrastructure such as sewers can create problems such as pollution and eutrophication of water. Also the fishing, although it is done in a non-intensive local environment, is inefficient and needs to be regulated and organized. These precautions must include: prevention of fishing during the natural reproduction period; limitations of catching; support of sustainable traditional fishing (Grazhdani, 2014).

Economical limits

The economical limit is closely linked to the ecological limit, and the balance of the first directly affects the second (Latouce, 2012). It needs to pay attention in a concordant use of the economy without transforming it unconsciously into a negative tool that could clash with the ecological and political limits.
For the Albanian territory, tourism is the parameter that outlines the boundaries of the economical limits. In recent years, Albania has seen a large increase of tourist flows. In 2016 they rose 23% more than 2013. In fact, the region offers different types of tourism that pass from the cultural heritage to the different landscaping experiences. In the examined area of Shirokë and Zogaj - represented by a low density and a weak economic base - tourism is the key to promoting the internal growth. Thanks to its intrinsic natural features, Shkodrä provides great potential through its landscapes and lagoon locations widely used by local citizens.
Its resources show clear potential for a modern application of the concept of territorial heritage and they provide a useful basis to conceive the landscape as good to be preserved and valued through a careful reading and interpretation of selective accumulation processes that have worked in time and in the continuous interactions between environmental issues, dynamic settlements, life and work practices of local societies and cultural and symbolic values. (Meini, 2008). However, the territorial boundaries – due to the disconnection with the centre and the political limitations that are still late in the provision of adequate communications infrastructure – become a major impediment to the local economy, limiting revenues for people of the area.
The potential of the area lies in the manufacturing production derived both from the great tradition of textile crafts (kilim) and various local products, among which a large part comes from fishery products, that is one of the most important sources of income for Shkodrä. In addition, the area surrounds a long section of the river and offers many bathing spots for tourists, which can still insert into a not anthropized landscape, but not properly unmanaged and valued.

Intervention plan

Concreting the considerations set out above on the limits of Shkodrä, it is possible to trace an intervention line and to put sustainable solutions for the upgrading of the area under consideration.
The first strategic step is to start from the economical limit - using tourism as a development tool – in order to trace the guidelines to better manage even the other limits.
Tourism becomes the driving force to change the area, but it must be implemented in a sustainable way and shared with local population by public administration.
The political factor has the task to break its existing limits and become more responsible to implementing Zogaj and Shirokë's regulatory plans.

Fig4 / Mountain biking as a different experience for tourism of Shkodra source / photo by Albert Dickson, Flickr

For this thing, it is necessary to incorporate the concept of 'Design for All' in design processes. It is a conceptual methodological tool that uses a holistic approach aimed at enhancing human being and its various specificities (Accolla, 2009). DfA means creating a solution for everyone, namely, a shared experience of a system that encompasses several types of utilities, with emotional, physical and cultural differences, usage, etc. So you need to have an overall vision of all points of view, to implement a participatory design with citizens.
It must take into account those who have the desire to use the whole system, trying to eliminate all possible barriers that hinder people from achieving their goals. In the case of Shkodra, this methodology must be interesting to public administration, as it is a useful tool of communication both to listen and receive the needs of people who really live the territory. Knowing their problems means putting in place this practice to enhance inclusion, social cohesion and sustainable development.

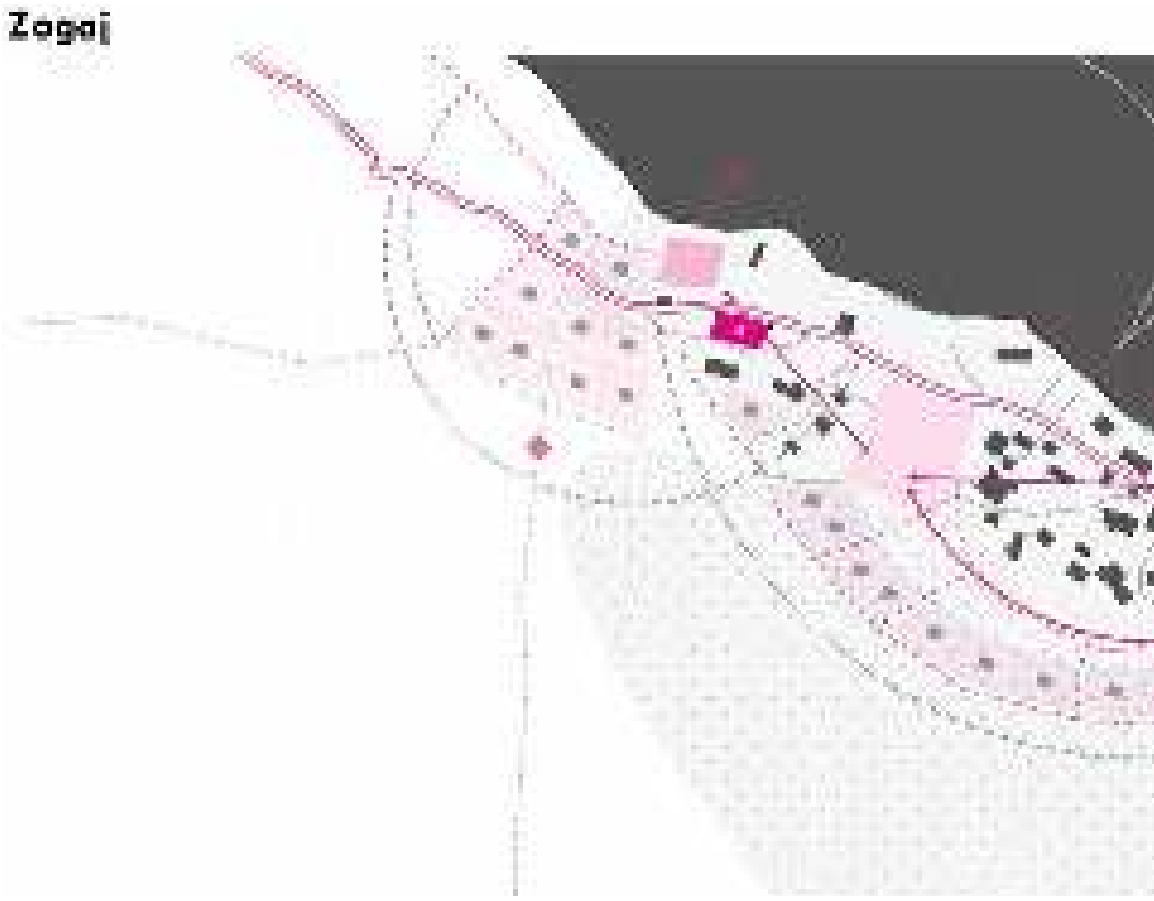
Thanks to this concept method, it is possible to draw a clear urban plan that is useful even to think some limits between the residential and the natural parts, in order to stop the unauthorized development and preserve biodiversity. This plan wants to include the natural resources protection and development of the area, such as forests and shrubs and their wildlife, the lake shore with its water, flora and fauna, fisheries, coordinated with the development of tourism and long-term urban development. For these things, in the logics of user centred methodology, the plan would be prepared by a group of multidisciplinary experts and with the broad participation of local residents and all interested parties. It is also useful to draw many guidelines on the urban planning regulation, so as to pay more attention both to the aesthetic and spatial appearance of dwellings, in order to preserve and give continuity to the identity of the local heritage by creating interaction between the existing historical buildings with the possible future constructions.

The old vernacular buildings have a great cultural heritage that must be protected and valued as an instrument of local identity. Being an area not yet densely populated, it is important to maintain a constructive limit in order to preserve the characteristic existing natural landscape.

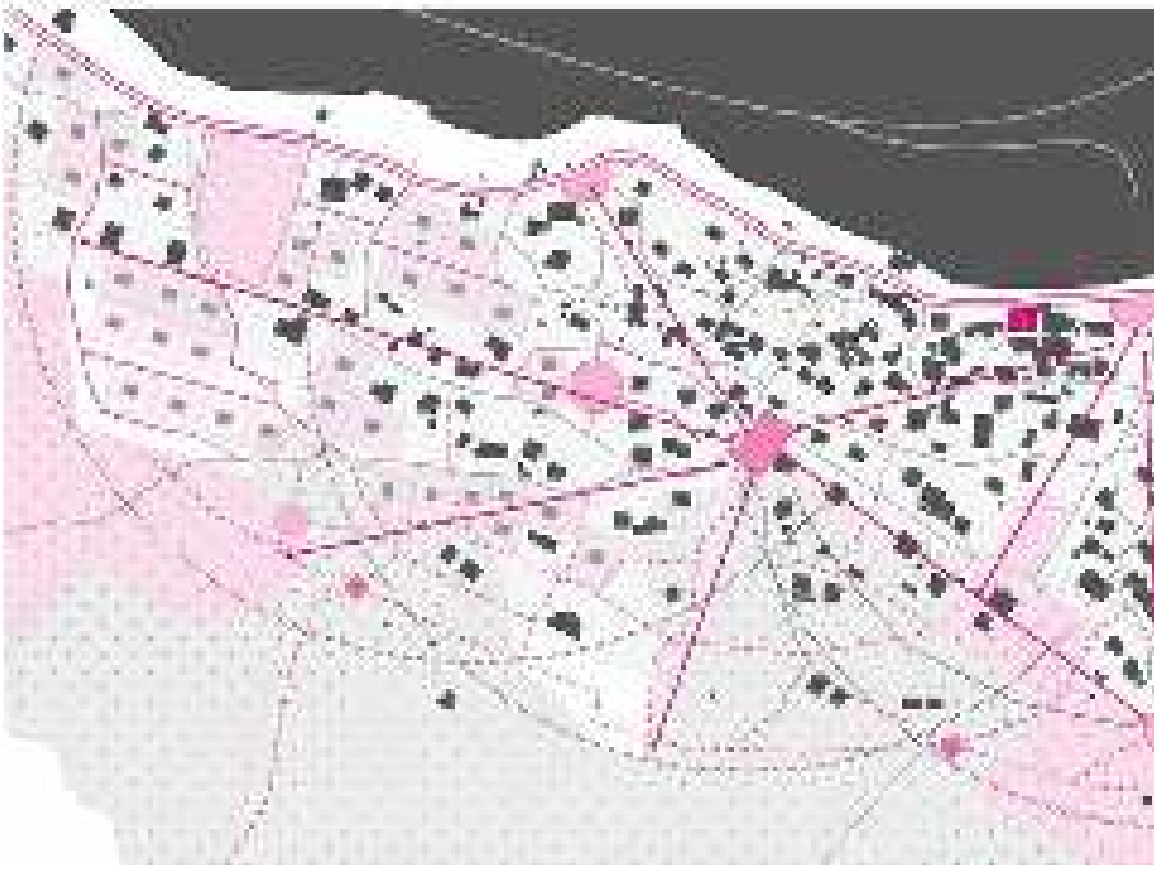
To improve interaction between individuals and create social integration between local citizens but also among potential tourists, a possible intervention is to improve the pedestrian areas and also to provide several squares or common areas.

Today, innovative forms of socialization can be implemented in the process, such as the "localhood" phenomenon, namely an online and offline network to exchange ideas, goods and knowledge among neighbours, but also with visitors. This is a great way to connect people with neighbourhoods, so much so that it has been included in the new tourism vision of Copenhagen 2022.

Zogaj



Shirokë



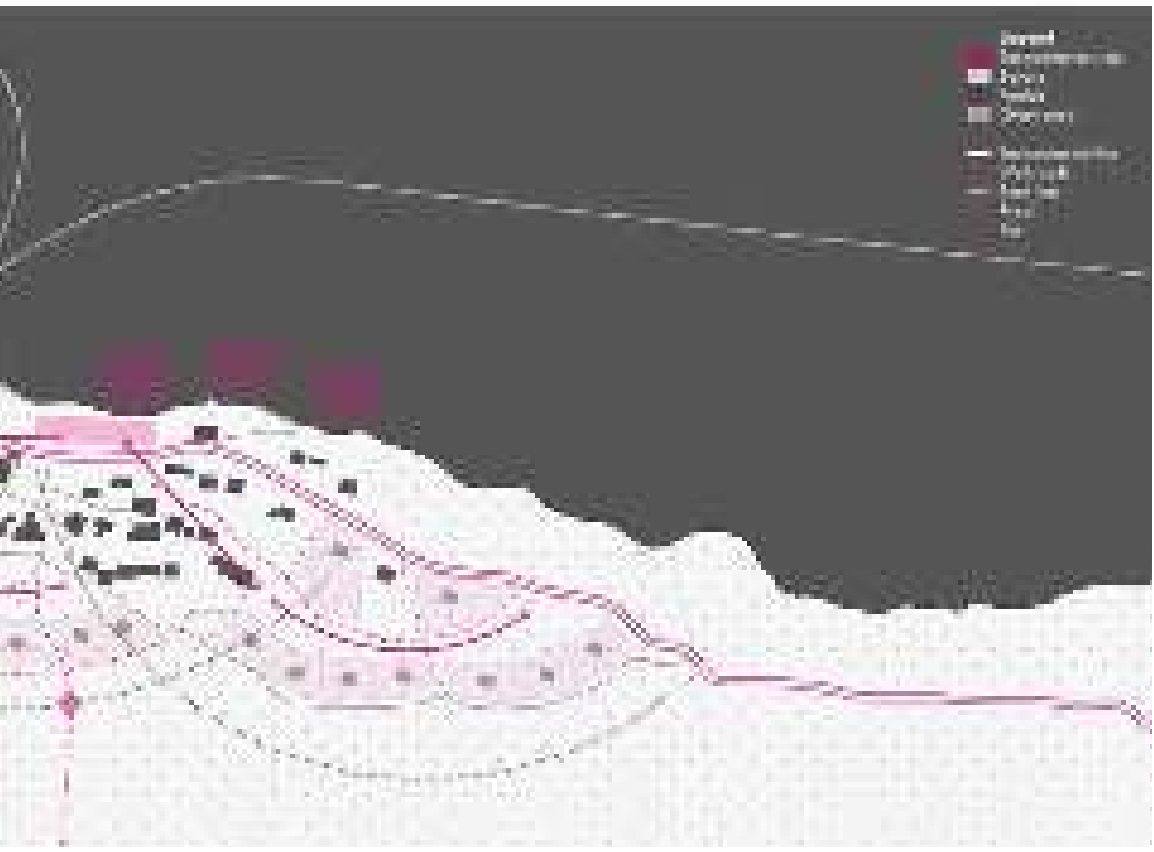


Fig5 / Intervention plan of Zogaj
source / the author

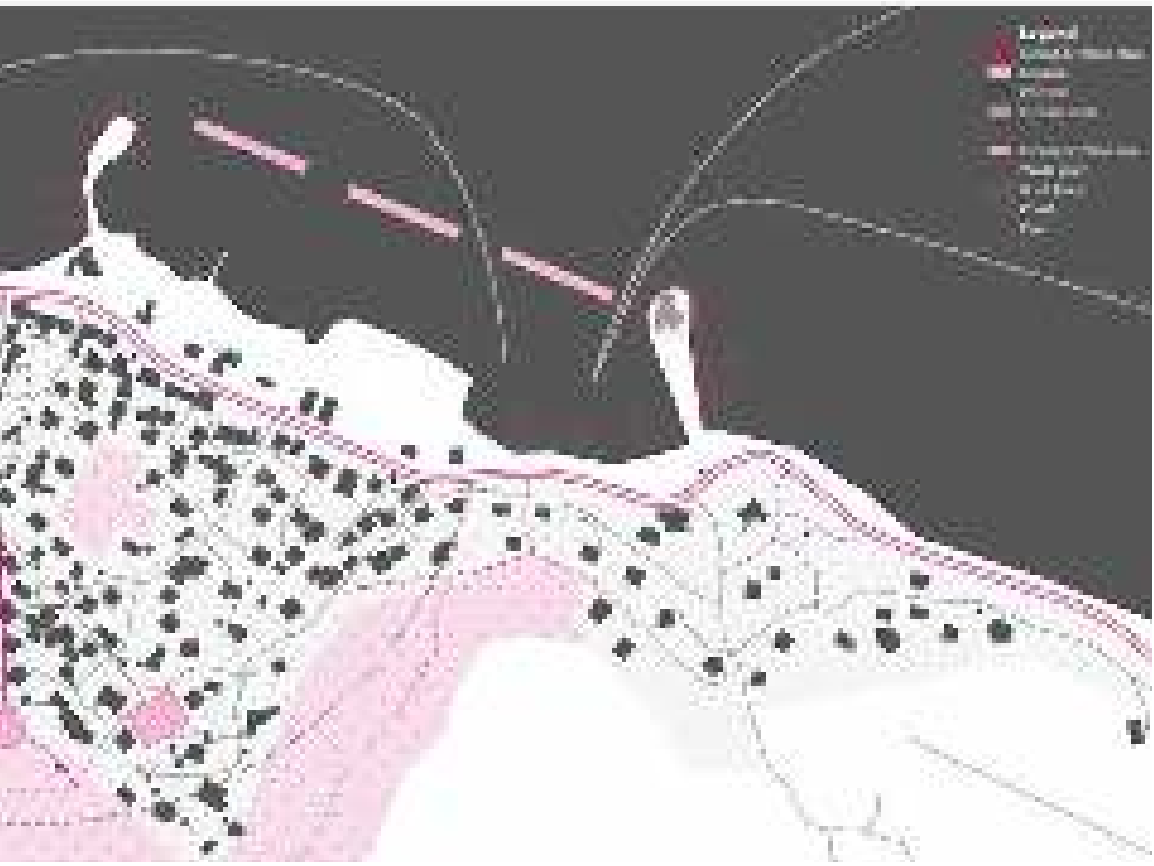


Fig6 / Intervention plan of Shirokë
source / the author

Also, refreshing the area can increase the demand of visitors and attract the attention of foreign capital that may invest in the development of the area or the use of local activities. A potential source of income is undoubtedly fishery but it must be well managed and regulated so as to not clash with the ecological limits of local fauna.
It is possible to develop new structures for fisheries communities in order to make the activity more sustainable and to protect endemic species during the breeding period. Fishermen can manage production with a fish farming and market place as an economic resource without touching the ecosystem. This small scale economy can become a growth value also for the local gastronomic services.

To make all this possible and feasible, the southwest area of Shkodra needs to be reconnected to the rest of the city, facilitating the exchange between internal and external residents. There is only one way of communication that needs a great rethink to increase the flow of people that would primarily facilitate local people.
As we know well, the mobility of people and goods has been vital to urban life since cities emerged more than 7,000 years ago (Ratti, Resta, Sagarra, Santi, Strogatz, Szell & Tachet, 2017). Indeed, the success, prosperity, and liveability of cities are directly related to the effectiveness of their mobility systems and therefore it needs more attention.

At first glance, the idea could fall on creating a wider and branched infrastructure with many parking lots to enabling viability in both directions, increasing the flow of cars. But the mobility satisfied by private vehicles is an inefficient transportation mode because move only 1.3 passengers per vehicle on average, causing the road congestion with immense economic and societal costs (Ratti, Resta, Sagarra, Santi, Strogatz, Szell & Tachet, 2017).
In addition, a recent article dealing with the relationship between rising roads and traffic, explains that with the rise of new driving areas, there are no improvements of flows but only traffic increases because it encourages people to use those new spaces that did not exist before (Duranton and Turner, 2015). The possibility of increasing automobile flows would immediately be in conflict with the ecological limits of the landscape and its ecosystem which, on the other hand, should be protected through more targeted and more conscious interventions on sustainable mobility.

Instead an appropriate hypothesis is to improve the main road and encourage the institutional service to stimulate people to use more public transport, which would not only shorten traffic congestion but would, in the long run, encourage people to use predominantly public transport and reducing the demand of cars with consequent reduction pollution.
Therefore, it is possible to use the service both to include the local population, but also to provide a tourism support service. Along the coast are identifiable at least four strategic seaside spots that may become stops to spread visitors' flows along the beaches.

Pointing to this type of mobility associated with a multimodal system could be the key to the inclusion of the area with the city centre at remarkably low costs. In fact, the idea is to make pedestrian and bicycle routes accessible throughout the territory, including the coastal area and the hinterland part of the country.

In this case, we will have a limited ecological impact because we would use existing paths. In the territory there are already natural routes that have been created to connect coast Anamalit, two historical cities currently abandoned, but with great cultural and touristic potential. The implementation of these paths through a cycling/pedestrian network can create a different mobility experience that can ideate an innovative sustainable tourism. The territory offers both a great opportunity for excursions and many beautiful lakeside sceneries that can be supported by strategically located spots along the paths (Berra, 2011).
In addition, plan of large reforestations, controlled grazing and fire protection would create a more pleasant environment for inhabitants and visitors.

By constructing different types of itineraries (ranging from mountain biking, hiking to traditional relaxation and wellness paths), we can create a different experiential activity based on the type of fruiting speed we want to use. A different experience can be further associated with an aquatic route through the creation of bird watching sectors, areas for the repopulation of the lake's ecosystem, but also a service with relative points of attraction in the cities of Zogaj and Shirokë that would increase the accessibility of the zone by reducing in part the isolation around the lake with other the national and cross-boarder coastal towns and the problems caused by traffic.

Conclusions

At present, the municipality of Shkodra, in particular the southwest area of Zogaj and Shirokë, has several urban management issues but also has great potential that have not yet been fully exploited. The public administration has to be aware to the territory's boundaries in order to take them as a starting point to improve the development area.
Taking into consideration these limits, it is possible to draw up an intervention plan that can respond to the various needs of the analysed area. Moreover, the implementation of participatory design between citizens and the municipality becomes a useful tool to make municipality aware of the real problems of local communities, making functional designing and addressed to social inclusion.

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Increasing ecosystem resilience through landscape interventions: the case of flooding in Shkodra

keywords / flooding, ecosystems, co-living, watershed, climate change, resilience, sustainability

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Abstract

With pressure coming from an uncontrolled urbanization process, which in most of the cases has been unplanned and compromising natural potentials, and with little awareness regarding the importance of understanding and respecting the natural features beyond just individual interests, the case of flooding in Shkodra makes for a perfect example, on how an ecosystem can react when reaching a critical point of change, which affects its ability to regenerate. Managing a healthy relationship between urban-rural-and natural is very important, and given the constant flooding challenges that Shkodra faces with every year, learning how to manage and live with water, becomes the key to increasing the resilience of the whole regional ecosystem. Having set the background of the big picture, this paper tries to analyze the case of flooding in Shkodra, by understanding first the natural and artificial processes happening, and then coming in practice with a series of proposals of landscape interventions, aiming to improve ecosystem resilience. The confluence of Buna, Kiri and Drini River, and the surrounding agricultural and urban environment become subject of illustration, previewing how on different emergency scenarios, the whole ecosystem can adapt and sustain itself.

Setting the Context: The challenges of a newly democratic country

Following the fall of the dictatorial regime, during which Albania was one of the most centralized planned economies in Europe, where government practically owned and controlled everything and all forms of territorial development, from the early 1990s the country still inherited a highly centralized, top-down governance with a high degree of control paradigm in urban planning as well (Ruijsink, 2012). A system, which with the fall of the dictatorial structures became disentangled in the very first instant of the Albanian democracy, unable to cope with the high dynamics of transition and population demands (Toto, 2012). Thus, very soon the country went from one extreme (excessive control, even of everyday life aspects of people) to the next extreme (total freedom of movement, development and economy). The "shock therapy", commonly applied in most "eastern bloc" countries (Aliaj et al., 2010), combined with the weak and unexperienced governmental structures in the early democratic years resulted in a complex and sophisticated informal system, which did not only express itself in the urban sector, over 400,000 informal buildings at national scale (Ministria e Zhvillimit Urban, 2014), but also in economic and social development, and many other aspects of life, above all, transformation of landscapes and configurations of the natural habitats (Aliaj, 2008).

On these terms, Albania's urban development after the 1990s has been associated with a very strong link to informality and absence of planning. Thus, the self-organizing role of individuals has been key in structuring development in the main cities, especially in their peripheries.

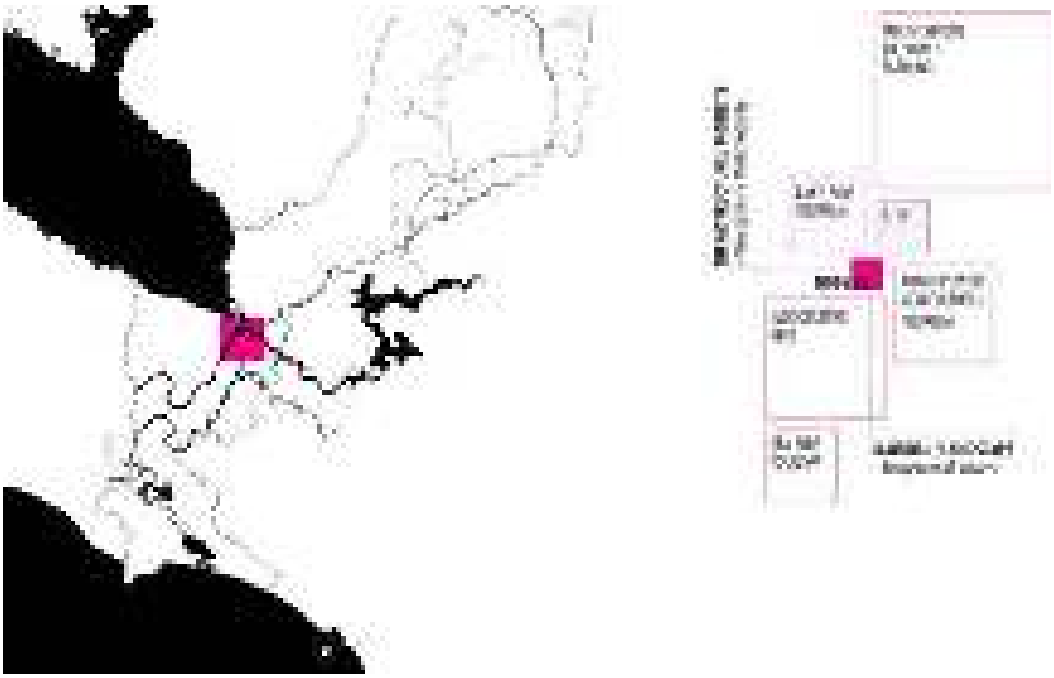


Fig1 / Municipality of Shkodra and the Ecosystem of the Three Rivers (node #5 on the 32nd Cycle of the PhD Workshop) / source: the author

The freedom of movement, inspired many people to move from remote peripheral and isolated areas, towards the main cities, located in the western plain. The informal and rapid urban development, apart from transforming a great deal of agricultural land into urban land, has also had devastating impacts on the natural habitats and environment as well. In terms of environment it can be said that although reforms have been continuous, the situation in the ground remains problematic (Janku et al. 2017). Environment is one of the sectors where 'acquis' has been transposed the most, however, the low level of investment has led to great challenges especially in water and air pollution (Ministria e Mjedisit, 2015). On the meantime, deforestation and coastal erosion are also very problematic. In the case of Shkodra this adds up into a very sensitive environmental issue, which relates to the risk and consequences of flooding. Taking climate change as another greater threat especially for the western plain, where rising sea levels and the intake of land by sea is an eminent threat (UNDP; Ministry of Environment, 2016), the uncontrolled urbanization which has happened in abundance in this specific area is exposed to a series of risks, which need to be addressed properly by the authorities.

Setting the Context: Shkodra, the city that always floods

The municipality of Shkodra is located in the North-Western part of Albania and it is a perfect example, where different ecosystems operate in each other's vicinity. For the scope of the Doctoral Workshop of the 32nd Cycle, between POLIS and Ferrara, this complex formation was divided into fragments. Starting from the Adriatic Sea on its Southern border, which has mainly touristic use and importance on the local economy, the landscape becomes more diverse as it continues in the main land. The Lake of Shkodra, which is in the cross-border area with Montenegro, has great importance as a touristic attraction, as well as values regarding its natural potentials. Whereas near the city of Shkodra, the confluence of three main rivers: Kir, Drin and Buna creates not only a great and rich agricultural habitat and landscape formation, but also poses many challenges regarding the issue of flooding, which is very active throughout the year. Lastly, the North of the municipality is characterized by mountainous and steep landscapes and is home to the so called "Albanian Alps", the National Parks of Theth and Valbona.

On this diverse variation of landscapes, vast plains of agricultural activity and dense urbanized land operate mainly in the central part of the municipality. In a total of 763.77 km2, the natural and water systems constitute 53.2% and 20.44% of the total surface, the urban and the infrastructural systems have a share of 3.28% and 1.06%, and the remaining of 22.02% of the total surface is represented by the agricultural system (POLIS et al., 2016). The urbanized land is mainly concentrated around the city of Shkodra, in the west-central part of the municipality, and the remaining is spread among the rest of the rural territory in

the form of small villages. In close vicinity to the biggest area of agricultural value, the concentration of urban land happens to be also on an area, which is directly affected by the flooding phenomenon. It is this part of the territory in which the Lake of Shkodra is the nearest and where the three rivers confluence. Although damns have been built during the last years, and other forestation measures have been taken, it hasn't been enough to cope with flooding, so Shkodra still gets flooded with devastating consequences. Urbanization of agricultural land and informality have happened on this area also. Building with no regulations near water streams, or close to the areas which get flooded, and the transformation of the drainage system due to this urbanization process, has made land vulnerable to flooding and all the risks that derive from it.

Given that 3 main ecosystems, that of the sea, the lake and the rivers, operate in the vicinity of each other, mixed and overlaid on agricultural and urban land as well, the case of flooding in Shkodra gets more complicated, and in order to unhitch this complexity, it's very important to make a diagnosis of all the sources contributing to the critical panorama. Firstly, Kiri and Gjadër River are constant threats for the plain of Zadrima and the surrounding villages, because of the sediment masses they bring on their flow. Drini River on the other hand has a critical quota of +2.2m on the area of Lezha, contributing to flooding in the area of Blinisht, Bacel and on about 200ha of agricultural land. The more this critical quota raises, the more dangerous the situation becomes. Buna River is also a major source of flooding. Apart from the contribution of the rainfall and melting of snow from the surrounding mountains, it also accumulates water from Kir and Drin Rivers, and it intakes the surplus accumulation of the Lake of Shkodra as well. All this amount of water overcomes the capacity of Buna River for intake-and-flow, leading to further flooding.

Natural phenomena like the combination of rainfall and snow poses also a serious threat. When the raining season starts, there can be periods of 10-15 days of non-stop rainfall, which over-float the surrounding areas, leading to the flooding of both agricultural and urbanized land. Urbanization on the other hand, which in most of the cases is in the vicinity of the water surfaces and flooded areas, has increased the non-permeable surface, increasing the impact area of flooding. The coastal strip is also constantly exposed to flooding due to the strong wind of Shiroka, which is a characteristic natural phenomenon of Shkodra. The wind causes big waves, which wash over the coast and the inhibited villages, allowing salty water to penetrate the inland and overflow the agricultural land as well. Lastly, the drainage system of the agricultural land, is not capable to cope with this amount of water, due to amortization, or urbanization, so as a consequence, the presence of salty water on productive land decreases its quality and productivity.

Water, this crucial source of life

In the history of human settlements, there have been two major reasons, explaining the vicinity of human life to water sources, in the form of villages, towns, or cities:

Commerce: Settlements near water provided easier and faster transportation through water, which was faster than other types of land transportation. Before even the train was invented, these settlements were well-known for their trading activity, which provided them with considerable income, mixed cultures, and generally better living conditions.

Food Security: Apart from agriculture, foraging and hunting, in the earlier times water sources like rivers, lakes and sea provided alternative food resources (water fauna and flora), which were crucial for the development and pace of growth of these settlements. Constant security of potable water, which would also come at a cheaper price, than in the landlocked settlements, which had to build special infrastructure for providing water, was another benefit coming from this vicinity.

Following these two major facts, it's commonly accepted that the forms and patterns of buildings, cities, and regions have always been a direct response to the social, economic, ecological, and climatic conditions of the time (Williams, 2011). Having said that, with climate change being at the forefront of today's challenges, our cities and regions are profoundly changing. New types of infrastructure are emerging, due to the change of structural capacity of the geology and soil, raising water levels, severe draught and flooding, all happening in the same context, where we live and work. With Earth being a water planet, the only water planet as far as we know of, water itself makes for that very particular source, which determines the existence of life. It is rather part of interrelated systems that include the atmosphere, the oceans, and the land, therefore the question on "how to cope and develop with this critical source" becomes very crucial and important, especially when considering that human beings have become one of the most significant forces misusing water.

Fig2 / Aerial Image of the Confluence of the Three Rivers source / Google Earth.

Nowadays traditional threats to water resources, are being exaggerated by global climate change, with severe impacts on our cities and natural lands, where one of the most visible and immediate effects will be the increasing severity of storms, resulting in greater river and coastal flooding (Watson & Adams, 2011). Intense storms will strain the capacity of our inadequate storm-water management infrastructure, and as we have experienced already, the impermeable surfaces of our over-and-ever-expanding cities have already taken away the capacity of the landscape to absorb and permeate this water, resulting to storm-water runoff and major floods.

So we are now confronting urbanization and sprawling, which have taken upon vast natural habitats and landscapes, that previously helped in mitigating flood intensity. On these terms, even the benefits from flooding in most of the cases become threats, due to changed equilibriums in the natural environment, leading to disasters of unwelcomed and unanticipated intensity. And this is the main challenge that Shkodra faces today as well.

Environmental Stressors and Ecosystem Resilience

"Anthropogenic and natural stressors (environmental stresses, flooding, draught and even extreme weather conditions) usually impose disturbances in ecosystems, changing not only their structural elements (species composition and the spatial distribution of biomass), but also functional properties (productivity and nutrient cycling), impoverishing the general ecosystem development" (Freedman, 2015).

Encouraged by climate change, but also by the way we have built (sprawling, intensive land development, urbanization of fertile land, deforestation etc.), natural resources and their functions are being removed from the landscape, leading to increased environmental stresses. On the case of Shkodra, with water being one of the main critical resources, interventions which aim to enhance the balance of water on watershed area, aquifer, floodplain and built infrastructure need to be planned and designed, in order to balance the presence of water in the ecosystem, and also mitigate risks of possible water-related crisis, either drought peaks,

or flooding emergencies. Referring to Freedman's categorizing of two different types of stressors, either "chronical", or "disturbances", flooding in Shkodra would be considered as a "disturbing stressor", meaning that "the exposure of the ecosystem to flooding is intense, but shortly lived".
Freedman also explains that "disturbances are followed by succession, which is a period of community – level – recovery". The speed with which this recovery takes place, also leads to what is consider "ecosystem resilience", which is profoundly related to "the ability of the ecosystem to return to its original condition following a disturbance, or after some other stressor lessens in intensity" (Freedman, 2015). Trying to improve the "ecosystem resilience" in the case of Shkodra, would first ask for a profound change of mentality, or attitude towards a more comprehensive approach in relation to territorial governance and development, with a lot of weight on introducing sustainable practises and environmental sensitive policies, in order to improve the outcome of the symbiosis between men and ecosystems. The change at political level, should afterwards impose physical changes at a territorial scale, in order to lessen the impact of flooding, if not prevent it at all.

Behind the flooding events in Shkodra

During the last 20 years, like any other major city in Albania, Shkodra and its surroundings have gone through a series of major changes, which together with the drawbacks coming from the change in climatic conditions and natural features of each ecosystem (sea, lake, river), increase the vulnerability of the area in regard to the issue of flooding. These changes include:

(i) Urbanization and sprawling on areas, which are prone and exposed to flooding:

These areas are easily exposed to, and are vulnerable to any flooding events. The phenomena of sprawling has mostly happened on rural and farm land in the vicinity of water features, which translates in endangered human population, life stock or agricultural potentials. The presence of salt on agricultural land especially, has had a major impact on features like fertility and productivity.

(ii) Increasing of impervious surfaces, which are unable to cope with storm water management:

With urbanization and sprawling happening almost anywhere in the central and southern parts of the municipality, dispersed implementation of infrastructure has been promoted as well, leading to an increase in the total amount of the impervious surfaces. During flooding events, storm water runoff is high, which causes displace of flood, from its original origin towards anywhere in the neighbouring areas.

(iii) Changes in the agricultural system, either by urbanizing agricultural land, or by transforming some of the major parts of the irrigation system:

With informality, urbanization and sprawling happening on agricultural land as well, changes in the irrigation and drainage systems have followed, due to the highly fragmented landownership structure. This has been translated in impermeable channels, which are not able to cope with water flow, leading in flooded settlements and agricultural land together.

(iv) Deforestation:

Mainly happening due to urbanization and construction, especially in the area of Velipoja, but also on the riparian zones (mostly on the sea – fronts and river – fronts), deforestation has had a major impact on increasing erosion and landslides. During flooding events, the lack of vegetation also makes land unable to cope with slowing the flow of water, leading to the displacement of the flood.

All these conditions have caused a series of flooding events in the course of the years. Below, a chart by Mott MacDonald (edited by the author for the period of 2013-2018), makes an overview of some of the major flooding events in Shkodra since 1851. During the January 2010 event the water load on Buna was nearly 3,600 m3/s, and it was caused mainly by the snowmelt accumulated on the Drini Rier basin (Ministria e Mjedisit et al., 2015). Later, during November and December 2011 Shkodra experienced another major flooding event, the biggest until today, peaking at a total of nearly 900 mm rainfall, almost half of the average annual rainfall for Shkodra. During this event the lake of Shkodra reached a maximum historic level, and the water load in Buna was higher than 4,000 m3/s, amounting at an inundation, which has been recorded as the biggest, in terms of areal extent, depth and duration (Ministria e Mjedisit et al., 2015; MacDonald, M., 2011). In the aftermath of the 2010 flooding event, "the total number of evacuated inhabitants in the area was about 12,145, while the number of affected houses nearly 7,120 (4,540 flooded houses and 2,580 houses surrounded by water); about 32,634 animals were evacuated, and the cultivated land and croplands were highly affected (about 10,280 ha, from which

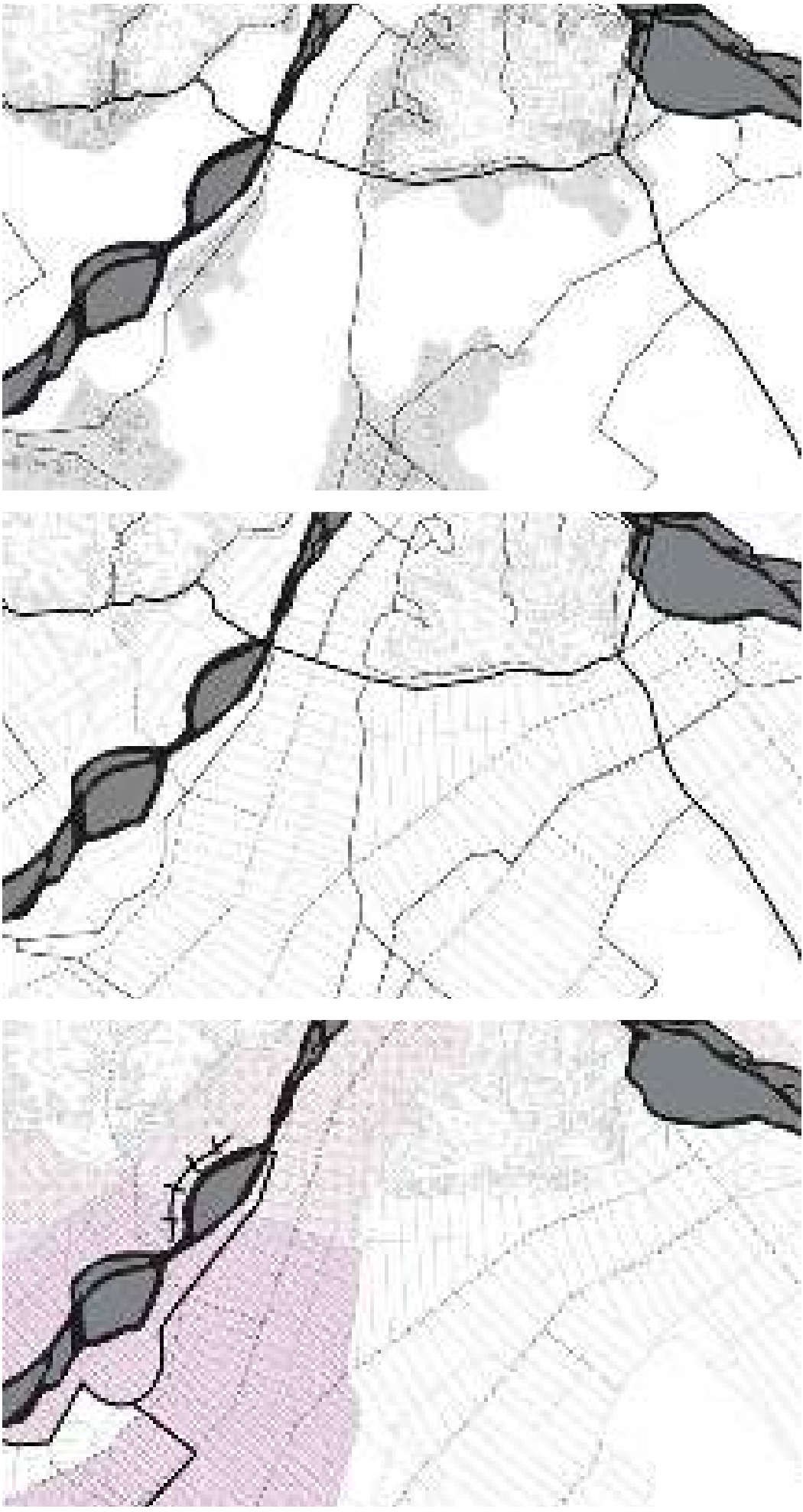
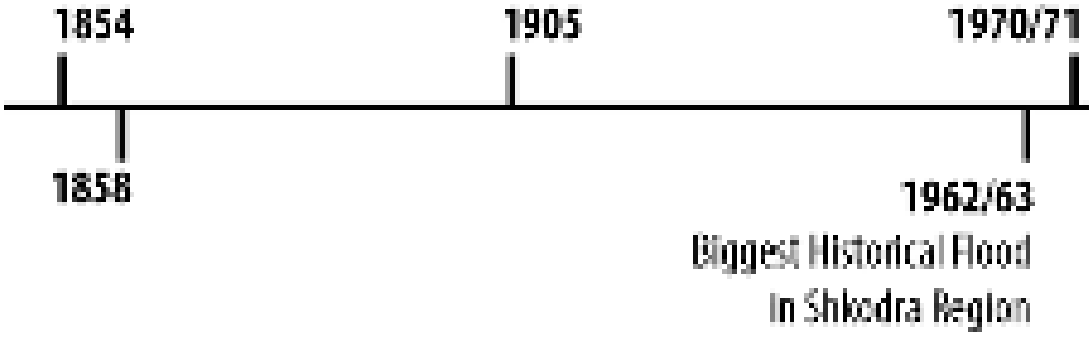


Fig3 / Pattern analysis on the confluence of Buna, Kiri and Drini Rivers: (a) Urban and Natural Flooded Land; (b) Agriculture Land and Flowing Channels; (c) Flooding Events / source: the author



about 4,887 ha of cultivated land), all this leading to an economic damage of nearly 500,350,000 ALL" (Ministria e Mjedisit et al., 2015).

Another major flooding happened in 2018, which was led by very similar factors with the one of 2010. About 4,948 ha of land was flooded, from which 2,635 ha of cultivated land, and a total of 677 houses were surrounded and flooded by water. Between the two major events of 2010 and 2018, a series of other smaller (but not less significant) floods have occurred: (i) three events in 2011 in the area of Nënshkodra and in the villages near Buna River; and (ii) one event in 2014, again in the villages near Buna River.

Hydro – Response: Planning for Flooding

Due to all the natural conditions and man-made changes presented above, one way, or another, Shkodra will always be exposed to flooding. But in order to make flooding bearable, less harming, and why not use it as a positive event where it's possible, authorities should not only introduce a series of changes in terms of policy and territorial governance, but they should as well implement physical interventions, aiming at improving ecosystem resilience, by anticipating flooding. Various resilient design practices can facilitate this anticipation in the stressed ecosystems, and prepare for extreme storms and flooding of inland watersheds and coastal areas, in order to provide resiliency and emergency preparedness for natural disasters (Watson & Adams, 2011). On these terms, the natural features of the all the ecosystems overlaying in Shkodra, should be well weighted, incorporated and integrated in order to make room for water, promote resilience and provide safer human conditions. Referring to Watson and Adams, there are five defining concepts that can guide us towards this mission:

- Design for Resilience

Applying lessons from natural systems as a response to extreme conditions, in order to restore and improve water resources and mitigate threats coming from extreme weather and climate change;

- Protect and Extend Ecosystem Services

The ecosystem services concept identifies and promotes the social, economic and health benefits, which come as an outcome from functioning natural environments, land, vegetation, water and living organisms.

- Create Watershed Plans and Sustainable Storm-Water Systems

Watershed planning is a multidisciplinary approach, which focuses on managing water flow on natural systems, or regions, by incorporating also the practices of aquifer subsurface restoration, and integration of both water and green infrastructure in urban environments. On the other hand, the practice of sustainable storm – water design aims to improve water balances by reducing disturbances, protecting and restoring natural features, and using soil and vegetation for storm – water management.

- Implement Floodplain Management and Flood Resistant Design

Floodplain management focuses on the impacts of flooding, by including land use policies and regulations for developing

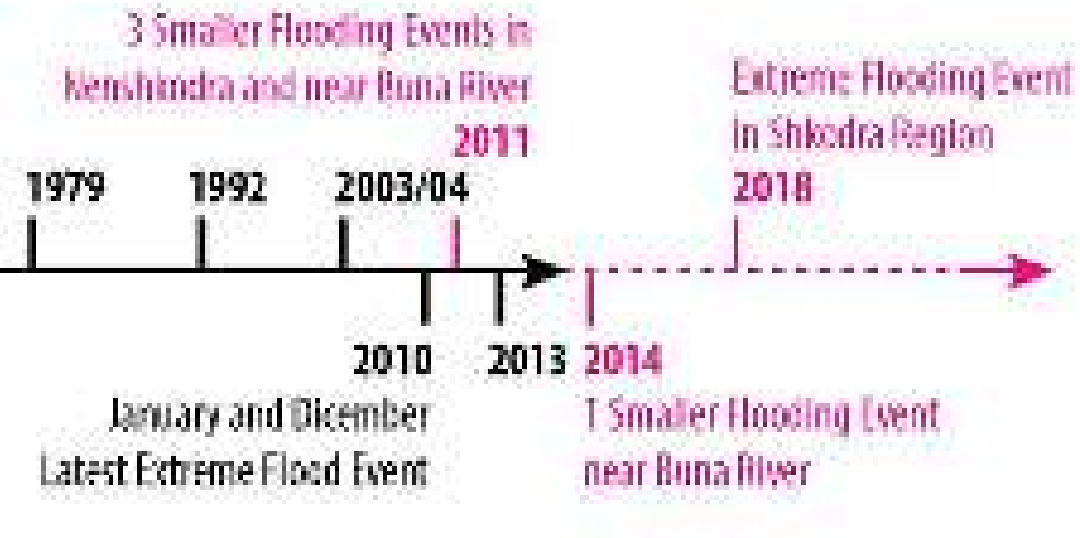


Fig4 / Flooding Events in Shkodra
source / Matt MacDonald (in black) and the author (in magenta)

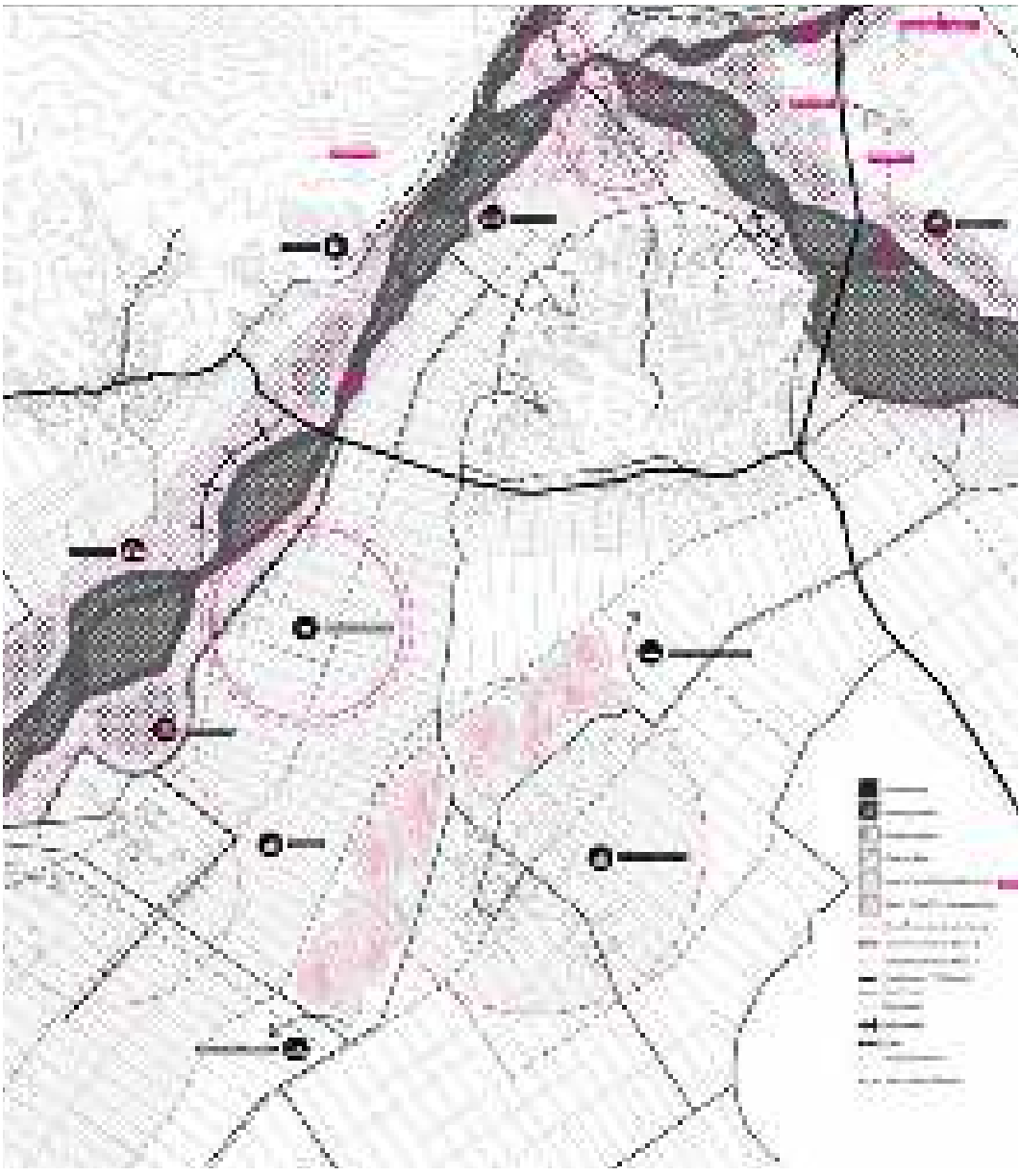


Fig5 / The general strategy of all the interventions introduced within the confluence area
source / the author

Fig6 / Zoom In #1 within the general strategy of interventions
source / the author

in areas which are prone to flooding, restoration and protection practices for natural resources, floodplains and watersheds, and implementation of flood resistant design, which aims at preventing flood fatalities by relocation, and measures of protection and mitigation.

- Practice the Precautionary Principle

This final fifth concept is more of an ethical principle, suggesting that interventions must be reversible and flexible. The precautionary principle[1] considers that if an action or policy is prone to cause irreversible harm, as long as the opposite cannot be proved, the intervention should not take place at all, or similar less risky interventions should be introduced.

These five concepts have been used to design a series of physical landscape interventions, with the scope of improving ecosystem resilience, in order to address the issue of flooding in Shkodra in a responsible, sustainable and comprehensive way. The confluence of the three Rivers, Buna, Drini and Kiri has been further visualized, in order to explain in details how these interventions would take place and perform during flooding events, by stimulating risk scenarios. The interventions include 3 main topics:

(i) The increase, improvement and control of the intake of inland water, in order to reduce uncontrolled runoff and displacement of flooding;

Landscaping interventions for creating artificial wetlands, riparian belts, floodplains and stream systems can create a net of interrelated components, which allow water intake, balance the amount of water flowing in the inland, and accommodate the surplus in order to prevent over flowing of water in residential and agricultural sites. The benefits of this system consist mainly on moderating downstream flooding by providing storage and slowing water runoff, promoting infiltration, and improving water quality and biodiversity.

(ii) Densification of local vegetation and forestation as an answer to deforestation and storm – water flow management.

The role of vegetation is pivotal in a series of events. Firstly it helps in returning back to the atmosphere, almost half of the annual amount of rainfall. Secondly, by minimizing the energy of rainfall, vegetation reduces soil erosion. Thirdly, vegetation contributes to creating more absorbent soil due to the addition of organic material and presence of healthy microbial communities (Watson & Adams, 2011).

(iii) Protection of human activity (housing and agriculture / farming).

This measure is contextualized on two main directions: (i) law improvements, and (ii) physical interventions.

- Law Improvements: Raising awareness and promoting concepts like "resilience" and "sustainability" should become pivotal in order to have successful planning and implementation of preventive measures. Strict restrictions regarding building permits in areas prone to flooding, and re – allocation of housing or economic activities (especially agriculture and farming), which are in the vicinity of these areas should be enforced. Continuous surveillance and infrastructure maintenance should

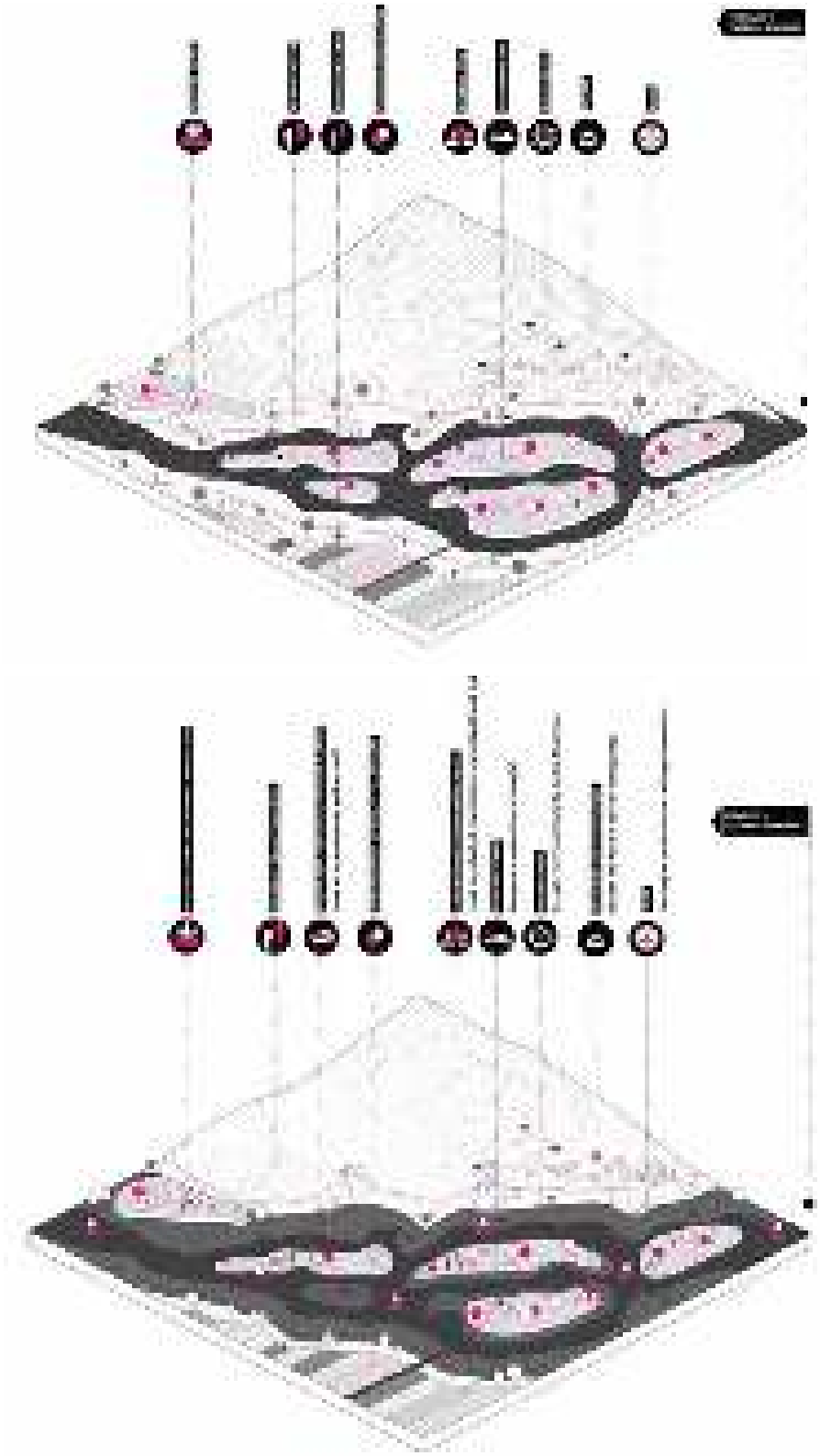


Fig7 / Zoom In #1 within the general strategy of interventions (before and after illustrations) source / the author

always be active, and Emergency Units for evacuating people and livestock during flooding events should be introduced as well.

- Physical Interventions: Introducing wetlands and floodplains can slow the release of water during moderate rainfall. Rainfall capturing techniques can as well help in reducing the amount of storm – water runoff. Artificially created hills in the vicinity of waterfronts, or near villages and agricultural / farming land, can reduce the intake of inland water, and slow runoff volume too. In addition, all the measures introduced on (i) and (ii) are considered as physical interventions as well.

1 / The 'precautionary approach' was defined in 1992 Rio Earth Summit Declaration: "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.

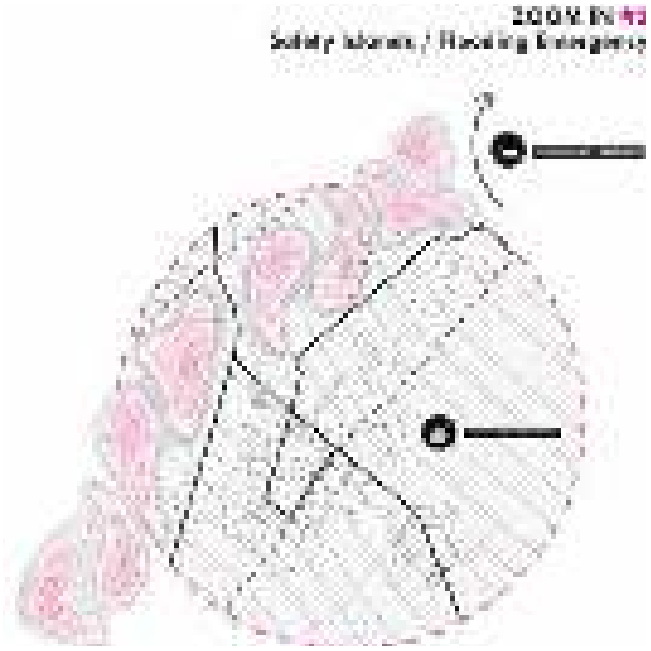


Fig8 / Zoom In #2 within the general strategy of interventions
source / the author

Conclusions

In this paper, the issue of flooding is challenged through a series of interventions with the scope of promoting ecosystem resilience and sustainability, which are able to cope with water and self-regulate during flooding events. Dealing with water, which plays a pivotal role for the life on Earth, means being aware and considering that it is not a solitary source, but it is rather part of more complex and interrelated systems that affect anything and everything. Therefore, nowadays threats to water resources are multiplied by global climate change, which reflect back to our urban and natural lands with severe impacts, among which flooding being one of the most active events. But flooding can only be as dangerous if not understood, anticipated, and prepared for. Preparing for flooding means "understanding the structural elements and functional properties of the ecosystem development, in order to lessen environmental stresses, which disturb the balance of water on a watershed area (Watson. D.; Adams. M., 2011). Then, the designing of proper infrastructure for balancing the presence of water and mitigating possible water-crisis can follow. The interventions proposed within this paper, use the five defining concepts of Watson and Adams, in order to comprehensively address the issue of flooding, coming up with 3 main topics to materialize physical interventions and behavioral properties within the diagnosed ecosystem. By understanding what resilience is, and how to improve ecosystem resilience by opening up to new thinking frontiers and by being able to see beyond the efficiency of short term interventions only, can contribute to deeper and profounder understandings of our existence, the relationships and our impact on the Earthly nature.

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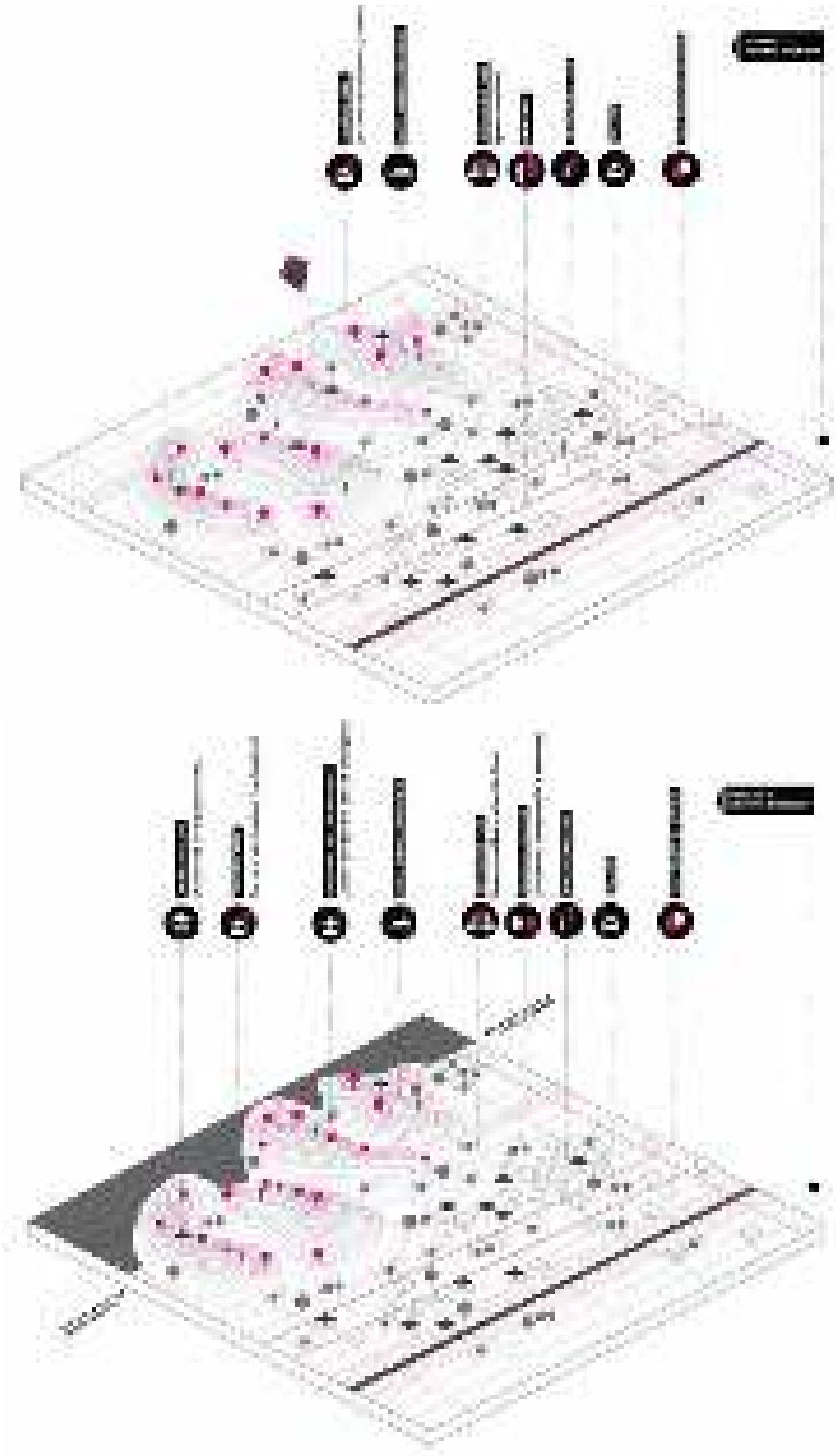

Fig7 / Zoom In #2 within the general strategy of interventions (before and after illustrations) source / the author

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Slow Valley / A modest proposition to cultivate an Agrarian Landscape

keywords / Industrial Farming, Polyculture farming, Post-communist Landscape, Trail Network, Infrastructure

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Abstract

Located between a vast agricultural plain and the sea is a 10-kilometer fragment of land. This plot both interrupts the agriculture landscape with an abrupt line of hills and frames a valley of wetland estuary. The location is ecologically sensitive, diverse and beautiful. The site is the epitome of Albania today, displaying natural beauty alongside abandoned infrastructure of the former communist agriculture complex. Among the ruins is a local populous that subsists on the natural resources through both industrialized and preindustrial farming practices.
This essay identifies the dilemma that faces this small fragment of land. It will question and interrogate the social, political and agricultural issues. It will seek to ask the questions for a landscape that finds itself undergoing economic pressure in rapidly developing Albania. Within the outlined constraints of context, time and place; a design proposition will be described that attempts to tend to, not fix, a small fragment of land containing a slow valley. (Fig.1)
Slow will be argued as an economic asset. This stands in contrast to many capitalist models but seeks to recognize the post-industrial context this fragment of land is situated. The valley is named in this study as slow valley due to both its relative speed in contrast to the city center and in the time needed to cultivate an agrarian life. It is intentional that the valley takes its name from the successful slow food moment in Albania. The modest design proposition presented is the physical manifestation that aligns with the slow food movement's values (Gowing, 2017).

Introduction

The landscape is often referred to as "natural" or "manmade" - terms that are both suspicious at best. Indeed, at one time the earth was undisturbed in a virgin state, free from altercation and human corruption. This ideal is what many scholars refer to as esthetic beauty itself (Pye, 1978: 96-116). The assertion is that beauty is our desire to return to the unaltered state of our world. Design compositions that are described as "beautiful" are generally aligned with the natural order of the environment. This summation is oversimplified, but the logic reveals a partial truth. Calculus, physics, and the language arts all use the order and logic of the natural world to seek fundamental truths. Proportion, color theory and other first principles of design also acknowledge that much of what we consider as beautiful are design compositions that bring order and understanding of our world. Tadao Ando speaks of beauty as "the elements of nature – water, wind, light, and sky -bring architecture derived from ideological thought down to the ground level of reality and awaken man-made life within it" (Nesbitt, 2008: 460). These principles spring from our desire to seek what makes us human. Esthetics without order or understanding of these principles is superficial. When designers afford the

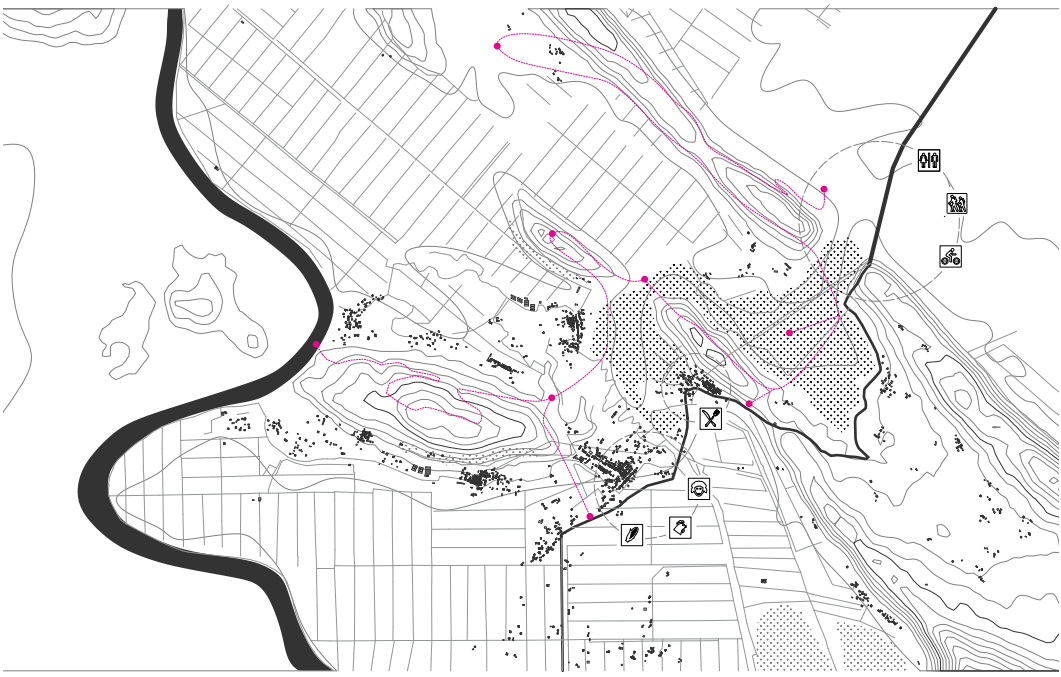


Fig 1 / Slow Valley
source / the author

world a landscape that aligns with our true human nature we find authenticity.

Reflecting on our natural world is only afforded by cartesian thought and an industrialized world where we are free from the toils of labor. Prior to industrialization more people suffered the toils of labor. Their decisions where shaped by survival, not intellectual meditations on the landscape. Alternatively, the land was crafted through a slow process of evolution that addressed long-term needs and created balance though polyculture farming. Farmers learned that rotating their crops and growing a variety of species maintained soil fertility. They learned that maintaining forested areas adjacent to cultivated land provided water filtration, erosion control, and blocked damaging prevailing winds. They understood the importance of healthy grasslands and where and when to move ruminant herds.

They found that domestic birds could follow behind ruminant herds to feed and fertilize the ground to maintain turf. When done correctly, farmers could maintain symbiosis and efficiently produce high yields. This system, referred to as polyculture farming, aligns with what nature requires by acknowledging where and how plants grew in the wild and how domesticated animals like sheep and chickens can be made to live like their wild ancestors (Pollan, 2016: 32-57). The successful polyculture farm was, and sometimes still is - beautiful. (Fig.2) The farmer can achieve beauty but more importantly by way of an intimate connection to the land. When achieved, farming is no longer laborism toil but useful work (Morris, 1184: 98-120).

The Yeoman, the Hammer, and the Sickle

The agricultural landscape and peasantry is held in high regard by most cultures. No doubt it is due to our human need for food and its importance to our security and survival. In a preindustrial state both Albania and Western Europe had proud and productive traditions of agriculture. It is understandable how emerging power systems in both America and in Albania, under the influence of communism and capitalism, used the romance of agriculture to centralize control of the food security of the Western world (Giedion, 1948: 130).

The Yeoman farmer was the pride of England and served as the idealistic farmer citizen for Thomas Jefferson when describing his vision for the development of the United States. Jefferson and others believed that owning and tilling one's land was a path to the most virtuous life calling the yeoman the "chosen people of God". They further believed that the honesty of agriculture would secure a non-corrupt system of government stating: "corruption of morals in the mass of cultivators is a phenomenon of which no age nor nation has furnished an example" (Harrison, 1945: 104-106). The honesty of staking claim to land and harvesting the fruits from the soil was regarded as pleasing to God. This became the ideological basis for the United States' vast continental grid that spans from the Ohio River west to the Pacific Ocean. The land was subdivided

Fig2 / Polyface Farms, Virginia, USA
source / Photo by Hannah Winstead

into a grid that delineated town and countryside to ensure land ownership and cultivation for Revolutionary War veterans and the influx of immigrants arriving at the Atlantic ports (Reps, 1997: 294). This agrarian idealism still resonates in most of the US today and manifest through sprawling land developments that still provide grass lawns or "land to till" even for those far removed from agriculture.

The hammer and the sickle were first paired together during the Russian Revolution and later adopted by Albania to symbolize the Unity of Industry (hammer) and peasantry (sickle). The pairing of these two tools marked the summation of, and a reaction against, the forces on all farmers and workers around the world. Beginning in England in the 18th Century the industrial revolution upended most of the farmer's ability to farm independently and symbiotically (Allitt, 2017: 03). Both Joseph Stalin, leader of the Soviet Union and Henry Ford, the American industrialist understood the power of industrialization. The true power was not in the products but in the consolidation of personal knowledge (Crawford, 2009: 37-53). Ford was able to capitalize on the craft knowledge of carriage makers by ingeniously distributing the tasks along an assembly line. This allowed Ford to hire unskilled labor to assemble his cars at a lower price. The personal knowledge of the carriage maker was no longer valuable or marketable. Stalin did much the same with the mechanization of industry and agriculture personified by the hammer and sickle. This of course was viewed as a populist ideal giving the industry and agriculture back to the people. To do so however, in an industrialized world, Stalin consolidated the personal knowledge of those people under a political and governmental entity. Many would argue rightfully that both Stalin and Ford provided paying jobs to many that otherwise would have never had one. That they allowed people that would otherwise toil in labor to survive by working a standard work day. A pluralist view does beg the question what is personal knowledge worth to the post-industrial landscape? What is the craft of carriage making worth and what is the epistemological value of agriculture? Considering the wealth of the Ford family today and of Russian oligarchs it is safe to state the price is quite high. There is evidence that Ford understood this and was motivated by this new-found truth. He famously said: "If money is your hope for independence you will never have it. The only real security that a man will have in this world is a reserve of knowledge, experience, and ability." The word "reserve" is curious, in that it implies that it is beyond any one person's compacity to have more, so you must acquire it from others. This quote is often used as inspirational, to motivate young people to seek education and self-betterment. Carefully read, it does not seem so generous, it appears to inform us of what he did to the craftsman of America. This observation is one that should be understood by leaders, policy makers and designers. As we move into a post-industrial and post-capitalist era what will be the importance of personal knowledge? Who and what groups of individuals and policy makers will hold

the epistemic knowledge of agriculture – the farmer, the corporation or the government?

The efficiency of mechanization spurred governments to encourage the consolidation of farms in an effort to increase production. Consolidation was a political act that had dire consequences on the epistemology of agriculture itself. No longer was a farmer maintaining a balance of symbiosis, but farming a single crop to maximize yields (Pollan, 2016: 1-15). This further drove the prices of agriculture commodities lower thus increasing the need for each farmer to increase yield and volume. The consolidation of farms moved farmers from being peasant citizens to obedient agriculture factory workers. This economic model is based on production and consumption and does not value symbiosis; the result is excess waste and loss of personal knowledge. The removal of purpose of the peasant citizen removed their control of the landscape and realigned it to a government entity producing the harsh environmental, infrastructural and economic realities faced by rural Albania today.

Slow Valley

The consolidation of farming that occurred in Albania is palatable as you drive from Shkodra to the coast along Rruga Shkodër - Velipojë. As you leave the dense urban environment of Shkodra and cross the confluence of the Drin and Bojana River the landscape opens up to a vast horizontal plain of agriculture. When viewed from above the land is subdivided in large plots by mechanized irrigation ditches where water is pumped from low reservoirs to the west and into the farm lands. The order provided by the former government does not seem to rule this land today. Greenhouses scaled to service large areas of land stand broken, altered or abandoned. Herds of sheep and their shepherds cross planted fields without consideration. Although purely observational, the land does not adhere to polyculture farming, nor does it operate as an efficient mechanized farming operation. An observer could easily assume that the agriculture is one that has lost its way. That it once was independent and at harmony with nature and free of political obstruction. With the decline of the former government's control over agriculture it is imperative that the Albanian farmers be supported in realigning their process with the natural order of the land. Align with nature, treat the land as it requires - or perish. Now the crumbling communist agricultural infrastructure is mixed with a peasantry trying to reestablish itself. Unfortunately, as a farmer, no matter your country, you can be abandoned by government and capitalism.

It is speed that shaped the Western world. Efficiency and mechanization was sought by all governments and corporations and still persists as the primary factor of profitability and measure of a nation's wealth. However, speed is linear, not circular and counter to the ideas of agricultural symbiosis (Giedion, 1948: 130-167). You cannot speed up a polyculture farm, it will mature when nature allows. When speed and mechanization fail both government and company will move on to new ventures leaving people and landscape behind. In this small fragment of land in Albania this is the case. Gone is hammer and sickle and the peasantry remain in what seems like slow motion to their urban neighbors to the east.

Anti-Colonialism and Restraint as Design

As architects and designers, we have been trained to "fix" problems or dilemmas we are given in the built environment. Our education and our profession encourage this with all good intentions.

We rarely question if what we are doing is appropriate if the overall intentions are to improve a communities' conditions. This leads to a neo-colonialist approach to design where the designer knows better and the peasantry will benefit from our intellect. The current occupants of Slow Valley do not appear to have benefited from top-down solutions nor have they been encouraged to prosper independently. Slow Valley is "slow", for the motorist traveling to the sea and for the peasantry, why as architects do we feel we should, or can, change this variable? Slow is good for plants, animals, and for this valley: any design proposition that does not accept this will fail as evidenced by the crumbling infrastructure. Slow Valley can remain slow but the pace of development in Albania is fast and likely to push over anything in its way (Aliaj, Shutina, and Dhamo, 2010) (Fig.3). Therefore, equally important is that any design proposition for Slow Valley recognize the speed and energy pushing in on it from the outside. To resist and remain sustainable for the peasantry it must find value and relevance to politicians and visitors alike.

The description and observations may seem dire but it does position Albania and this Slow Valley in a unique position in Europe and the Western world. In Western culture today, most food is

produced through industrialized farming with polyculture farming only existing as a novelty. The produce is sold as a better product with all the trappings of idealized past. The polyculture farms of the United States have all but been eliminated by large industrialized farms with livestock almost exclusively reared in mass feeding operations (MFOs) (Pollan, 2016: 226-239). Interrupting and competing with this mega-industrialized agribusiness is very difficult if not impossible. But Albania has a choice in the direction of the agriculture in the country and how the land is cultivated and cared for. Signs of the Albanian contextual disjunction with other Western countries can be seen on a plate of food in Albania. In season, it is unlikely that the tomato in your salad was flown thousands of miles on a plane so that you would have it "fresh". It is less likely that the eggs you eat are produced on the other side of the continent in mass hen operations. This is however the reality of most of the developed Western world. Eating local is a novelty not a standard reality for most of the Western world, however in Albania it still persists in many places. Ironically, the opportunity to maintain a symbiotic agricultural system is real in Albania and is partially happening today due to the failures of past government policy.

Polyculture Proposition

The conditions warrant an agricultural proposition of balance between polyculture farming and consolidated farming. This balance will provide both the volume necessary for Albania's farmers to be regionally competitive by maintaining a volume to yield ratio that is sustainable and provide possible export surplus available. The profits of this industrialized product should be used to subsidize polyculture farms dispersed in the same landscape. This will not only sustain the fertility of the land but also preserve the epistemological knowledge of farming so that it remains in the domain of the people - not the government or the corporation. This balance can and should be achieved through land division that not only maintains the percentage balance but ensures proximity and intermixing of polyculture and industrialized farms.

The industrialized and polyculture farming balance suggested can be debated in their proportions but the potential outcomes are clear: local produce and purpose for the peasantry. A designer's contribution is one that embraces the slow in Slow Valley and encourages visitors to shift their speed to accommodate that of the setting. The design proposal for Slow Valley is not heavy-handed infrastructure but a simple and slow trail. The trail meanders through the valley and the features along the way serve to tease out the beauty and assets of this unique place. The proposal is described through a series of vignettes consisting of trail and landscape condition each facilitating a strength of the land's time and place by addressing the needs of the peasantry and the visitor equally.

The Trail

A semi-pervious path to accommodate both the walking and cycling visitors alongside local Shepards and their ruminant herds.

Fig3 / Pop culture encroaching on polyculture
source / the author

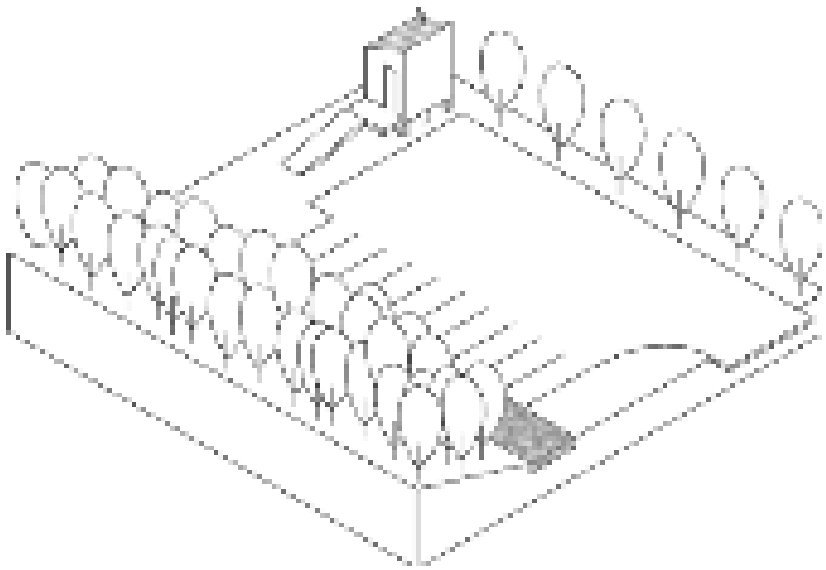
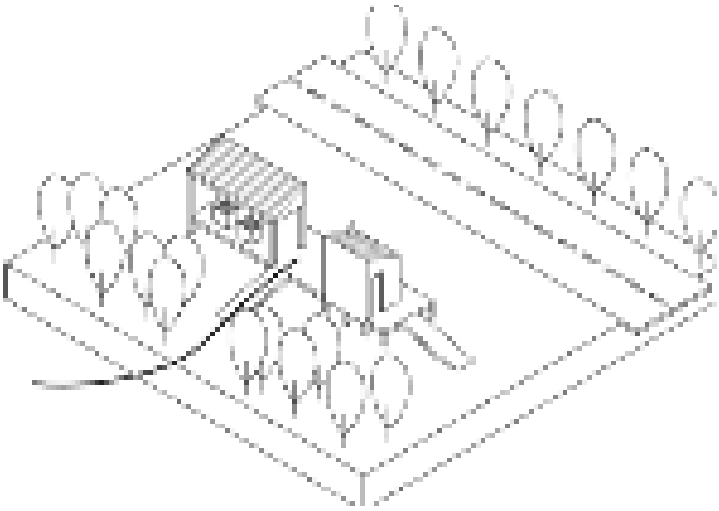


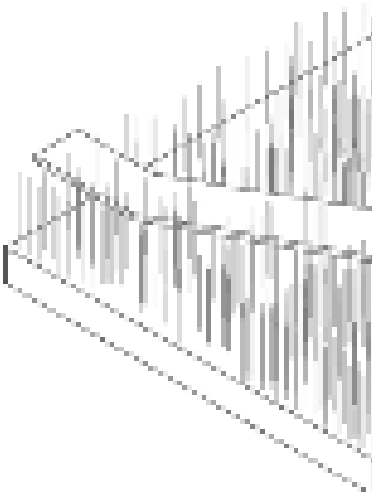
Fig4 / Slow down parking
source / the author

Slow down Parking. Situated between farm land and the opening of the hills is a simple parking lot with restroom facility that serves as the trail head. Visitors will be given the opportunity to park and walk or park and cycle through the valley. This is the point of departure and return for many visitors. (Fig.4)

Commerce. The trail passes strategically near the dwellings of the farmers and the road. In these locations, a small point-of-sale building will be constructed for farmers' use. These buildings occurring throughout Slow Valley will be an intentional point of overlap between the peasantry and the visitors. Polyculture farms can sell their produce to the visitors. (Fig.5)

Wetlands Hike. The path takes advantage of the ecologically diverse wetlands through a raised platform. As the trail approaches the center of the wetlands an observation tower will be erected to view birds and other wildlife that have been returning to the estuary in recent years. (Fig.6)





Distributed Forest. The trail will pass through the farm land. This will be interrupted by distributed forests between the cultivated land. The forest area will provide erosion control, water filtration and wind protection while also provide a scenic path for visitors. (Fig.7)

Livestock Refuge. Due to the frequent flooding experienced in the Shkodra region the trail will lead to the top of the rocky hills surrounding the valley. This will provide an obstructed path for livestock refuge in times of flooding. Additionally, these paths will provide scenic overlooks for visitors. (Fig.8)

River Dock. The trail will terminate at a river dock. This terminus serves as access to the river that is now inaccessible to most visitors. (Fig.9)

Conclusion

A simple trail will not fix this valley. No government policy or act of design can create an idealized agrarian utopia. Acknowledgment of this will allow architects, planners and policy makers to view their compacity for restraint as an asset. Slow Valley does not need to be "fixed" it only needs to be tended by design. This can be accomplished by small interventions as illustrated here by the trail. It can be achieved by governments that enact policies that seek to preserve the peasantry and the epistemological ownership they have earned. No monumental proposals will succeed, but by using restraint as an act of design Slow Valley will cultivate the land and accommodate needs of both the visitors and the peasantry.

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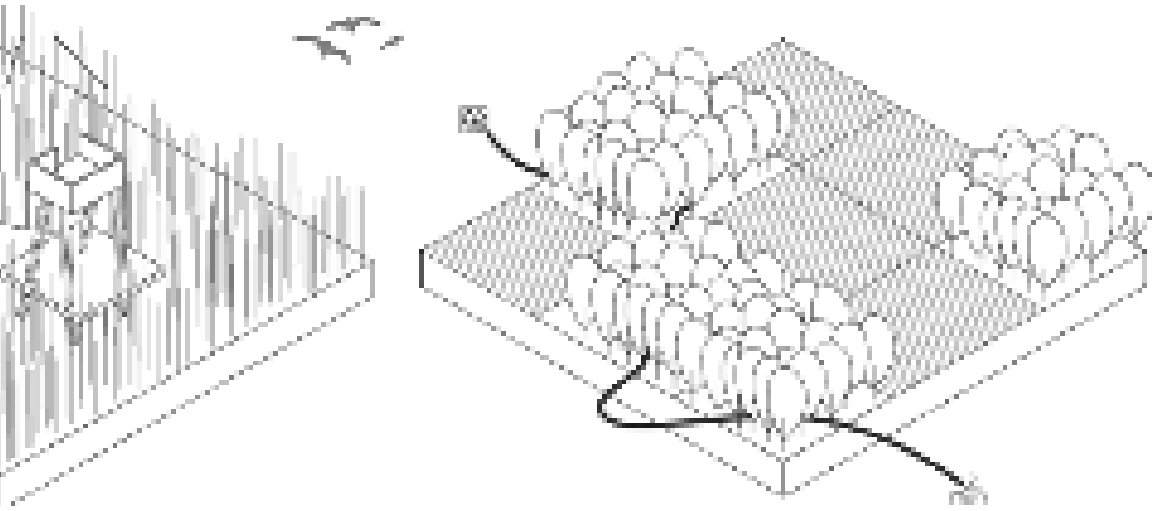

Fig5 / Commerce
Fig6 / Wetlands hike
Fig7 / Distributed forest
source / the author

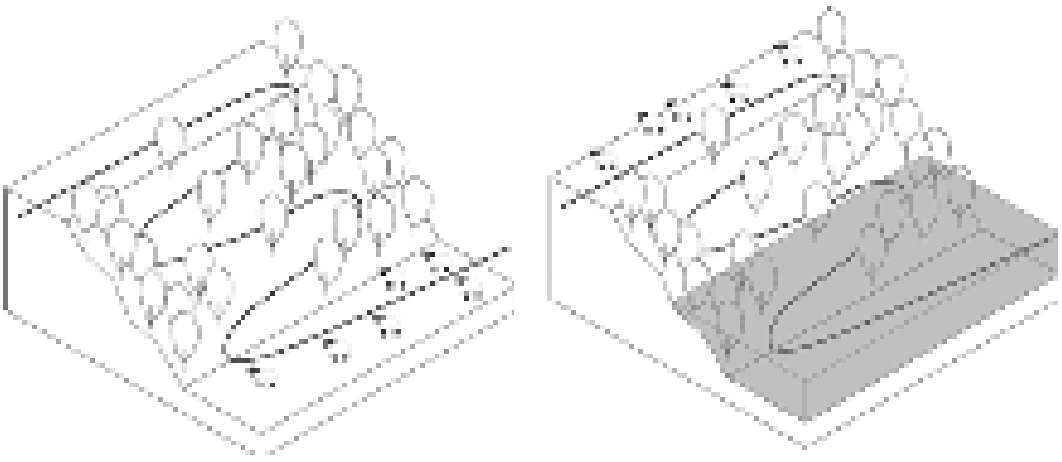

Fig8 / Livestock refuge
source / the author

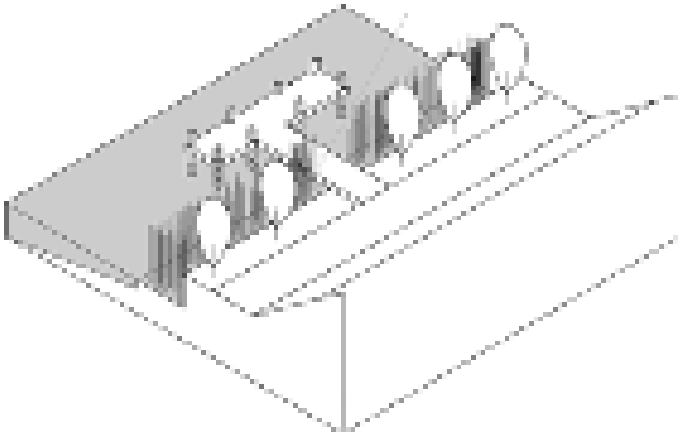

Fig9 / River dock
source / the author

Amphibious Devices / Interventions that adapt to land and water in the protected area of Bask-Rrjoll, Shkodra

keywords / amphibious devices, small intervention, protected landscape

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Abstract

Albania went through an unprecedented population movement that followed the change of regime after 1990. A movement that manifested itself both internally and internationally, it had a huge impact on Albanian cities and territory. What is known today commonly as the informal settlements, those buildings came as a result of lack of control by the local authorities which were unable to either stop or direct development and the need for housing that followed the movement. This meant that the landscape and territory suddenly became overrun by self-built homes or business that changed the urban, rural and natural landscape. Many of these developments where pulled by the western cost which offered the possibility for a quick return in tourism. The protected landscape of Bune-Velipoja and in particular the area of Bask-Rjoll have become a hotspot also for the agricultural possibilities offered, thus starting the first settlements that would go and change the landscape itself. The result of human behavior and interaction in landscape has caused damage to its biodiversity and flora and fauna. By understanding how the population movement have affected the settling and quality of the landscape, the aim of this paper is to propose seemingly disconnected interventions that aim at preserving landscape, flood resilience, coastal erosion prevention and emphasizing the qualities of the landscape in order to re-evaluate the landscape as a touristic attraction. By including communities and giving them a sense of belonging to the landscape these preservations processes can become regenerative tools.

Introduction: the where and the why?

Albania faced one of the biggest population movements in its history after the 1990s where the fall of the communist regime also meant that ban on free movement was lifted. The pressure of building up to this moment, alongside with the economic and political situation in Albania paved the way for much of the demographic movements. Movement was largely focused from the impoverished areas to the western lowlands which were also dictated by social and economic factors. 'The Albanian population was redistributed and concentrated mainly in urban and rural areas of the Western Lowlands, while Albania's mountainous areas experienced significant population reductions.' (Kopliku, Dibra, Krymbi, 2015, pp 255). Of course this movement was accompanied by an uncontrolled urban sprawl due to the lack of government control and regulations. The need for housing in a market where land ownership was prohibited before meant that there was no one to buy land from. This alongside the lack of control from the authorities meant that the sprawl would have an impact on the landscape. "Rural-urban migration turned into one of the main phenomena of Shkodra society after 1990 that took off as a result of the interaction of many actors, among them the change of economic structure and the allowance of the freedom of people to move. The urban and rural landscape became dynamic and changed in a short period of time, but in different ways" (Kopliku, Dibra, Krymbi, 2015,

Fig1 / Shkodra sprawl in the western lowlands
source / Google Earth

pp 254) Change meant also that areas which were rarely built like the Velipoja became hotspots not only for habitation reasons but also economic. A very fast development of this region alongside a fragile market pushed development to move over the Viluni Lagoon and into the protected landscape area of Bask-Rjoll. A first degree protected area that is also home to a large scope variety of wild flora and fauna and domesticated farm animals. A biodiversity shared between the area itself and the Viluni Lagoon, it is home to at least 183 species of birds and many more inscents, plants, fish etc. as stated by the Municipality of Shkodra – Biodiversity Protection Plan (Municipality of Shkodra, 2017).

This specific situations asks for a delicate approach to the matter. On one side the area is a protected landscape, on the other side current developments and touristic services have spread over to Bask-Rjoll from the Velipoja region. It must also be noted that the biodiversity of the area was also highly damaged due to waste and building waste being badly managed

Fig2 / Shkodra during the flooding (2010)
source / photo by Edmond Hoxha

by the authorities. On top of the touristic services, some people have made their homes closer to the hill who is in danger of landslides due to deforestation. Closer to the Viluni lagoon flooding has become a recurring problem mostly being caused by damaged infrastructure due to uncontrolled sprawl. A common argument used is connected to the presence and impact that humans had on the landscape and that these areas should be heavens without humans.

'Protected landscapes are cultural landscapes that have co-evolved with the human societies inhabiting them. They are protected areas based on the interactions of people and nature over time. Living examples of cultural heritage, these landscapes are rich in biological diversity and other natural values not in spite of but rather because of the presence of people. It follows that their future relies on sustaining people's relationship to the land and its resources.' (Brown, Mitchell, Baresford, 2005)

So that relations between humans and landscape become vital to the sustainable development of the landscape and its preservation. And although it may face different challenges, answering those challenges in ways that will regenerate and protect the landscape and create a touristic attraction and possible revenue is the approach of this paper. Creating possibilities for habitants to create a connection to the environment. This paper tries to propose solutions, nicknamed amphibious devices' that would adapt to the specific landscape conditions of in between land and water in order to kick start preservation processes in the protected area of Bask-Rjoll. By understanding the reason of the population movement to this new area and creating solutions that would give them a sense of belonging to the landscape, amphibious devices aims to propose lightweight small interventions.

The Context: Shkodra the northern capital and its expansion

Shkodra is certainly one of the most influential cities of Albania, as well as the northern center of the country. Through the years it has established itself as one of the most important centers, which has led to cultural exchange with neighboring centers as well as, and more importantly, to Shkodra being one of the most diverse cities in Albania when it comes to architectural heritage and culture. Its geographical position, closeness to the sea as well as the Shkodra Lake, have given the city a greater importance in the region. The proximity it had with Italian port cities but also the land routes to important settlements made it a focal point for the whole region. The 2015 territorial reform changed Shkodra's borders to include different areas like the touristic beach of Velipoja on the west, and a number of smaller communes in the east thus greatly increasing the number of inhabitants and terrain under the control of Municipality.

Over the past 15 years, about 20 percent of adults have moved internally. This means that about 450,000 individuals currently reside in a place different from

where they were in 1990. (World Bank, 2007) If we take into account all movers since their birth, than approximately 1 in 3 Albanians has moved internally and is not living somewhere else than where he was living in 1990. Prior to that year, any kind of migration was tightly regulated and prohibited by the communist government and was virtually non-existing. As the trends studied by the World Bank in their 2007 report show, this migration had its peak between 1990 and 1998 which is correlated to the fall of the pyramid scheme. Internal migration in this case was used as a coping strategy towards the shock caused by the collapse. Since 1990 the majority of internal migrations comes from rural areas not surprisingly. About 2 in 3 migrants (65.3 percent or 291,000 individuals) have moved from rural areas, even though rural population was about 56 percent and falling (it stood at 52 percent in 2005) during the period (World Bank, 2007) However, surprisingly, about 40 percent of those individuals have relocated within rural areas, often across regions. Although central Albania was the most preferred region for migration, in general the western lowlands had the biggest internal population movement with population from mountainous deciding to move to more friendly territories.

The geographical position of the city situated in a lowland beside the Shkodra Lake and surrounded in the north with mountainous area has played an important role in shaping the factors for the population movements in the region. Its hydrography is a delicate one as it is in the intersection of the rivers Drin, Krin and Buna and the Shkodra Lake. This gives the topography a quite particular relationship between land and water. Access to the rivers and sea as well closeness to the city of Ulcinj across the Montenegro border shows the strategic position that the city holds in the region. 'This favorable set piece has always determined the early fate of Shkodra as the socio-economic and political center of the northern Albania' (Kopliku, Dibra, Krymbi, 2015 pp 254). The role as a host city for the permanent or temporary settlers from the surrounding areas was overshadowed during the communist regime because of the ban to the free movement. 'This role was revived after 1990 when the city of Shkodra, as in earlier historical periods, became the main destination of the arrival of internal migrants from rural areas from the north of Albania' (Bërxholi, 2000).
Although after the fall of the communist regime in the 1990, Albania faced one of its greatest challenges and biggest internal and external migrations ever. The new unexperienced governmental structures as well as the desire of an oppressed population resulted in over 400,000 self-built settlements being built in uncontrolled areas (Ministry of Urban Development, 2014). The population was redistributed and concentrated mainly in urban and rural areas of the Western Lowlands, while Albania's mountainous areas experienced significant population reductions. "During the transition period the population of the District of Shkodra fell by 10.1% being in the category of Albania districts that experienced the lowest number of decreases" (ETF, 2007). As of 2011, after seeing an increase in the first decades, the population of Shkodra and the national trend saw a decrease coming mainly from mass immigration as well as a lower birth to death ratio than previous years which had a huge impact in the population not only in a national scale but also in the population distribution within its borders.

'In many cities the majority of new immigrants, were originally placed in the suburbs, not in the traditional areas of the inner city, dominating and transforming the landscape of its outer quarters. This trend is also confirmed for Shkodra, especially in the early years of transition.' (Kopliku, Dibra, Krymbi, 2015 pp 260) Uncontrolled building meant that often people would damage natural systems and infrastructure unconsciously. So the natural ability of the land to mitigate floods became less effective which brought the famous floods problems discussed further down. As figure 1 shows the landscape and agricultural lands have been impacted tremendously by the uncontrolled sprawl. The population was mainly aiming for the most western areas, like the Velipoja and Shengjin area and the corridors in between where the most favorable land was. The ability to get an economic return due to the tourism meant that there was much more of a rush for everyone to build there.

SELF-CONSTRUCTION: the uncontrolled urban sprawl and its effects on the territory

'In the summer of 2000, it seemed that half of Albania was building itself a house' (Nicholson, 2001, pg 39). Land usage changed its character mainly due to the peripheral regions being under the biggest pressure to change and accommodate the new densification. Uncontrolled building led to a lower quality of environments for these new rural neighborhoods as

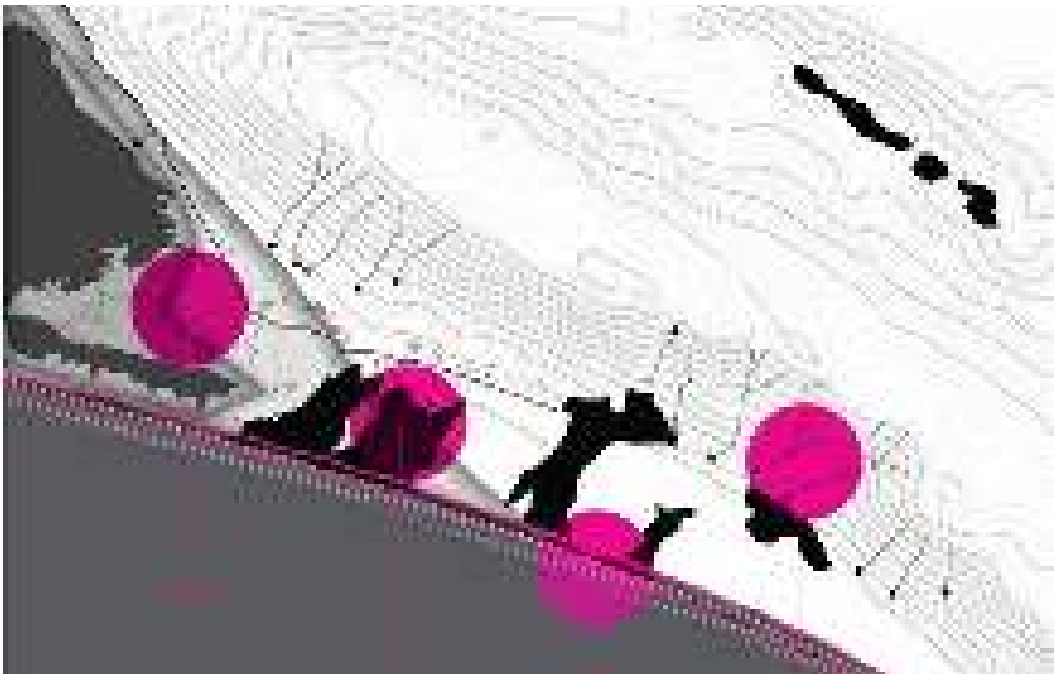


Fig3 / Map of the risks of the area, done during the workshop
source / the author

well as creating urban sprawl. The land usage changed character resulted from the pressure mainly on peripheral areas leading to densification, reducing quality of these neighborhood environments as well as the urban sprawl. Although the population of city of Shkodër has declined, the population of the Municipality of Shkoder has increased because it has been subject of an intensive and fast urbanization. The specific weight of urban population grew from 34,9% in 1990, to 37,4% in 2001 and then to 44,3% in 2011 (CENSUS, 1990, 2001, 2011). The informality and sprawl that became part of Shkoder and Albania after 1990 were mainly because of multiple causes, like an increasing demand for residence, a growing demand for better quality housing, the inability of the government to provide either of those as well as the lack of control that the government had over the territory.

The new borders of Shkoder gave the municipality of Shkodra both new opportunities and challenges to face. This new municipality area faces the dangers of floods and coastal erosions. The Rivers Kir and Gjader and their sedentary composition, continuous rains for a number of days, snow melting in the Alps' region, Shkodra lake that discharges water on the Buna River as well as not complying the territorial capacities due to bad management have led to disastrous floods such as the one in figure 2. Uncontrolled building and interventions have led and opened the way to flooding problems, mainly originating by, among other causes, deforestation, interventions to the river basins, building in high-risk areas, deforestation, damaged drainage systems etc. Other threats come from the sea, were coastal erosion has been a problem that all the coast of Albania is facing. All these have Coastal erosion as well as rising sea levels are now part of Shkodra's worries in incorporating the touristic area of Velipoja which includes a medium-high density touristic area which is mainly composed of informal buildings as well as a protected landscape of Baks-Rjoll which is located south of Velipoja. The area was not immune to the uncontrolled building period in Albania, alas also being a touristic area thus giving economic advantage to whomever could build first.
As the Municipality of Shkoder continues to grow and tries to fix its past mistakes, the challenges it faces in terms of landscape preservation as well as preparing a disaster resilient municipality for the coming years have laid the work for it. In a world where climate change, rising sea levels, floods, and other natural disasters are becoming more and more common and easier to predict, it is only normal to pretend a society that can adapt to the challenges. On top of all that, working on protected landscapes raises new challenges on its own.

PROTECTED AREA OF BAKS-RRJOLL: the study area

The Bask-Rrjoll area was declared as part of the "Buna River-Velipoje" protected landscape in accordance to law nr.8906, date 6.6.2002, "For protected areas" and a first degree protected area. This includes

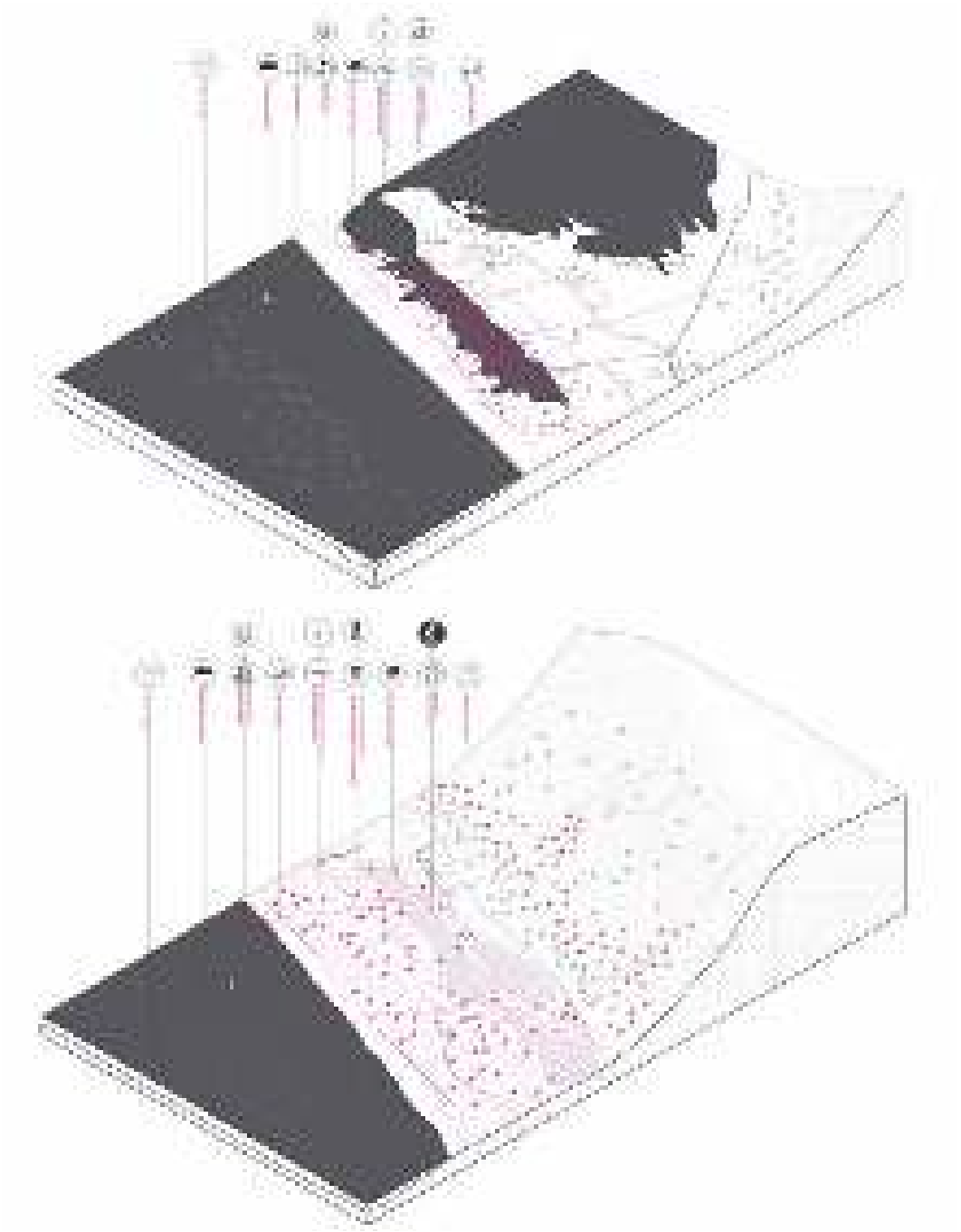


Fig4 / General overview of the interventions source / the author

Viluni Lagoon, 300m south-east of the shoreline and up to 327m to the Kolaj mountain. And although protected by law, the area of Velipoja and Bask-Rjoll are one of the areas mostly influenced by the uncontrolled growth and sprawl of the 1990s. While Velipoja has established itself as one of the fastest growing touristic areas in Albania, Bask-Rjoll is showing a tendency towards touristic development which must co-exist with both the opportunities and challenges that it offers.

Biodiversity is one of the strong points of the area, offering medicinal plants like sage as well as grass and tree types growing in the swamp area, and rare birds compose just part of the biodiversity of the area. 'During the last two decades, uncontrolled human activities have resulted in a biodiversity loss, where a few species are headed towards extinction. The biological diversity of the area includes all plant and animal life, along with all genes and ecosystem it contains. (Bejko 2012). Uncontrolled building and interventions mainly built to service the touristic area and individual businesses rather than the community have also impacted the area negatively. One of the main reasons for this is also the lack of knowledge from the inhabitants and infrastructure to control and protect the area (Local Environmental Action Plan, Velipoja Commune, 2006) Not planned but uncontrollably adapted

as 'touristic development', Baks-Rjoll will have to adapt to these challanges. The risks of coastal erosion, land slide, flooding, biodiversity decline and a landscape that should be protected are just some of the challenges laid in front of it. 'The cultural and natural values of landscapes are inextricably linked, and the communities living in or near these landscapes are central to sustaining them. It embraces the central role of indigenous and local communities as stewards of the landscape and puts them at the heart of management of these protected areas, sharing in the benefits and responsibilities of conservation.' (Brown, Mitchell, Baresford, 2005)

'Protected areas should include those lived-in, humanized landscapes where people and nature live in some kind of balance. These places, and the communities that live in them, are important in themselves and for the lessons they can teach all of us about sustainable living. This is the idea behind Protected Landscapes and Seascapes' (Phillips, 2002). This kind of approach asks for interventions that will not only protect the current landscape but make it flourish not only for its current or future biodiversity but also for the population which must co-habit the area and protect it. The synergy that local communities can form with their environment can and should become an integral part to every proposal.

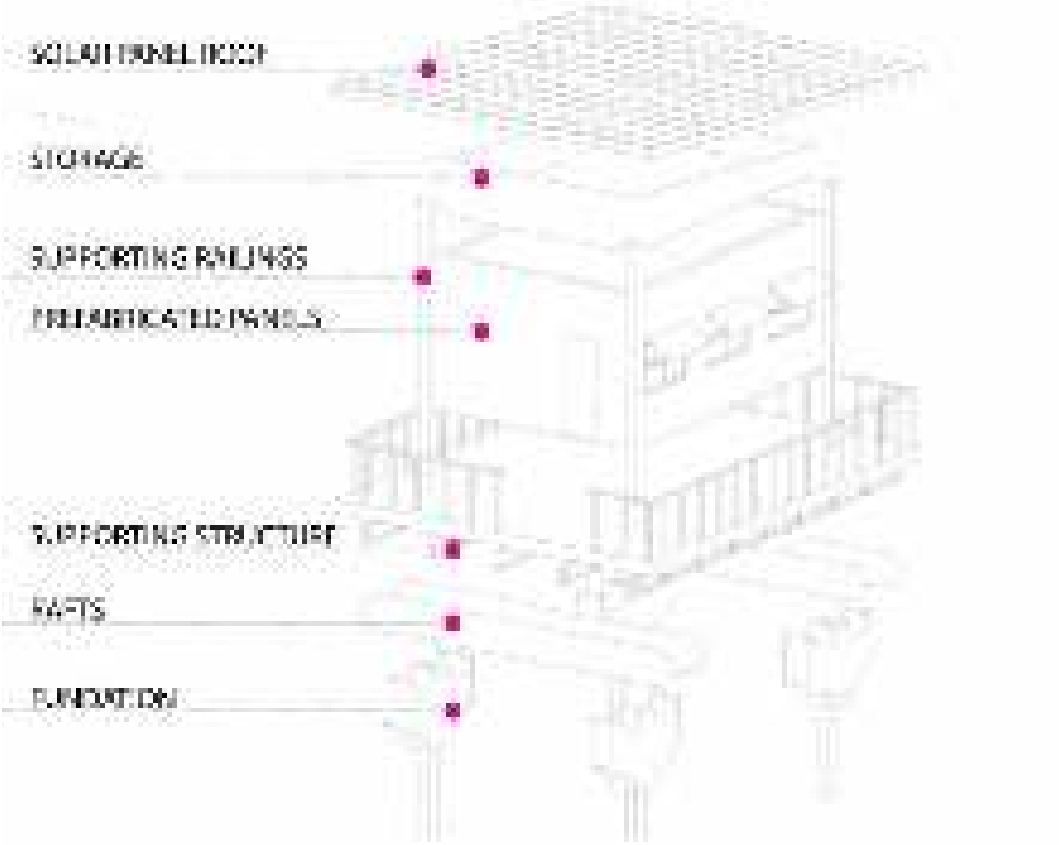
A POSSIBLE SOLUTION FOR THE FUTURE: Amphibious Devices

Complex protected areas like Baks-Rjoll, especially areas which during the recent years have mostly worked against protecting its landscape rather than towards, pose a challenge in implementing different types of small interventions. Those intervention should be able to "jump-start" a series of movements to regenerate and protect an area that otherwise has been declining in the past years. From the map and territorial analysis done and as mentioned above, threats like land erosion from the sea, land erosion from deforestation, flooding, decline in biodiversity as well as a direction taken in becoming a touristic area just the tip of the spear. In a society that is now working to prevent rather than fix, Baks-Rjoll must be equipped with systems that can help preserve and nurture its biodiversity, protect the land from sea erosions as well as offer housing and touristic opportunities that can be flood resilient and gentle to the landscape itself. The interventions proposed aim to address the main issues that the area is facing. On one side the the touristic developments of Velipoja are pressuring the still not urbanized part of the sea line that stretches south past the Viluni Lagoon. On the other side the area is known for flooding risks and as a protected landscape. Erosion from the sea due to strong Shiroka Winds and tides have been a factor to the constant decline of the shoreline. Pollution as well as the fact that the area has been declared a protected landscape and is home to rare birds and medicinal plans asks for a particular approach. The interventions aim to create tools and operations to preserve the coast through artificial interventions and improve the current conditions. It offers a set of sand dunes and a barrier of reef balls and also the mountain using local vegetation. The wetlands present in the area have been the home of rare species of birds and the so called amphibious devices aim to reinforce the current landscape, to create better conditions for the local species to breed and live in the wetlands. Benefits from these interventions would in turn create opportunities for new kinds of tourism, like bird watching, allowing for monetary return which in turn can also create a touristic attraction for people who love bird watching.

The amphibious house

Based on the design of a house that rises with the sea level[1] the last amphibious operation proposed comes in the form of Amphibious Housing. An amphibious house can be defined as a building that rests on the ground but can adapt to incoming floods raising along with the water level. Amphibious construction brings together standard components solutions from both the construction and marine industries to create intelligent solutions to flooding. Construction of these structures is slightly more expensive rather than mainstream house building due to foundation system that allows the house to raise but overall costs can be comparable. The technology is suited for areas with high flood-risk or where there are uncertainties about possible future flooding levels or for historical or sensitive landscape solutions where a more radical or heavy handed solution would not be preferred. Construction costs can be further cut down by adopting digital fabrication construction techniques. Allowing for customizability and on-site production, digital tools could further

1 / see www.treehugger.com/sustainable-product-design/amphibious-house-design-goes-with-the-flow-rises-with-floods.html



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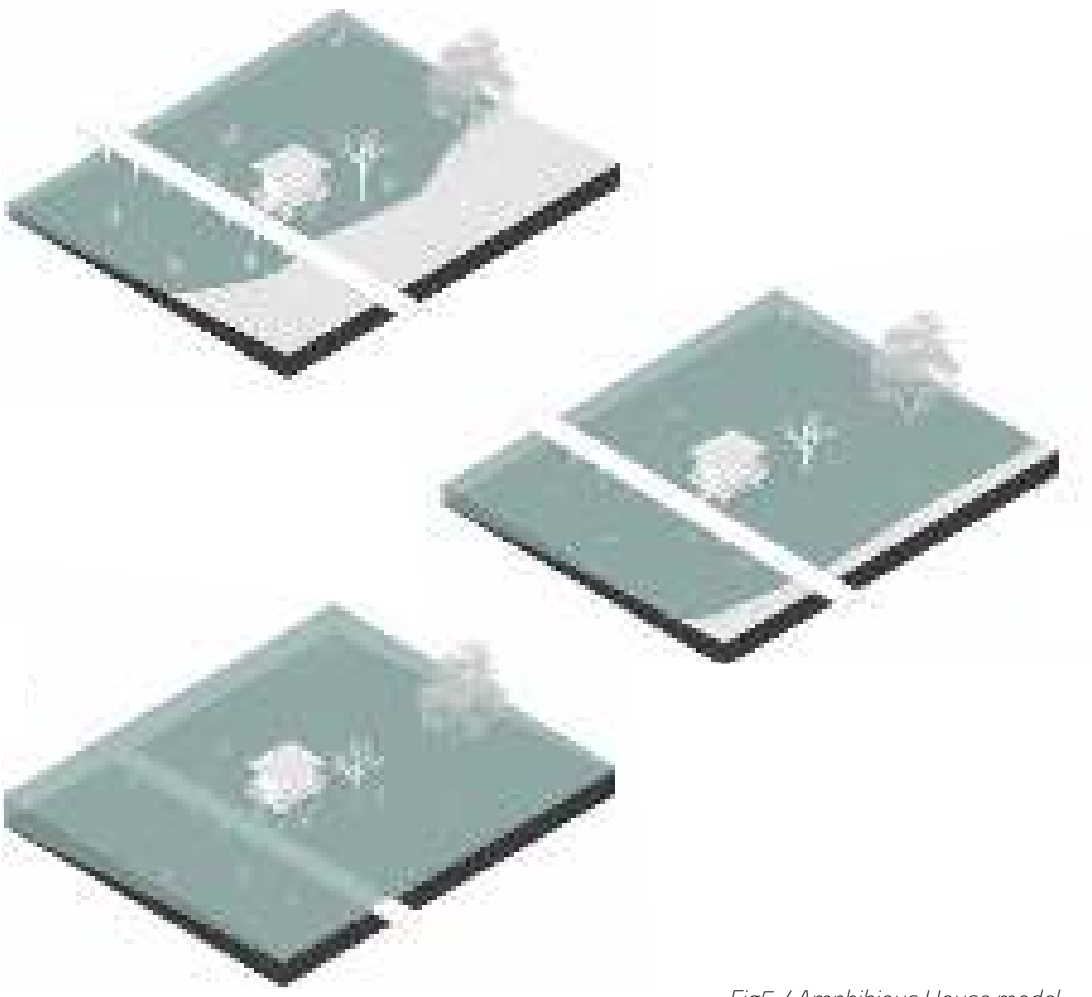

Fig5 / Amphibious House model source / the author

develop and give more reasons to rely on this solution.
As mentioned above, and with flooding being a recurring problem of the area. The proposal presents prototype of a floating house that rises with the water level. The house itself remains undamaged while the platform floats on the rising levels of the waters, being kept balanced by the vertically moving columns. Sitting on 4 floating rafts, the house is lifted along with the water while remaining anchored through the columns. The house themselves can be equipped with solar panels to provide clean energy, cleaning filters for the water as well as all built on sustainable local materials.

Conclusions

The key areas of significance of protected landscapes, as described in IUCN's "green book," are high scenic quality, diverse associated habitats, flora and fauna along with manifestations of unique or traditional land use patterns, and social organizations as evidenced in human settlements and local customs, livelihoods, and beliefs (IUCN, 1994). Protected landscapes are characterized by an harmonious interaction of nature and culture, of diversity of landscape and habitat, biodiversity, and the preservation of the cultural and social fabric that give character to the protected landscape. The solutions proposed are all solutions that aim at emphasizing and protecting the landscape, while creating a relation between the community and the area. All interventions can adapt to the changing qualities of the landscape but still need human intervention to work and protect throughout time. Creating a more sustainable solution for those people to live and be part of the landscape, it's a way to make sure that the landscape will be 'looked after' for years to come. All this development can also be closely tied to tourism as well. Preserving this landscape would offer the area the unique possibility of offering a mixture of ecotourism, bird-watching, coastal tourism that is bound to bring income to the families. In a way the process of preservation of the landscape become a method of valorization. Preserving those landscapes and promoting them should be first and foremost done by the communities themselves. Landscape and land valorization can come through these interventions that aim to empower the landscape and the relationship to its people, where they become the main protectors and promoters.

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Fig1 / Shkodra Lake
source / Eranda Janku

Toolkit design methodology / Architectural project by use of classification and taxonomies

keywords / toolkit, design methodology, metaphor, taxonomy, landscape

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Abstract

The paper is focused on a methodology carried out to approach landscape and urban design, on the base of a codified process, during an international design workshop that took place in Shkodra. The fragment comprises the mouth of the Buna River, ranging from the Albanian part of the delta to the western side of the marsh. The even landscape changes drastically every year, and often more than once, in a waterbed with houses and stables apparently floating on it. Moreover, informality along the street and the coast spread unfinished buildings, reducing the draining capacity of the area and putting in danger those who decided to move there.
Here we suggest a methodology built on a system of localized interventions. As Jan Neutelings pointed out, we need to find new metaphors to read those diffused cities that do not establish a recognizable relationship between the inside and outside, figure and ground, city and countryside, as they provide green spots, which contain built spots too. His metaphor of the patchwork, deflated the idea of a comprehensive large-scale design conducted by an isolated agent. We should not forget that Albania admitted the rules of the free market only during the 90s, at a mature stage of the European liberalism, causing an explosive run from state-owned lands to fragmented private properties. Then the main issue is the distance between the author (of the plan) and the user, and the way the latter can bend and transform certain rules according to his needs.
The proposed design is a soft landscape infrastructure that analyzes the overlapping artificial and natural pattern striving to enhance the natural diversity of the area, though addressing natural and human threats. The overall process is intended as an architectural toolkit that gathers three steps up to the final strategy: the formation of an analytical tableau; the visualization of a new geography; the definition of the architectural toolkit.

Introduction

The paper is focused on a methodology carried out to approach landscape and urban design, on the base of a codified process, during an international design workshop that took place in Shkodra (northern Albania). According to the curator's view, the overall picture of the territory is meant to be a juxtaposition of projects carried out individually. In our case, the fragment is the one that comprises the mouth of the Buna River, ranging from the Albanian part of the delta to the western side of the marsh. Namely the access of Shkodra to the sea. Here is an alluvial plain bordered by a thin and long ridge that stretches North-South. So that we can consider this mountainous formation as a natural threshold to the plain that separates two spatial domains: that of the coastal marsh, and that of the city-lake. There are only two small interruptions, and one of the two lets the street from Shkodra reach Velipoje and the seaside. During the rainy period, the basins around Kukes (Albanian Alps) need the dam to release abundant waters that will eventually flow down along the Buna. Because the

Fig1 / Concrétisation du tube électronique
source / Simondon, 1958

aforementioned ridge retains this water, the even landscape gathering farmed fields changes drastically every year, and often more than once, in a waterbed with houses and stables apparently floating on it. Moreover, informality along the street and the coast spread unfinished buildings, two-level houses as well as five-story apartment blocks, reducing the draining capacity of the area and putting in danger those who decided to move there.

Even if the real estate pressure diminished the attractiveness of the landscape, we do not believe that the actual scenario of urbanized countryside would be still reversible. For these reasons, the community[2] would probably reject and antagonize a fixed long-term project. We rather suggest a methodology built on a system of localized interventions. And more specifically a number of tools that are flexible in their implementation to a certain degree. While we will later clarify how the terms "tool", "system", and "flexibility" affect the project, is now useful to introduce the metaphor of the toolkit.
As Jan Neutelings pointed out[2], we need to find new metaphors to read those diffused cities that do not establish a recognizable relationship between the inside and outside, figure and ground, city and countryside, as they provide green spots, which contain built spots, too. His metaphor of the patchwork (Neutelings, 1990), as well as that of the archipelago (Ungers' manifesto for Berlin) (Hertweck and Marot, 2013) and many others, deflated the idea of a comprehensive large-scale design conducted by an isolated agent (architect, office, or institution), preferring a process of identification of single patch/ island as minimum spatial unit to be designed individually. Very often these reference images are taken from biology and other sciences. We should not forget that Albania admitted the rules of the free market only during the 90s, at a mature stage of the European liberalism, causing an explosive run from state-owned lands to fragmented private properties. Then the main issue is the distance between the author (of the plan) and the user, and the way the latter can bend and transform certain rules according to his needs. And most importantly how to control the outcome of a series of individual agencies or a collective one occurring in different times. As an example, these actions show a parasitic pattern along infrastructures (as it occurs along the street connecting Shkodra and Velipoje). Given the lack of a proximity relationship, the resulting geography cannot be understood as a spatial composition but rather a system of distant relationships based also on economic and social relationships. In our case, see the vicinity to Montenegro and the seasonal tourism due to the sandy beach in Velipoje.

The proposed design is a soft landscape infrastructure that analyzes the overlapping artificial and natural pattern

1 / Here considered as the sum of farmers, seasonal and long-term inhabitants, users, tourists.
2 / See Jan Neutelings' interview by Carlo Pisano (Pisano, 2018).

Fig2 / Juno and her handmaidens seated before the painter Zeuxis, and Parrhasius rushing to unveil his painting before a group of observers. Engraving by J.J. von Sandrart after J. von Sandrart source / Wellcome Library no. 34375i, London

striving to enhance the natural diversity of the area (wetland, meadow, rural area, coast, urbanization), though addressing natural and human threats.
Thus, the analysis of the context, considered as the dialectic tangle of built and rural system, consists in isolating the main features of a place that could trigger new scenarios, interacting by their size, position and material quality. The overall process is intended as an architectural toolkit that gathers three steps up to the final strategy: the formation of an analytical tableau; the visualization of a new geography; the definition of the architectural toolkit.

The formation of an analytical tableau

The formation of a tableau is essentially based on the work of reading the territory with an object-centred approach to spatial analysis. Mainly grounded on the literature that investigated technical objects since the end of the nineteenth century, one can consider the set of architectures and natural elements as a system of objects that is continuously changing and expanding. In the same way, mechanization drove rapid updates of everyday items that directly affected the evolution of their form.

We believe the present form of an object is the result of a long evolutionary path, in which Gilbert Simondon, in his On the mode of existence of the technical objects, demonstrated the symbiotic relation between components and the system they make work together. He approached technical objects as biological species, studying their modes of existence in an evolutionary taxonomy (Fig. 1). Therefore, one can see his famous picture that depicts the (technological) evolution of the electronic tube, in which the autonomy of the component from the system (the circuit) reflects an individual formal evolution of the sub-object. For this reason, "if we wish to define the laws of the genesis of a technical object within the framework of its individuality and specificity, we had better not begin with its individuality or even its specificity but, rather, reverse the problem" (Simondon, 1958: 12). This means we have to start from the process of creation and then identify its individuality and specificity, since "an individual technical object is not such and such a thing, something given hic et nunc, but something that has a genesis" (Simondon, 1958: 12).

To expand this reasoning on the object and sub-object in aesthetics, let us take Cicero's narration about Zeuxis. He aimed at representing Helen of Troy, considered as the most beautiful woman in the world, gathering the best parts of young girls from Croton. Since he could not find a model graceful enough to be compared to Helen, Zeuxis composed five nude parts from the most beautiful virgins of the place (Fig. 2). In doing so, he probably triggered, during the 5th century BC, one of the first composite method to reach an ideal beauty. This composing process, that here we maintain it can be compared to that of architecture, was grounded on discrimination and selection (Crowley, 1998: 31). These two crucial actions

carry out an analytical reading that lets the creator grasp significant pieces of a manifold reality. Finally projecting a vision, in the form of an idealized image, that would re-elaborate, in a positivistic way, the biased original situation. Moreover, the initial selection of significant objects and details is not to be considered an impartial, pragmatic, phase, but rather the beginning of the inventive process itself, in which one has to define the rules of the game. Quatremère de Quincy underlined that each selection is driven by an outcome (Cramer, 2006: 29-31). It cannot be conducted in absolute terms and implies a number of criteria, according a specific cognitive position, to project the expected final image. Or better, the range of possible outcomes.

Such abstraction of reality is based on the possibility to find categories as well as erasing what is not important for the sake of the project. Binary reasoning activates certain spatial qualities while leaving, on the background, some others that could weaken or blur the comprehension of the initial setting. Inevitably, generalization takes the object to a state of "disengaging it of its accessories" in order to "bring as much of the object as is possible to the simplicity of its principle, to the moral unity of its nature"[3].
Finally, drawing and re-drawing activity of the territory entails a process of collection and classification. Artificial and natural features are framed in an encyclopaedic discourse, and understood as a system rather than an historical genealogy. Thus, one is able to compile a tableau of forms comparing natural and artificial layers, on the same operating table, based on their form, position, material, and dimension. Especially focusing on architectural consequences.

The visualization of a new geography

The creation of a world of forms is an inventive process that starts from a biased analysis of the context with the aim to set one's toolkit, where physical space is treated like an operating table and looked at by means of a medical gaze. As stated by Michel Foucault, pathological anatomy, through procedures that involved the cutting of corpses and observation of open bodies, later influenced the structure of other sciences. Especially concerning what was related to spatial knowledge as a new approach in scientific investigation[4]. In our case, Foucault's tabula "enables thought to operate upon the entities of our world, to put them in order, to divide them into classes, to group them according to names that designate their similarities and their differences – the table upon which, since the beginning of time, language has intersected space" (Foucault, 1970: xix).

In the history of architecture and geography, we have several exemplar classification projects from which to learn different inventive methodologies that created new geographies. At the urban scale, Giovanni Battista Piranesi, in his 1762 Il Campo Marzio dell'antica Roma, invented a radical image of the ancient Rome, making his historical and literal sources the sole instruments to arrange the reconstruction of an entire city. He mixed archaeology and invention, making monuments from literary sources and historical ruins overlap with a personal interpretation of "romanity", finally conveying an extensive megalopolis made up of large-scale edifices. So that Piranesi conveyed a utopian reinvention of an urban environment based on one's arbitrary experience. On these premises, Carlo Aymonino and Aldo Rossi expanded his methodology in the 1950s, employing the figure of the analogy to study the relationship between architecture and the city, mediated by history and memory. And they were probably influenced by Foucault's work on the deep structure of language and the way this structure generates new meanings (Boyer, 1996: 129-202). Piranesi also imagined a city that is the sum of large-scale edifices, anticipating the idea of bigness[5] that one can find in contemporary debate about urban morphology and social condensers.

Few years later Paul Marie Letarouilly conducted an important encyclopaedic survey, devoting 13 years to draw plans, sections, and elevations of sixteenth and seventeenth century architecture in Rome. The Édifices de Rome moderne (Letarouilly, 1840) is an open-ended project about the eternal city, and a formidable source for renaissance academies as an important reference for residential buildings. Counting on the three volumes of the book, the French architect

3 / Here Quatremère de Quincy is quoted in Cramer's text (2006: 30) in the context of its dissertation about selection-theory and abstraction-theory as opposed to the Neoplatonic process of inspiration.
4 / A detailed account on how Foucault's thinking is related to space, and architecture field as well, can be found in Foucault for architects (Fontana-Giusti, 2013).
5 / The word "bigness" is a successful term mainly related to Rem Koolhaas' theoretical work, from S,M, L, XL on.

Fig3 / Comparative size of lakes and islands source / Colton, 1856

put the surveying activity at the beginning of a new architectural sensibility. He consolidated specific typologies, such as the Italian palazzo, and most importantly, he abstracted certain spatial archetypes that those building featured with the aim to mediate the public space, in order to be reused elsewhere as successful formulas. In many plates, for this reason, we can find dedicated drawings focusing on porticoes, loggias and niches.

The process of identification and classification, here proposed to be a fertile way of preparing the designing phase over a spatial domain, not only involves buildings and built environment in general, but also those natural features that have strong formal consequences on the city. One interesting collection of geographical objects collected on the same scale is the comparative tableau of lake and island, on the base of their size and form, formerly published in 1856[6] (Fig. 3). Due to iconic works published by important naturalists in that period, like John James Audubon's Birds of America, physical features entered the field of evolutionist theory. In that plate, it is as if an ornithologist applied the same analytic gaze of research on geographic entities, lakes and islands, on a unique scale, translating his methodology on a much larger scenario. That way of drawing a set of lakes from all over the world, must have caused a deeper understanding of water bodies on a global scale. Where the masses of more than one hundred and fifty lakes and islands of the Western and Eastern hemisphere gains finally their autonomy.

The definition of the architectural toolkit

The final stage is that of the operative toolkit, made up of objects and/or actions, condensing the idea of the overall design. That exercise understands the didactic value of simplification, which distinguishes what is essential from what is not: after the free-floating pieces of space have been detached from their original context, the newly designed set will depart from the typological interpretation of geographical information toward one or more expected scenarios.

The atomization of the architectural object is not meant to reduce problems, but rather to define a common ground to share architecture-related issues with different professionals and users. Selective interventions can be financed and discussed gradually, engaging the community on an object-based strategy conveying the iterative method to explore new ways of facing complex issues. Given that approach, albeit the overall designed structure can be latent for a time, it has to be holistic and clear since the beginning of the process.

Such elemental architectures compose the final project that acts as a new layer, comprising nodes and connections, establishing a genetic structure that could be modified and adjusted according to temporal and financial circumstances. The proposed methodology of design relies on a fixed palimpsest and a wider set of implementation possibilities that would face the manifold complexity of reality. Namely, a set of prototypes that have a

Fig4 / Diagram for Projecting Shkodra
source / the author

degree of flexibility when joining the actual context. Let us just think about the high level of unpredictability that proved the classical way of planning as not effective and paternalistic.

But, how an architectural prototype is meant to adapt when engaged in a real context? Heidegger proposed that "the place of beings is always derived from the contexture of serviceability" (Harman, 2002: 51) causing spatial objects to encounter their users at a determinate distance and with a certain direction. Then the tool, when facing reality, is closely linked to its context in a way that "the same object at different points in the tool-system is actually a different object in each case, since it acquires a completely different equipmental effect" (Harman, 2002: 52). In our case, each object shows certain spatial hierarchies and relationships with the ground, while providing those designed qualities that work on the above-mentioned territorial features.
The circularity of the process allows us to start few essential operations, check their efficacy, and finally resume the main plan with a higher level of implementation, leading to the expected results.

Conclusion

During the workshop "Projecting Shkoder. Operative fragments between lake, river and sea" (Tirana, February 2017), the toolkit design strategy has been tested on an assigned area, in northern Albania, comprising the delta of the Buna river, the village of Velipojë, and a wide alluvial plain. The proposal (Envisioning Nature) is a process of spatial signification that hinges on a series of artefacts unfolding the potential of a specific location with specific landscape features. The expected result would be an intelligent network overlapping as a new layer on the natural and artificial environment. Envisioning Nature enhances a soft landscape infrastructure that relies on the natural diversity of the area: wetland, meadow, rural area, coast, urbanization (Fig. 4). In the urbanized area, Velipoje follows the "satellite concentration" strategy in relation to Shkoder. Given the predominance of residential informality, urban area requires a clear limit, amenities and strict measures to regain the balance with the natural environment. Main goals would be a pedestrian promenade, reducing coastal erosion at the same time, and designed paths that take advantage of the existing rural network. In the rural area, a large logistic structure is provided. Agricultural land is meant to be consolidated, while riparian corridor establishes a better protection of the land from flooding risk. A pattern of woods would enhance pavement permeability, a network of environmental observatories would help monitoring health-related issues, irrigation channel would be regenerated.
At the end, a multiscalar toolkit combines

6 / Published in Colton's Atlas of the world, illustrating physical and political geography, by George W. Colton, accompanied by descriptions geographical, statistical, and historical, by Richard Swainson Fisher.

water and air quality assessment, emergency structures, and watchtowers. The latter, referring to that ottoman system of watchtowers that used to read the Albanian geomorphology, would give prominence to the most important spots of the landscape.

The landscape toolkit is composed of wooden boardwalks (beach access and services, erosion prevention); riparian units (biodiversity connections; agricultural consolidation); irrigation channels re-qualification (implementation of canal water quality monitoring programmes, aquatic vegetation removal tree planting). The mid-scale urban toolkit provides a Bazaar (flexible public space for events, fairs, exhibitions, and recurring markets); logistic centre (collecting agricultural goods and storing agricultural machinery). Finally, the lower-scale architectural toolkit comprises a water platform (viewing platform, landscape photography, natural resources, monitoring water pollution, flooding measurement, leisure); circular watchtower (workshops organized by Marubi Museum, landscape photography, bird photography, natural resources, flooding measurement, risk management, controlling wild life related practices); Observatory (viewing platform, landscape photography, monitoring water pollution, flooding measurement, controlling wild life related practices, leisure); watchtower and storage facility; river dock (platform and services related to the navigation of the Buna River).

This framework of objects conveys a number of spatial milestones, everyone connected to the main grid, gathered in an overlapping layout that reacts to the weakness of the starting situation.
Given the naturally instability of the landscape, due to massive floods that happen to invade large pieces of land, the more the object is near the coastline, the more it interacts with the uncertain form of the water. This is precisely what we are interested in: understanding and operating with new tools, borrowed from other disciplines, to deal with complex and uncertain scenarios. The perceptive dimension would be fundamental as well, since these objects convey an empirical reading of the structure of the territory. In saying so, they activate new perspectives and render the possibility, on the behalf of the local population, to discover new ways of enjoying their own landscape.

In the belief that even the structure is questionable, let us just imagine the possibility of defining a set of architectural tools (Fig. 5), followed by a gradual implementation of an overall strategy, in which the target places, its community, its environmental condition, contextualize the object. And finally, a mature stage in which the genetic structure of the site already evolved toward a future setting.

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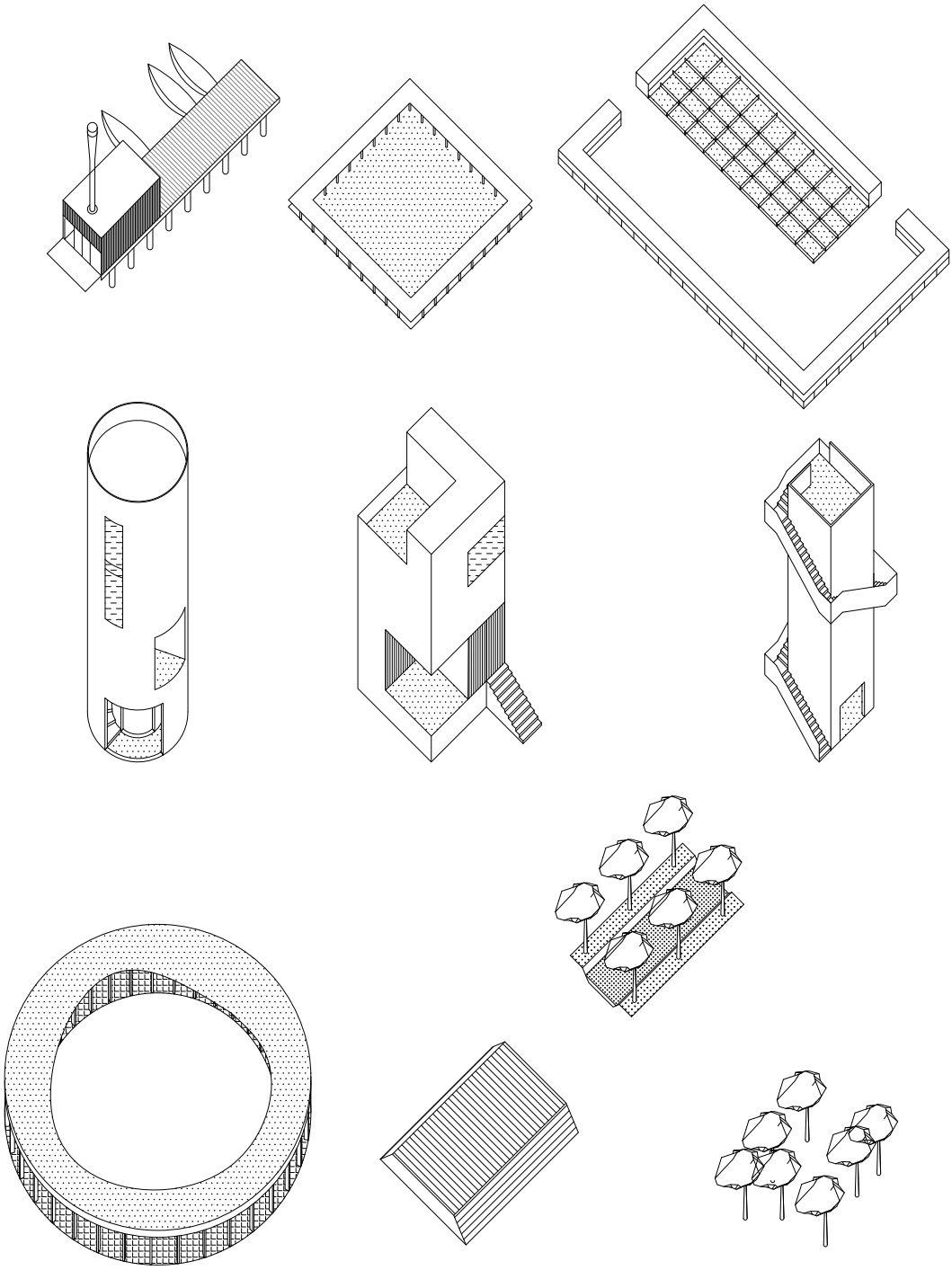

Fig5 / Architectural toolkit for Projecting Shkodra
source / the author

5
city of water

Docklands engine in transition / Hybrid identity towards new urbanity: the (unpredictable) role of Art

keywords / city wrinkles, new uses, art invasion, water spaces, transformation

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Docklands move in transition from old uses toward new urbanity at the border between city and sea. The process of change of these areas began decades ago. Nevertheless, as unstable sites they present a series of characteristics that are inherent to the understanding of this process: the size, the vitality, the short term conquests, the location, the overlapping of city and port, the presence of infrastructure, the network of relationships, the identity (meaning a presence in a map), and the wish of beauty as a possible outcome in the near future.

Spontaneous transformation usually affects relatively small sites, which can be a reference for larger developments. The vitality of a fraction of the whole area offers the chance to further develop the economy of a system. It seems a contradiction when we have spoken for decades of forgotten, derelict, abandoned spaces. Understanding that beside being abandoned and forgotten most of them are beyond the interest of investors and developers is a key to uncover their opportunities; Often the regeneration and development plans seem to think and act big: mainly the intention is to achieve a long-term vision through long-term initiatives, at extremely high costs. Experience shows how unsteady and dynamic areas can be activated instead through small initiatives, that lead them to grows dynamically and adapting to change.
The location is a central issue in the regeneration of the areas. Sometime industrial harbor areas sit next to the city centers, due to the port being the historic motor of the city's economy. More often these sites are peripheral but they surely share in a very central position when viewed at a larger scale.

They can be than well connected locally, with the city centre, but also at a larger scale: their network becomes than international. The "intersection"and coexistence between city and port is a theme worth investigation. Preserving or designing a mixed use city in these areas is remarkable but extremely complex commitment. The difference in scale, function, service and interests won't give the chance of an easy resolution. There is the need to understand what scale of new development could benefit from it, and how. Harbor sites are always accompanied by a rail link that, in many cases, intersects the site. The railway network includes a station and a strategic net of infrastructure such as roads, knots, exits, and services. Connection is a strong and important element -ready to use- in former industrialization places. In general each element has a strong identity: they have a familiar name and they can be precisely indicated on a map. Moreover, they are present in the mental map of all the users, even before the marketing strategies become involved in the process of change. Naturally, at a critical point in the course of its development, the spontaneous initiation of a change must give way to deeper support, in order to look for a partnership or network of connections to make the short term conquests grow bigger. The sense of freedom in an area

Fig 1 / Färgfabriken
source / twitter.com/_ fargfabriken

should trigger a freedom of ideas. A negotiation between agents and actors of the area and city is needed. All of these characteristics brought harbor areas to the centre of the development debate and, on the other hand, they attracted groups of artists to occupy them, causing a direct change, at least in use. The regeneration of a port area plays around the water which element which becomes the attraction for the idea of transition. Water is both a threat and an opportunity. Water attracts and is the omnipresent future of public space in port transformation areas. Water inspires, it suggests admiration and mystery, it is dangerous and beautiful, it is life. It means Identity, vitality, development and connection. Water is the "dynamic constant". Water is the added value to the place that designates it as a golden apple towards a cultural and artistic regeneration. The position of the city at the riverside or at the sea side determines its layout. After a total transformation in society and in the city, the layout can be reinvented. The presence of the "Water element" generates attraction for people and program, for beautiful views (and pollution!): these elements amplify its potential for smart spatial solutions. The future outcome and character of the waterfront line is related to this result. From both points of view, port heritage offers a unique chance to giving the area a new face. The reference of its maritime past can be used as a brand for new development.

Waterfront development has become a sign of the post-industrial city. Cases such as Baltimore's Harbor District, London Docklands, Cardiff Bay and Barcelona's Port Vell represent the transformation of districts in industrial decline into areas of new prosperity. Simultaneously, redundant industrial buildings are being re-coded as sites for culture. But if the post-industrial city is a post-modern site of abundance, its benefits are unequally distributed; centers of affluence construct margins of diversification. What strategies, then, are appropriate for art, culture or development in post-industrial cities, especially in such strategic areas as the waterfront?

Watersides have come to denote an affluent lifestyle in developments such as London Docklands and Port Vell, contrary to their history of hard labour and struggle, is now hidden behind the same physical structure.
The re-use of redundant commercial and industrial spaces for cultural purposes (which then re-name their surroundings as cultural districts) is a frequently encountered element in urban development, in keeping with a symbolic economy of culture, heritage, fashion and tourism through which cities are re-presented in a context of globalization.
Such sites are promoted as an iconic "place-identity", while conforming to global, market-led patterns of development. And it is in sites such as the Docklands that the post-industrial city of re-named sites of culture, and the global city of trans-national financial service industries, become contiguous. These models are the driving force behind most of new city developments.

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This obvious attempts of the city to reach maturity and to represent itself through its harbor areas, collides with the different conditions of the "infrastructure port". Sometimes the harbor retreats, leaving its space to the town, but more often, it grows faster, giving life to an interesting conflict. The "border space" – as we call it - plays an important role in the image, identity and the development of the city.
The border between sea and city is a space. It is indeed an important space, a filter, an engine for the development of a new contemporary city identity, for the building of a relationship between the infrastructural "port" and the surrounding territory, being it urban or not.

Very often the art, in the way it expresses, can function as a filter - it has a role of an intermediary, role that once was peculiar of architecture.

The issue is to understand whether the art has this role or not, to study how it operates and what kind of landscape it could produce. It is to seek out, where it exists, a relationship between events taking place- almost unpredictable - in harbor areas, and to determine the relationship between art, architecture and a new urbanity.

There is a need to cross these territories, mapping the "events", and going through the complexity of the space and the system.

Among all forms of art, theatre, visual art and dance have few common research fields, exchanges, contamination. The investigation is to commence with the "events", collecting news, mapping the areas "taken" by the art for performance, exhibitions and show, and relate the collected datas to a research field. The

Fig2 / Kiinteistö Oy Kaapelitalo in Helsinki, Finland
source / www.kaapelitehdas.fi

Fig3 / The "Friche la Belle de Mai" in Marseille, France
source / www.new-hotel.com

Fig4 / Internal view of the "Friche la Belle de Mai" in Marseille
source / www.urban-reuse.eu

Fig5 / Skate park in Marseille, France
source / www.tourisme-marseille.com

point of view is different. Contemporary art does not seek any longer for museums and theaters to express itself, not only, at least. It uses and searches for other types of space. The challenge is to investigate their appearance, location, potential, way of working and visibility. The investigation from two points of view – art and architecture- is a need to make the common living room more comfortable.
The space of the harbor finally became a stage where the city represents itself. It is its "space of events".

The archaeology that former industrial activities leave behind begins to be filled with new meaning, as they wait to become part of the town.

In some cases, a big event transforms the whole space. In others the place becomes a stage for a series of contemporary events and installations, starting to leave its imprint to the city imaginary. The urban and architectonic design of these areas should be more free in expression, helping to bridge the gap between art and architecture, to become a designed set – a backdrop for the new urbanity.

The border becomes than a laboratory where to experiment with new ways of producing art and architecture. Contemporary art as a dynamic expression animates the place in a contiguous way. The process itself becomes dynamic. Art, set free, from the museum, searches for a more direct connection to the public. Increasingly events and public exhibitions have been held in public, non institutional places, challenging the rarefied aura of the traditional museum. The museum, in this way, became demystified; the process of democratization lead to a re-evaluation of user and context. Believing that art to date was too exclusive and elitist, artists began to work in public spaces far beyond art' s traditional physical and intellectual boundaries. Their light and sound installations are located in new chosen points within the city, at places frequently used by people. The moving of the art from the museum to non-institutional locations, or public urban spaces, has changed both the role of the art, the artist and the architecture.

The role of the artist has become multifunctional: if the artwork has to deal with the public than its author has to be politician, designer and architect. In this new reacting architecture the building becomes a place of exchange, its structure permeable. The route to the finished design is more significant to us than the finished design itself, the process more than the result. The man made surrounding is defined as a series of events or a series of voids in which the unexpected manifests itself. The definition does not refer to a finished product but describes a series of fragments, linked to the person experiencing them; the call for an interactive and flexible architecture has re-established an obvious but long forgotten element in the planning and making of buildings and people. If architecture can only be understood by moving through it, then it can only exist if it is used. If we call for urban planning to

leave room for the unexpected then this must be understood as a play to prepare the ground for spontaneous human interaction. The user is once more the link between the idea and the physical reality and the catalyst in the creation of space.

Art and architecture seem both to be objects of desire. They have broken their historical moulds, and now the un-heroic is fashionable, the ordinary is acceptable.

Art substitutes the object to look at, for the environment to be felt. A new relationship between theory and practice, between the faculty of reason and physical experience is defined. The increasing necessity to invent new models is the consequence of the current process of transformation of the city environment. The role of the artist and architect is being redefined, and, as such, our expectations should follow. From another point of view, culture and entertainment are an important part of public life and have always been an important function of cities.

The policy of improving cultural facilities is currently playing an important role in the image of cities. Unrelated to the tourist industry of, but rather to central city marketing, in which the possession of cultural and entertainment facilities is a major factor in shaping a civic image, attractive to investors, residents and tourists. In replacing the existing urban image, there is great investment on campaigns that accentuate the role of culture and recreation as major components. As the image becomes more attractive it creates a net of new economic activities, with culture having an important role. At the urban scale the cultural function has a tendency towards spatial clustering, if only because the various facilities are serving the same nightlife market. Often facilities for the performing arts serve as a focus for specialized catering, shopping, and other related activities in marketed cultural quarters.

Smaller cities rarely have the market support to develop high order cultural events of this scale. Short festivals can often provide a range of events over a short time span to local and visiting populations. However, major regional capitals make intelligent use of cultural facilities in the shaping of their image and identity, and not having planned cultural quarters, they can at least use such facilities as elements in land use planning.

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Barcelona / A tale of two rivers

keywords / Barcelona, metropolitan area, rivers, recovery, green infrastructure

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In Barcelona, the connection between the city and its natural environment is very clear in multiple images linking the mountains to the sea. However, what is much less perceived, is the presence, and importance, of the two major rivers entrapping the city on either side. The Besòs and Llobregat rivers have long played a crucial role in the development of the city, not only for their historic importance during the industrialization period, but also for their presence as green axis, much needed for citizens, as well as for urban renewal. Today both rivers contribute to generate vast green spaces at metropolitan level.
Throughout this article, we will focus on the transformation of these two rivers over the last thirty years and will examine their situation before human intervention, projects and implementations took place. Undoubtedly, the renovation of these spaces into a green belt for the metropolitan area of Barcelona have strengthened the relationship between natural spaces and urban infrastructure. Furthermore, their recovery vindicated the identity of the surrounding areas, which have always been related to water.

Introduction

A popular image associated by Barcelonans, regarding its territory, is that of a city strongly in touch with the Mediterranean. In this vision, the mountain appears as a backdrop to the urban scene. The physical and virtual connectivity between both natural elements, the sea and the mountain, is clear for most citizens. However, much less perceived is the presence of the two major rivers surrounding the city. The Besòs and Llobregat rivers have played a crucial role in its development and today reclaim their pertinence by forming vast green spaces at metropolitan level. The passage of the Llobregat and Besòs rivers through the coastal mountain system excavated the valleys that now connect the plain of Barcelona with the interior lands, turning them into two large access routes to the plain. This condition and their proximity to the city made the plain of the rivers the perfect place for major infrastructure (roads, highways, railways, electricity, etc.). The Llobregat is one of the biggest and most relevant rivers in Catalonia and played a major role on the industrialization of the region. Its riverside held several industries which settled on either side to generate energy to operate. The Besòs river is smaller and is located much closer to the city; hence its importance is more related to de metropolitan and local level rather than to the regional one.
The growth of the city throughout the twentieth century contributed in the complete integration of both rivers into the Metropolitan Area of Barcelona. Today, the two of them represent the largest free spaces in the city, together with the Collserola mountain range and the seafront (Figure 1). They also have the advantage of being highly accessible, which make possible their public use at a much greater scale. The Besòs and Llobregat rivers function as green infrastructures for the metropolitan area. The idea of "green" consists of the use of natural elements, such as vegetation,

Fig1 / The Llobregat and Besòs River as natural borders of the city of Barcelona source / Google Earth, further edited by the authors

and soil and the processes associated with them for the creation of healthier environments. The concept arises as a response to the growing loss of landscapes and biodiversity due to human action in the environment. In urban areas, the use of green infrastructure implies the improvement of the city's natural elements while generating environmental, social and economic benefits. Therefore, green infrastructure is perceived as an interconnected network of spaces of environmental importance aiming to maintain the processes and ecological flows that occur within. The metropolitan ecological matrix, as proposed by Enric Batlle, is a set of interrelated green infrastructures, either public or private domain, forming a structured system at a territorial level.

In 2013, the European Commission officially introduced the green infrastructure strategy. According to the document, green infrastructure is conceived as "a network of natural and semi-natural areas and other environmental elements, strategically planned, designed and managed for the presentation of a wide range of ecosystem services. It incorporates green spaces (or blue in the case of aquatic ecosystems), other physical elements (including coastal areas) and marine spaces. At land level, green infrastructure is present in rural and urban environments"(Comisión Europea, 2013). A key point, highlighted by said strategy, is that green infrastructure projects need to be integrated into planning and spatial planning processes in order to assure viability. The European Union has encouraged the creation of green infrastructure, especially supported by Natura 2000 spaces. This network was designed to stop the loss of biodiversity in Europe and represents approximately 18% of the EU's land area, to which important maritime zones are added. In Barcelona's case, the Natura 2000 network includes the coastal mountain system (Garraf, Collserola and Serralada de Marina), the Delta del Llobregat and its adjacent maritime space (Figure 2). This network is established on various scales, from the broadest scale which covers the regional level, to the local or municipal. Natura 2000 then becomes a great influence to the Llobregat and Besòs rivers, firstly by articulating environmental dynamics at a regional level, and secondly by developing excellent natural spaces at a neighbourhood level. Needless to say, each scale faces different challenges, needs and limitations, but it also presents a superb opportunity to bring nature closer to the city and provide urban solutions based on natural processes.

In order to enhance connectivity, other strategies have been implemented. The Ronda Verda (Green circular path) relays on physical actions working hand in hand with routes in order to promote and connect people with its environment. The municipality has sought to interconnect the two fluvial spaces with the sea and the mountain through a continuous path[1]. This cycle route covers approximately 72 km of bike lanes and includes several municipalities in the metropolitan area. One of the 6 stretches established on

Fig2 / Green spaces structure in the Province of Barcelona
source / territori.gencat.cat

this route runs along the river Besòs. The section related to the Llobregat, brings the cyclist to its basin, allowing connections with the river channel, the delta area and Collserola Park. On the other hand, the Plan Verde (Green Plan) is a set of strategies that aim to improve environmental conditions on a one on one basis. Barcelona's 2020 Green and biodiversity plan appoints Llobregat and Besòs rivers as places for the exclusive – or at least of high priority – use for both pedestrians and cyclists[2]. Their proposal crosses the urban fabric guaranteeing the connection between the various "green spots" in the city. For this plan, both rivers work as natural corridors forming a true ecological infrastructure within the city, where the green network connects functionality with the peripheral natural spaces. The Green Plan reinforces the idea of urban green corridors that perform as axes, distinguished by the quality of the space, and by the presence of nature close to its citizens. This not only makes the city friendlier, while creating attractive habitats for wildlife and multiplying environmental and social benefits; but by doing so, they play a strategic role in achieving a healthy city. Such visions presented of the rivers and green corridors are relatively recent. Historical uses during the 20th century were focused on fast urbanization and intensive industrial activity along the river; causing high degrees of degradation of the fluvial landscape and the loss of natural ecosystems. Their deterioration paired with the need of green spaces reclaimed its value for urban renewal.

Throughout this text, we will analyse the most relevant riverside projects that have strengthened the relation of these two green corridors and the city of Barcelona. We will look out to their evolution and assess their contribution to the city.

The Llobregat River

The Llobregat emerges in the Pyrenees and has a total length of 170 km through Catalan territory, and its water has been used to impulse the industry since 17th century. The metropolitan course of this river has a length of 30 km and goes through 16 municipalities before arriving to the sea. The Llobregat River Park represents a new model of public space, shaped by the large open space generated by the river connecting the Collserola massif with the coast, playing an essential part in the metropolitan area, and contributing great ecological value. The revitalization of its surroundings appears as a solution that all western metropolis with fluvial spaces are only now beginning to value, both for its multiple uses and for the opportunities generated. Its riverside renewal aims to increase sustainable mobility and improve the quality of leisure and health activities, within a framework facilitating sports and contact with nature.

This space is understood as a great ecological infrastructure providing a continuous road on both riverbanks, enabled for the circulation of pedestrians and cyclists. This broad route includes pedestrian crossings, access to all riverside municipalities as well as the metropolitan public transport network. It is a path through a landscape of great richness and biodiversity that combines elements

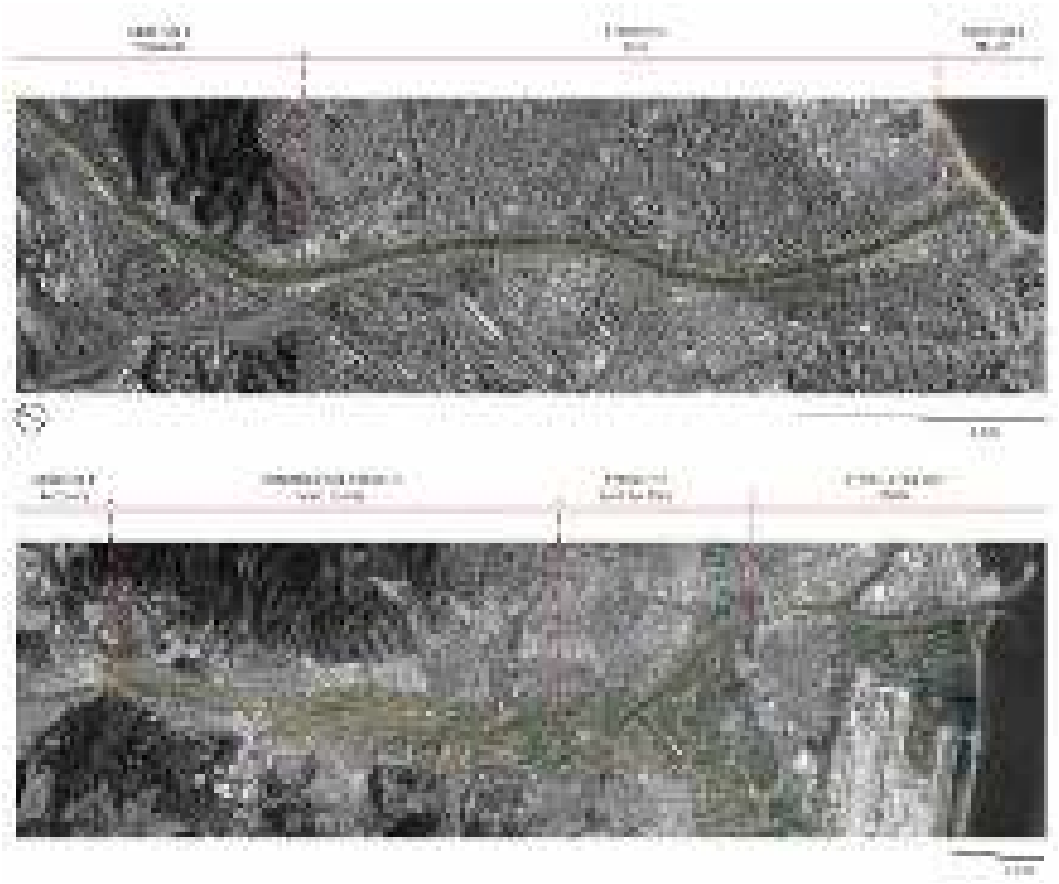

Fig3 / The rivers Besòs and Llobregat, transformation stretches source / Google Earth, further edited by the authors

of historical and cultural heritage with outstanding points of interest.

The intervention in the area was divided into 2 main stretches, along with the intermediate stretch and the special area of the delta. The whole intervention is part of the Baix Llobregat agrarian park, a patrimonial and productive protected environment.

The special plan of protection and improvement for the Llobregat Agrarian Park was approved in 2004 and is comprised of 3350 ha along the last 18 km of the river. This initiative was born from a proposal raised by the agricultural authority of Lower Llobregat back in 1994 in order to resolve the region's specific problems. The main objectives of the plan were to consolidate and develop agricultural activity, to achieve an environmental reclassification and integration, and to foster social experiences within the agricultural region (Sabaté & Schuster, 2001). The structure of the park was developed so as to provide "gates" to the park, sea-mountain direction routes, and routes of agricultural interest, for pedestrians and/or cyclists, among other points of special interest, making it possible to mix the productive activities with visitors (Sabaté, 2015).

Along the first stretch, access to neighbouring towns was created thanks to the recovery of riverside roads as main environmental and landscape interventions. The planting of trees in terraces to mask external surroundings filled with abundant infrastructures and industries was proposed as well as the restoration of artificial slopes, the manipulation of small elevations to absorb decomposition by industrial routes, the formation of ponds and hillocks to retain or conduct waters have shaped the new relief of the high platform of the channel. Likewise, ponds used to refill the aquifer were recovered, contributing to the environmental recovery of the land and the landscape of this area.

The project considered two ponds with differing functions: the first one receives water captured from the river and recreates a natural wetland area with artificial slopes and islands suitable for the development of flora and fauna. It also serves to decant the matter in suspension on the river before passing to the second pond, where water filters into the aquifer.

1 / Ronda Verda bike lane, see more at: www.rondaverda.cat/en/index.php

2 / Plan del Verde y de la Biodiversidad de Barcelona. Available at: http://ajuntament.barcelona.cat/ecologiaurbana/sites/default/files/PlanVerde_2020.pdf, p.65

Fig4 / Agrarian Park of Llobregat
source / Plan for the Agrarian Park of Llobregat, CCRS Arquitectes

In the second stretch, the connection between the two riverbanks is essential, and the pre-existing road networks are intertwined. Here punctual and concentrated interventions have been implemented, improving accessibility. These include the Sant Boi River Park, a space formerly occupied by illegal gardens inaccessible to pedestrians. Today a walkway connects the itineraries and overcomes the barriers posed by the railway and road. At the same time, the planting of different species of shrubbery and aquatic silvers, as well as a type of vegetation consistent with the available water resources was carried out. Additionally, a system of deflectors used to stimulate the river's natural tendency to generate meanders was implemented, diversifying the ecological fluvial habitat in the medium and long term.

The delta of the Llobregat river is an extensive plain of 98 km2, which emerged during the Roman period. The aquifer's presence has made the introduction of agriculture possible, facilitating its intensive use as one of the richest agricultural areas in the Mediterranean. For many centuries, it was inhospitable, with a precarious and scattered settlement subject to the harsh conditions of the territory. Since the fifteenth century, it has been occupied continuously, first with agriculture on dry land and then with irrigation. These were the dominant economic activities until the twentieth century, when industrial and finally, tertiary activities, appeared in the area. Its continuous changes result in a mosaic of landscapes that include natural spaces, crops, urban areas, industrial and services, road and rail networks, as well as infrastructure such as the Port and the Airport.

The Besòs River

The Besòs is a relatively short river in the province of Barcelona, being only 17 km long. However, it has been of extreme importance for crop watering in Barcelona's plain since Roman times and, more recently, it has been used for industrial purposes. It is a typical Mediterranean river, having dry periods along with short and rainy ones. In the event of rain, the area can suffer from flooding due to an increase of almost 100 times its normal flow. During the 1960's, rapid urban growth in the surrounding area considerably affected a section of the river and therefore its hydric capacity. In September 1962, a large flood took several victims and caused significant economic loss. So, among other actions, a wall was built to canalize the river. This wall, located along the last 9 km, was 130m long and 4m high giving the Besòs the aspect of a sewage canal, together with several concrete bridges and electricity pylons along its riverbed. The wall also became a barrier between adjacent neighbourhoods which remained dissociated from the territory (Figure 6).

In 1995, the municipalities involved agreed to develop a unitary Project and there were public consultations where several administrations participated with local collectives. The Consortium for the defence of the Besòs Basin, created in 1988, asked for funding from the European Commission to develop the project and

Fig5 / Sant Boi river park, by Batlle & Roig
source / Jordi Surroca, Batlle i Roig arquitectes (www.batlleiroig.com)

Fig6 / Bridge across Besòs River in 1964
source / barcelofilia.blogspot.com

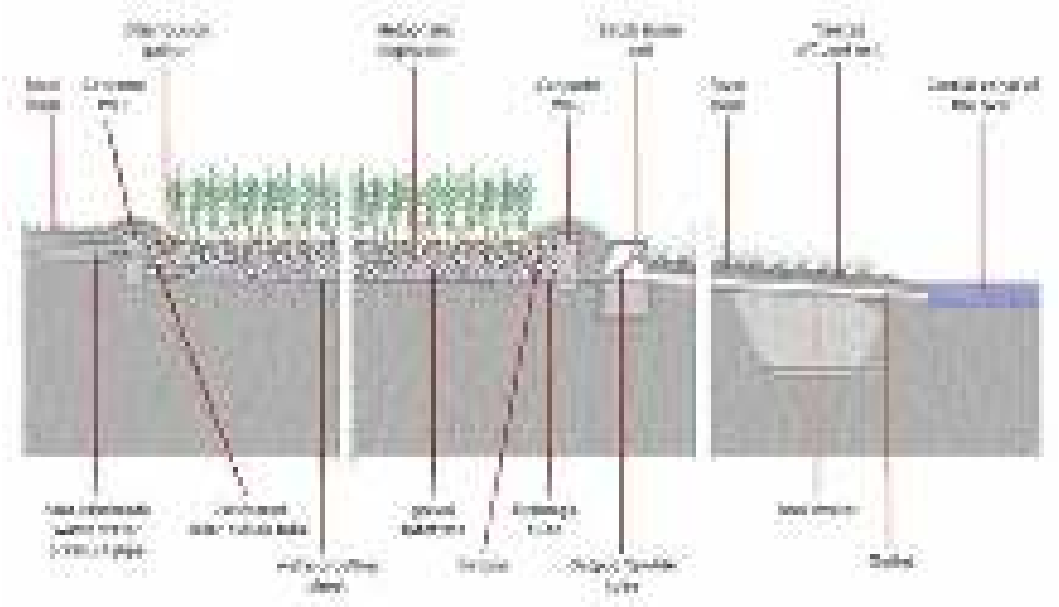

Fig7 / Water treatment system in Besòs wetlands source / planur-e.es

the final cost was around € 40 million, 85% of which was financed by the awarded Cohesion Fund (Alarcón, 2015). The final project for the Besòs Fluvial Park (2001) was divided into three phases, developed between 1999 and 2006. The Fluvial Park included the development of wetlands for the biochemical natural treatment of waste water and ecosystem recovery; the regulation of hydraulic conditions of the river through the construction of five automated inflatable dams; and finally, the reconstruction of the walls, rebuilt leaving more space for the river in case of flooding and should such an event take place a control and alert system was also installed to evacuate the park.

The first stretch of the river's redevelopment –completed in 1999– starts in Montcada and finishes in Santa Coloma, totalling 6 km. This is the sector with the most environmental and ecological character. A part is restricted to the public and contains 7,66ha of wetlands that perform a tertiary treatment of 30% of the effluent from the Montcada wastewater treatment plant. The area consists of plots planted with reed beds and areas of meadows that surround them making it an attractive ecosystem for birds. The water level is regulated so it circulates through the plot sub-superficially, resulting in water coming into contact with most of the gravel and the reed roots without flooding the surface, preventing the proliferation of mosquitoes and the generation of bad smells (Figure 7). The second stretch of the Besòs park goes from Santa Coloma to Sant Adrià. This area is substantially different to the upper area, due to its urban and public character. Here the treatment of the two river banks includes park areas and cycle lanes (Figure 8). On the left bank, access to the park was created by wide ramps connected to the street and local parks. In 2003, the 65 pylons were removed, and the park was finished in 2004, coinciding with the Forum of Cultures event.

The final stretch, the mouth, was finished in 2006. This formerly deteriorated space has a high ecological and landscape value and is essential in achieving the total ecological connectivity of the river. So, it was not projected as a public space but as a renaturalization area and includes a site for the resting of migratory birds and typical coastal vegetation, proven effective for the recovery of lost biodiversity. This area completes the whole natural corridor of the Besòs river from the Serralada de Marina mountain system, to the Mediterranean Sea.

Conclusions

The renewal of Barcelona's two great rivers poses, without a shred of doubt, massive benefits to the city. From an environmental point of view, they have been able to recover several kilometres of natural spaces of great value that were highly degraded and such spaces have become operational as main axes of the city's green infrastructure providing huge benefits at both metropolitan and local levels. The social and economic benefits of these interventions are related to the general environmental improvement and fundamentally, the improvement of the quality of life and the increase of public

Fig8 / Besòs River Park
source / media-edg.barcelona.cat

spaces in the districts bordering the rivers. Both rivers provide the city a chance to connect the sea with the mountain through two large fluvial areas. The Llobregat, due to its size and location, includes productive uses and a large space of ecological value within the metropolitan area, both along the first stretch and in the delta. The Besòs' use of space, meanwhile, is limited to recreational uses, and water purification processes.

The work, in both cases, was carried out in sections, establishing uses and variables for the asymmetric sections, each section representing a challenge in itself, requiring a different approach to the problem and integrating a temporary sequence of actions. It is important to note the special protection that has been given to the mouths of the rivers, which have been treated as singular spaces where ecological values prevail over the uses that man can give as recreational spaces.

In both processes of transformation and valorisation, citizen participation was essential, given that it was the driving force behind the improvement works. The claim of the actors involved led administrations to take action in the matter and acquire external financing crucial for the resolution of these spaces. Undoubtedly, these spaces face new challenges today. Most of them have to do with the high intensity use they have achieved, due to the great appeal they represent at an urban level. However, we believe it is necessary to emphasize the careful work that has been done to both rivers in preserving their structures and ecosystems. This has allowed reinforcement of the identity in neighbouring populations and, above all, increase self-esteem on the environment we have at our disposal, after a long period of high degradation and contempt. As Enric Batlle once said: "We need to work not with the river we would like to have but with the river we do have".

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The Mediterranean City-World

keywords / Third Mediterranean, Urban space, City-world, Cosmopolis, Abulafia, Ibn Jubayr, Benjamin de Tudela, Sarkis, Soja

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It is a shared notion in historical literature that, across the centuries, the Mediterranean has supported a myriad of commercial and cultural fluxes among lands juxtaposed by open warfare or low intensity conflicts. The geography of the Mediterranean basin is formed by lines of towns that in certain cases might share more similarities with the ones sitting on the opposite shore rather than with their own hinterlands. The collapse of the Roman Empire in the fifth century entails a vast process of abandonment of the cities described by Aldo Rossi as a movement of the seats of territorial power to the hilltops. (Rossi 1980) Focusing on the renovated urban rise that starts as early as the ninth century to flourish in the Late Middle Ages, David Abulafia has described this territorial regime as one of inhabited edges opposed by conflicts but connected by fluxes bearing on mercantile feverishness. The lands of Islam on the southern and western shores span from Cordoba, Valencia, Tunis, Palermo, Mazara, Alexandria, to Cairo. The Christendom extends over the Ligurian and Tyrrhenian Seas from Barcelona, Montpellier, Marseille, Genoa, Pisa, Naples, to Amalfi. The Byzantine dominion extends over the Adriatic and Aegean areas from Venice, Corfu, Thessalonica, Athens, Constantinople, Antioch, to Cyprus. The permanently contended strongholds of the Crusaders' states like Tyre, Sidon, Acre, Jaffa, and Jerusalem, conform the Levant.
With a compact formulation, Hashim Sarkis has described Abulafia's model of the Mediterranean as a "geography of opposed but accessible shores", that is edges consisting of dotted lines of cities and towns "loosely connected with their [domestic] hinterland" while strongly linked to the opposite, stranger, and often conflictual, shore via trading routes. (Sarkis 2011)
Abulafia develops this Mediterranean paradigm of the 'opposed but accessible shores' in his monumental book *The Great Sea: A Human History of the Mediter-ranean*. After the shattering of the political and commercial unity of the *mare nostrum* achieved in antiquity by the Roman Empire, "some historians observe decline at the same moments as others detect expansion" in a 'painfully slow' process of re-integration of the Mediterranean as early as the ninth and tenth century. (Abulafia 2011) Even acknowledging the 'resilience' of the 'Byzantine East' and the basic continuity of the Islamic lands stretching from Syria to Portugal, the Mediterranean ranges "enormous regional variation" well beyond the 'puzzle' of the Christian West. (Abulafia 2011) What Abulafia describes as the 'Third Mediterranean' could be regarded as the process of formation of the urban Mediterranean, precipitating in particular between the tenth and the fourteenth centuries.

Abulafia's paradigm of the 'opposed but accessible shores' relies on the recon-struction of the voyages across political boundaries in the Mediterranean, undertaken in the second half of the eleventh century by Jewish rabbi Benjamin of Tudela and Muslim high-ranking bureaucrat Muhammad Ibn Ahmad Ibn

Fig1 / Christian And Muslim Playing Chess from Libro de los juegos, Alfonso X el sabio, 1251-83 circa, fol. 64R (Chess Problema n. 89
source / ChristianAndMuslimPlayingChess, by unknown author - commons.wikimedia.org

Jubayr, respectively from Navarre to Jerusalem and from Granada to Mecca.
Benjamin courses the Christian lands of eastern Iberia down to Barcelona, reaches the lands of the Franks at Marseilles and from there by boat arrives in Genoa. He proceeds from there overland visiting Rome on his way to Norman Bari. Through Corfu, he then leaves Christendom to start his march, overland again, across the Byzantine dominion towards Constantinople. Over Cyprus, again he crosses the crusaders kingdom in the Levant before reaching the holy city of Jerusalem. He fancies a further trip to explore Mesopotamia, whose descriptions might be product of fantasy. Southwards from there, crossing into the Muslim sphere, he reaches Alexandria. From Alexandria, he can easily embark for his return journey home via Sicily. Noting down commentaries about the places and peoples encountered, the Jewish traveler Benjamin offhandedly passes from Christendom to Byzantine Empire, from Constantinople to the Christian Levant, to just smoothly cross over to Islam and then sail back to the Christian West again, over the waves of the Mediterranean.
The voyage of Ibn Jubayr is instead troubled by a series of accidents culminating in a shipwreck off the port of Messina during the wintry return lag. However, his tribulations are those of the uncertain logistics and mobility of the time, while his crossings over the Christian-Muslim divide occur with ease. His narration of the events following Saladin's siege of the Christian stronghold of Kerak in 1183, however, renders a plastic representation of the ambivalent relations crossing the lands of a difficult coexistence of cultures in friction.

In fact, once informed of the siege at Kerak, the Christians gather a joint army from all their possessions in the Levant to march decidedly upon Saladin. Aware of the movements of the Christians, the Muslim leader seizes the opportunity to run incursions upon their unguarded lands, cities and villages. He captures prisoners "beyond number" among the Christians and certain sects of Jews, of whom "large numbers were put to a speedy death". Not only plunder beyond

any possible estimate, including "all the goods, provisions, baggage, furnitures, cattle and horses", is acquired by the Muslims, but the fury of Saladin's ordeal "erased all traces of the Frankish lands through which it passed". A stop-over in Damascus is meant to restore the troops before returning to set siege upon Kerak.
Not without irony, Ibn Jubayr concludes:
"We ourselves went forth to Frankish lands at a time when Frankish prisoners were entering Muslim lands. Let this be evidence enough of the temperateness of the policy of Saladin." (Jubayr 1952, p. 314)

By 'temperateness' of Saladin, he is probably alluding to the commercial channels remaining open despite the merciless military conflict.
Further ahead in their travel, halfway on the road from Damascus to Banyas, the merchants encounter a large oak, called 'The Tree of Measure', which is said to mark "the boundary […] between security and danger". Groups of Christian brigands that set ambushes in the area, in fact, faithfully observe a singular convention:
"He whom they seize on the Muslim side, be it by the length of the arms or a span, they capture; but he whom they seize on the Frankish side at a like distance, they release." (Jubayr 1952, p. 315)

Jubayr's clear comprehension of the territorial regime governing the coexistence of opposed but interfaced communities is recorded in his 'Notes on the city of Banyas':
"This, city is on the frontier of the Muslim territories. It is small, but has a fortress below the walls of which winds a river that flows out from one of the gates of the city. A canal leading from it turns the mills. The city had been in the hands of the Franks, but Nur al-Din […] recovered it [in 1165]; It has a wide tillage in a contiguous vale. It is commanded by a fortress of the Franks called Hunin three parasangs distant from Banyas. The cultivation of the vale is divided between the Franks and the Muslims, and in it there is a boundary known as 'The Boundary of Dividing'. They apportion the crops equally, and their animals are mingled together, yet no wrong takes place between them, because of it." (Jubayr 1952, p. 315)

Further on, despite the conventional religious furor with which Ibn Jubayr introduces his notes on any town under Christian rule, "may God destroy it", his description of the 'civil and respectful' search on the Muslim travelers at the Christian customs at Acre stands in sharp contrast with the 'harsh and unfair' treatment received by them from the Muslim officers in Alexandria.
"[On] the 18th of September, we came to the city of Acre […]. We were taken to the custom-house, which is a khan prepared to accommodate the caravan. Before the door are stone benches, spread with carpets, where are the Christian clerks of the Customs with their ebony ink-stand ornamented with gold. They write Arabic, which they also speak. […] The merchants deposited their baggage there and lodged in an upper storey. The baggage of any who had no merchandise was also examined […], after which the owner was permitted to go his way and seek lodging where he would. All this was done with civility and respect, without harshness and unfairness. We lodged beside the sea in a house which we rented from a Christian woman." (Jubayr 1952, pp. 317-8)

On the other hand, despite the conventional wish reserved to the Lighthouse of Alexandria, "may God not let it cease to be an affirmation of Islam", the abuses and extorsions at the crossing of the customs are registered with no reticence.
"The day of our landing [in Alexandria], one of the first things we saw was the coming on board of the agents of the Sultan to record all that had been brought in the ship. […] Each was questioned as to what merchandise or money he had, that he might pay zakat […]. Most of them were on their way to discharge a religious duty and had nothing but the (bare) provisions for the journey. But they were compelled to pay the zakat […] The Customs was packed to choking. All their goods, great and small, were searched and confusedly thrown together, while hands were thrust into their waistbands in search of what might be within. […] During all this, because of the confusion of hands and the excessive throng, many possessions disappeared. After this scene of abasement and shame […] [the pilgrims] were allowed to go." (Jubayr 1952, pp. 31-2)

As for other travelers of the time, Ibn Jubayr's diary records the incessant commercial convergence of the ethnic groups of the Mediterranean mosaic, mainly Jews, Christians, and Muslims, in the teeming ports of the Mediterranean. This convergence corresponds to the process of grounding of the renovated spatial identity of the edge of the maritime basin. Ibn Jubayr's descriptions of the port cities of Alexandria (Jubayr 1952, p. 32), Acre (Jubayr 1952, p. 318), and Messina, with their crowds of diverse origins and their immense traffics, resonate in one another from different shores of the Mediterranean. Both filthy and luxurious,

these cities are teeming day and night with 'foreign manners and languages' and therefore associated to the ideal model of Constantinople (Jubayr 1952, p. 318), which Ibn Jubayr would never visit. About Messina he writes:
"This city is the mart of the merchant infidels, the focus of ships from the world over […]. It is full of smells and filth […]. Its markets are animated and teeming, and it has ample commodities to ensure a luxurious life. Your days and nights in this town you will pass in full security, even though your countenance, your manners and your tongue are strange. (Jubayr 1952, p. 338)

A special mention is dedicated to Alexandria's cultural facilities, capable to recollect scholars from all over the known world, provided with room and board to conduct their studies and bibliographic researches.
"Amongst the glories of this city, and owing in truth to the Sultan, are the colleges and hostels erected there for students and pious men from other lands. There each may find lodging where he might retreat, and a tutor to teach him the branch of learning he desires, and an allowance to cover all his needs." (Jubayr 1952, p. 33)

On the other hand, Benjamin's descriptions of the Mediterranean seaports are certainly more laconic, as his travelogue less poetic, but more numerous. Other than recording a detailed census of the Jewish communities around the Mediterranean, Bejamin's articulation of the ethnic diversity of the crowds in the port cities is detailed:
"Barcelona es una ciudad pequeña y hermosa […] A ella acuden con mercancías, comerciantes de todas partes: de Grecia, Pisa, Génova, Sicilia, Alejandría de Egipto, Tierra Santa, Africa y de todos sus aledaños." (Benjamin 1918, p. 52)

"La ciudad de Constantinopla […] está asentada a la orilla de dos golfos […]. Allá van todos los mercaderes de Babilonia y en general de todo el país de Mesopotamia, de Media y Persia y del reino de Egipto entero, de la tierra de Canaán, o sea Rusia, Hungría, Patzinakia, Kazaria, Lombardía y España. Es ciudad de gran bullicio, porqué en ella acuden con mercancías de todos los países de mar y tierra." (Benjamin 1918, pp. 62-3)

The summit of the Mediterranean's commercial and cultural feverishness is without doubt Alexandria:
"Es este país de comercio, frecuentado por gentes de todos los pueblos y de todos los dominios cristianos. Acuden allí por una parte: de las tierras de Venecia, Lombardía, Toscana, Apulia, Amalfi, Sicilia, Calabria, Romaña, Cazaria, Patzinakia, Hungría, Bulgaria, Racuvia, Croacia, Esclavonia, Rusia, Alemania, Sajonia, Dinamarca, Curlandia, Islandia, Noruega, Frisia, Escocia, Inglaterra, Gales, Flandes, Hainault, Normandía, Francia, Poitou, Anjou, Borgoña, Moriana, Provenza, Génova, Pisa, Gascuña, Aragón y Navarra. De la parte de poniente, donde dominan los mahometanos, los hay de Al-Andalus, Al Garbe, Africa y Arabia, y de la parte de la India, Savila, Abisinia, Libia, el Yemen, Babilonia, Siria, Grecia, cuyos habitantes son llamados "gregos", y turcos. Traen allí mercancías de la India, toda clase de aromas, que compran los mercaderes cristianos. Es ciudad de inmenso trafico de comercio, poseyendo cada nación su propia posada." (Benjamin 1918, pp. 113-5)

As I have argued more in detail in 'The Geographic Prospects of Human Habitat and the Attributes of a Novel Urbanity' (Pasini 2019), what Abulafia instantiates by suggesting to intersect the routes of merchants to understand the Mediterranean, is, thus, a process of formation of a geographic region indissolubly rooted deep in the urban paradigm, despite different regimes, religions, and magnitudes, which so drastically impacts the way in which one sees the surrounding world still today.

In 'The World According to Architecture: Beyond Cosmopolis', Hashim Sarkis has discussed the recent centrality of the geographic character in the design practice. (Sarkis 2011) While addressing the debate on the region-forming process of the geographic scale, Sarkis' essay centers on the concept of 'city-world' defined as the specular antipode to the 'world city' produced by globalization.

Sarkis certainly refers to the idea of the globalized world city, 'cosmopolis', articulated in Edward Soja's theory of the 'postmetropolis' (Soja 2000). In the second of his 'six discourses on the postmetropolis', 'cosmopolis' is regarded as the product of the globalization of the city space, which Sarkis calls the 'world city'. Soja uses Deleuze-Guattarian deterritorialization-and-reterritorialization dialectics to interpret the spatial structure as a grounding of sociopolitical regimes governing a region and, eventually, Soja's spatial geography is the result of an anthropological discourse. In Sarkis' essay, the 'city-world' corresponds instead to the alternative aspiration to "think the world as one architectural entity", or "the

capacity to understand and map the living environment".

If the world city is the result of the normalizing modernist model of the International Style, consolidated by the centralizing postmodernist models, the city-world lineage is tracked back to *neo-avantgarde* prefigurations such as Gottman's megalopolis, Doxiadis' Ecumenopolis, Friedman's Ville Spatiale, Fuller's world-mapping geoscopes, the situationist Unitary Urbanism, and Nieuwenhuis' New Babylon. In Sarkis' thesis, the city-world reaches its fully radical unfolding in Superstudio's Supersurface. Opposed to the world city or cosmopolis or metropolis, the city-world recovers "the project of being in the world from the suffocating impositions of globalization" and turns the 'sameness in the world' from 'a sign of poverty of form' to 'an untapped richness' of inspiration. The city-world in fact unfolds a 'discourse on cosmopolitanism' in which 'the subject' is a 'positively nomadic stranger' with world-making powers and the world, by consequence, becomes 'the scope of individual imagination'. (Sarkis 2011)
We could argue that the process of formation of the Mediterranean region based on the urban paradigm, surfacing through the intertwining voyages of Ibn Jubayr and Benjamin de Tudela, represents a geographic modality of space production diametrically opposed to that of globalization. In the face of the expanding globalization of the world city, this urban-based region-forming model offers a radical alternative for the exploration of the geographic scale of contemporary design.

The discipline of modern geography, risen from the age of "discovery and colonization" with the aspiration to be the synthesis between "the physical, the economic, and the social", has instead disintegrated into a multiplicity of sectorial disciplines". (Sarkis 2011) Therefore, not by chance, according to Sarkis, designers are called now to engage with broader contexts addressing "infrastructures, urban systems, rural and regional questions" and today's formal pursuits are dominated by an aspiration to an all-unifying "geographic aesthetic".
The contemporary recovery of the broader natural context is well expressed by Josep Lluís Mateo:
"whereas in the recent past the paradigm by which architecture was measured was the city, now, the collective reference surrounding our design activity is the relation to nature. [...] After Rossi and Koolhaas, a manifestation of the operational impracticability of nostalgia and delirium, the city appears as a second nature". (Mateo and Sauter 2014)

However, the 'city-world vs. cosmopolis' binary should be interpreted as dialectics rather than alterity. Despite nominal juxtapositions, no sharp separation stands between the idea of the city that becomes global and the idea of the world that become one city, as the processes that generate the latter imply symmetrical processes that generate the former.

The core of the question is the idea of a globalized cityscape, cosmopolis, that contains a city-world beyond cosmopolis and *vice versa*. As of 'Theorem Five to Theorem Seven', "deterritorialization is always double, [exhibiting] a deterritorializing force and a de-territorialized force" with the relative roles of "expression" and "content"—we can identify here the 'deterritorialized force' with a 'recessive force of reterritorialization'. (Deluze and Guattari 1987) Equally, the dynamics of deterritorialization (city-world) and reterritorialization (world city) are never exclusive, but always reciprocal and simultaneous, characterized only by the prevalence of one or the other force.

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Fig. 2 / The Ottoman Al-Umdan khan, Acre. Just like the two-story customs house of the Kingdom of Jerusalem described by Jubayr, whose site it rises upon, the kahn provided warehouse spaces at the ground floor and a hostel for the lodging of the incoming merchants at the upper floor.
source / PikiWiki Israel 13560 Khan Al Umdan in Acre", modified by the author - commons.wikimedia.org

The reconversion of the Litoranea Venetian Waterway: an opportunity to rethink the eastern Venetian coastal system

keywords / infrastructure, coastal systems, waterway, rural landscape, land reclamations

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This article investigates the relationship between territory and infrastructure in order to offering new ideas for the management and design of coastal landscapes. As a case study, are exposed the results of a project concerning the Venetian Litoranea Waterway, an old waterway that flows along the Adriatic venetian coast. The need for reactivate the waterway - now under-utilized and never fully completed – becomes an opportunity to study a broad-minded approach, based on the analysis of the of both the environmental and economic issue. The aim of the work is to provide a model able to face with the problems afflicting the entire coastal system and provide a valid alternative to the current seafront employment strategies.

The concept of combining skills deriving from civil engineering, economics, and landscape architecture, is fundamental in order to studying a wide-ranging approach to the problems emerging from the analysis and the critical issues affecting the coast and the entire waterway system. This point of view permit to obtaining results usually not taking into account by ordinary planning. On the basis of the problems affecting the Adriatic coast under examination - such as coastal erosion, subsidence and saltwater intrusion - the project proposes a radical transformation of the reclamations area surrounding the waterway, towards a more resilient and less burdensome structure to manage. By the creation of a wet buffer, developed along the waterway, makes it possible to unveil new opportunities for tourism exploitation linked to the lagoon areas, which can be used as a flywheel to implement compensation and financing of the project itself. The process would able to obtaining a safer and more cost-effective territory. The entire approach contemplates a large-scale organization of urban development, using planning tools capable of modifying coastal morphology, supporting trends of erosive phenomena.

The deepening of the relationships that arises from the process of urbanization of the soil, together with the awareness of the variability of economic contexts and environmental conditions, become the starting point for the development of new synergies between infrastructures, tourist offer and coastal occupation processes.

Introduction

The landscape, like the socio-economic context of the culture where we live, is always in constant evolution[1]. This dynamic is accentuated if we consider the coastal systems, where a little change of the forces at stake, often generate huge transformations, with effects that can get to redefine the entire morphology of a coastline. Often, these phenomena are not taken in account in the long-term urban planning and infrastructures are perhaps the most complex point of the whole question. Infrastructures are essential for the defense, the management, the economic development of an area and at the same time contribute and define the morphology of modern territorial occupation. As it is understandable, it is not only a question of considering large

Fig1 / La Grand Motte
source / Camargue

works such as roads or railways, but rather the system in its articulation, composed of control and defense structures that interact the urbanized soil in which we live.

Infrastructures play a key role in the landscape management and planning process, even more in complex systems such as defense or hydraulic management. Moreover, we have to contextualize this concept in dynamic scenarios, able to react to unavoidable changes, extending the life useful of the interventions.

Reuse, reconversion and transfer of meaning of the existing, are therefore fundamental design tools capable to trigger processes to guarantee development and management. These are indispensable criteria for including large-scale planning - which normally proceeds with discontinuous steps - in the rapid evolution of modern scenarios. This practice acquires greater importance in areas already heavily urbanized such as the coastal stretches, where often the amount of available economic resources is not commensurate with the funds really needed to solve the problems. A project methodology and a new approach is needed, that will enable to proposes alternative solutions based on reuse of the existing, on the design of broad views and on the elaboration of scenarios in order to guarantee key concepts such as hydraulic safety or environmental improvement in general.

The research concerns the reuse of the Litoranea Venetian Waterway, a waterway that runs parallel to the coast in eastern Veneto, Italy. The intervention rises from the need of local administrations to put their hands on the infrastructure, developed on the basis of scenarios of use no longer current: specifically, the need of review of maintenance costs requires a reflection on its future. This work demonstrates how the reactivation of the infrastructure become an opportunity to rethink both the functional and economic location of the entire area. Furthermore, it is indicated how to purpose an alternative scenario that modifies the costal morphology: the proposal suggest a new model developed on a second axis focused on the waterway, beyond the coast. The design phase is preceded by a deep analysis that shows how the waterway axis function is only one of the numerous emerging aspects, behind which latent synergies are hidden, able to provide interesting design ideas. This approach allows to explore new hypotheses of contextualization and relationship with the surroundings, to assign new functions, to extend the project boundaries embracing various disciplines. For reasons of clarity and brevity, the article has been divided according to the following points:

- design reference;
- case study analysis;
- strategy elaboration;
- project.

It is therefore proposed a development of the main points that have marked the drafting of the plan.

Reference

As examples, some current cases focused on the development of coastal system are exposed, in order to highlight the strengths and weaknesses of employment strategies and the choices made. The first example concerns the center the Grande-Motte [2],a tourist settlement born at the beginning of the '70s, on the southern French coast. The intervention was proposed and coordinated directly by the French central government and represents a project on a national scale, aimed at intercepting the tourist flows that from the north of France, heading to Spain. Although the case of la Grande-Motte represents a wide-ranging project, guided and planned from the central government, it is evident that this model of development is no longer up to date. In particular, it is based on scenarios of economic expansion now no longer in progress. This structure, in fact, leaves in inheritance a deeply urbanized coast that will require resources for the management and defense of the entire stretch of coastline in the future. Although the project has broadly met the expectations, it is therefore stressed the need for a reflection on the settlement strategy of the shoreline, based on the analysis of the contemporary situation and on a resilient attitude towards the surroundings. The second example is represented by the numerous port that due to their dispersion and morphology - although of much smaller proportions - cause an overall stiffening of the coast. In general, they can be a problem in the management of large stretches of sea, forcing the public administration to expensive defense interventions in the future for their protection and operation. In Italy the Adriatic coast is dotted with a lot of this type of interventions [3],moreover of private initiative: by their nature they follow the rules of the real estate market, without a conscious settlement strategy in such a sensitive environment as the coastal one. As a final example we mention The Atlantic Intracoastal Waterway[4], an interesting project where a waterway, initially designed for military purposes, has created an interesting wetland landscape, as well as a precise settlement strategy.

Analysis of the Litaranea Venetian Waterway

In accordance with the considerations above, is presented a study on the reactivation of a waterway in the eastern Veneto coast. The reconversion of the infrastructure becomes the starting point for the proposal of a settlement strategy, able to coordinate the future tourism development according to sustainable and wide-ranging criteria. Furthermore, all the interventions have to supporting as much as possible the natural erosive tendencies of the coast and directing private development initiatives in a way to avoid a disorderly occupation of the coast.

In particular, the study concerns to a navigable waterway flowing between the Venice lagoon and the Isonzo river. It runs alongside to the Adriatic coast, with distance between 2 and 4 km from the sea. The overall length is about 127 km, 68 of which are in the Veneto region and 59 in the Friuli Venezia Giulia region,

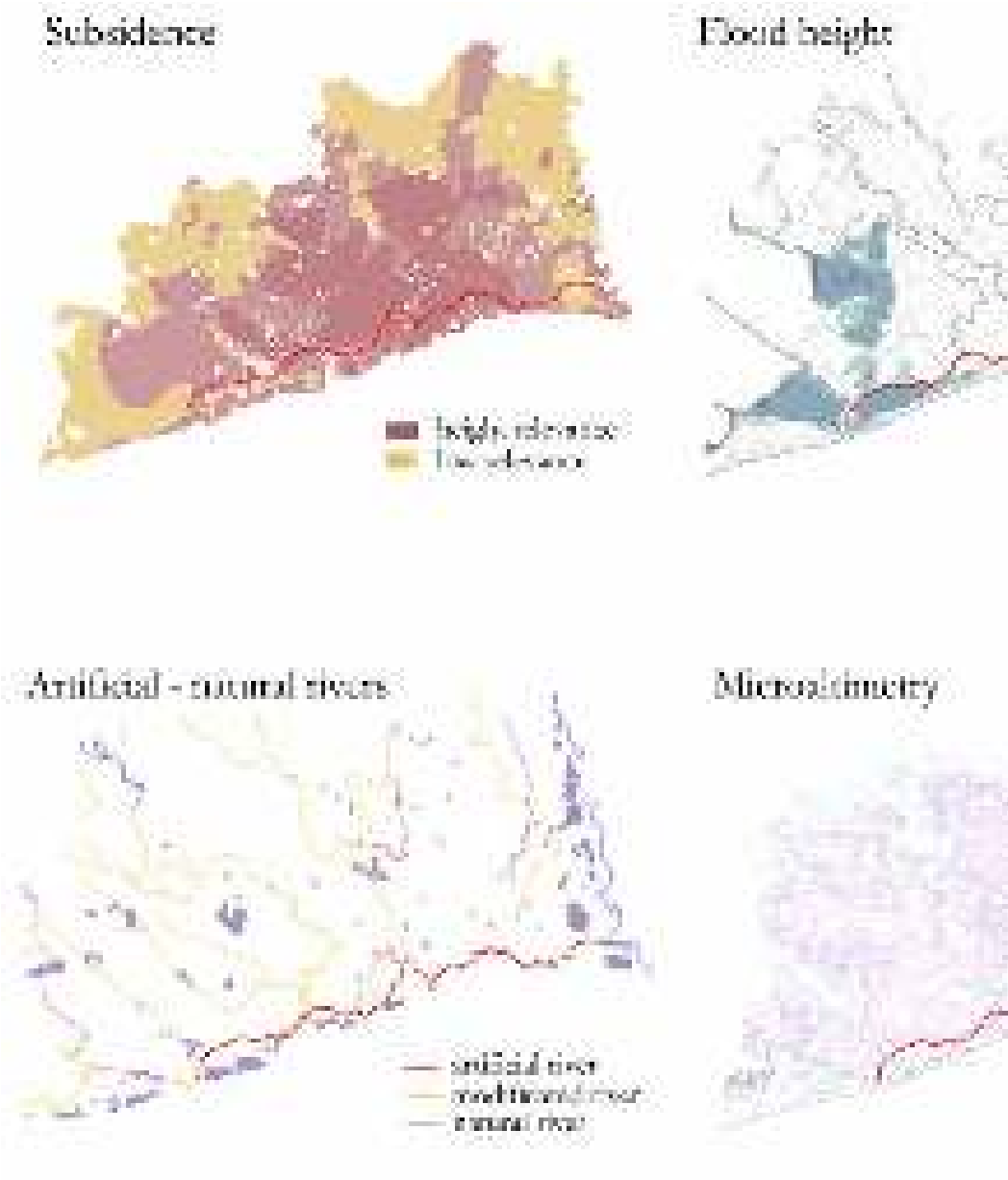
Fig2 / The Litoranea Venetian Waterway
source / the authors

north-est of Italy. The waterway is made up of a multitude of canals - mostly of spontaneous origin - and crosses mainland areas and lagoon areas. From the mouth of the river Isonzo, is possible get to Trieste in 35 km of sea: the latter part is not part of the waterway, but it's in a certain sense an extension. For centuries it has been an important alternative way to cabotage, historically linked to the fortune of the Republic of Venice. The current configuration is the result of centuries of interventions, the last of which dates back to the 50s of the last century. The study focuses on the section of Idrovia between the mouth of the river Piave and that of the Tagliamento, involving the municipalities of Caorle, Eraclea and San Michele al Tagliamento, for a total area of 362 km2. The infrastructure has very variable characteristics depending on the traits, but globally it is to be considered compatible with the characteristics of the CEMT class II vessels[5]. The situation of its branches is similar. The poor maintenance of the seabed exposed to a frequent interruption - due to the grassy nature of the banks that increasingly reduced volume of exchange with the sea caused by the reduction of the lagoon areas - risk compromising its functionality. The effective under-utilization of the waterway has not recently encouraged large investments to guarantee its functonating. Furthermore, the current configuration derives from scenarios written after World War II, a period in which a major development of water transport was assumed; the evolution of economic dynamics has led to preferring the transport of goods by road or by train.

Environmental issues analysis

Not insignificant aspect is the connection to the hydraulic framework of the surrounding territory. The waterway affects many of the main rivers of the eastern Veneto, including the Piave, Livenza and Tagliamento river and crossing a lots of reclaimed areas. For this reasons it

1 / see Ministry of agricultural policies (2012), The rural landscape, a look between past and future, Florence, Italy: Giunti.
2 / On this matter see "démier de Découvrir la Grande-Motte (Hérault), cité de loisirs, prepared by the groupe Ressources, compétences, pratiques pédagogiques auprès des jeunes du pôle Sensibilisation de la Fédération nationale des. Conseils d'Architecture, d'Urbanisme et de l'Environnement avec le concours de l'IFÉ et le soutien du Ministère de la Culture et de la communication, 2015, pp. 1-126, available online at http://www.fncaue.com/wp-content/uploads/2015/09/DecouvGdeMotte.pdf (consulted on 02/06/2018).
3 / Just to name a few examples in the Adriatic coast of Romagna see Marina di Porto Reno in Casalborsetti (RA) or Porto Verde in Misano Adriatico.
4 / The Intracoastal Waterway (ICW) is a 3,000-mile (4,800 km) inland waterway along the Atlantic and Gulf of Mexico coasts of the United States, running from Boston, Massachusetts, southward along the Atlantic Seaboard and around the southern tip of Florida, then following the Gulf Coast to Brownsville, Texas. More information available online at http://www.nao.usace.army.mil/Missions/Civil-Works/AIWW/ (consulted on 02/06/2018).
5 / CEMT is a set of standards for interoperability of large navigable waterways forming part of the Trans-European Inland Waterway network within Continental Europe and Russia. It was created by the European Conference of Ministers of Transport (ECMT; French: Conférence européenne des ministres des Transports, CEMT) in 1992. In this particular case class II refers to tonnage between 400–650t.
6 / On this matter see Dalle praterie vallive alla bonifica: cartografia storica ed evoluzione del paesaggio nel Veneto orientale dal '500 ad oggi, by Francesco Vallerani, Portogruaro, Consorzio di bonifica Pianura veneta tra Livenza e Tagliamento, 2008.



has a decisive role in ensuring the delicate water balance of the surrounding areas[6]. The territory is mostly below the sea level and is therefore subject to mechanical drainage of the waters. The problems regarding the extreme vulnerability to flooding phenomena, others related to subsidence and the damages deriving from the ascent of the salt wedge should be highlighted. All this factors produce conditions that are not favorable to the development of agriculture. In fact, these problems are worsening year by year negatively affecting productivity, while forecasts of climatic trends and seafaring phenomena do not outline encouraging scenarios. The identification of the critical areas, often adjacent to the waterway, together with the consultation of the historical maps are an essential phase of the project and are the starting point for the drafting of a new development that takes into account these emergencies. In a nutshell, environmental criticalities can be listed as follows:

- hydraulic risk (frequent flooding of depressing areas);
- waste of energy resources to maintain the operation of the valleys in spite of the productivity of these areas;
- salt inclusion;
- poor quality of the agricultural landscape.

Economic scenarios analysis

The development of the tourism sector has gradually turned the use of the waterway towards forms linked to this form of fruition. The analysis of ISTAT[7] regarding tourism in the cities affected by the waterway draws an overall positive scenario. The arrivals recorded in the municipalities of Cavallino, Jesolo, Eraclea, Caorle, San Michele al Tagliamento and Lignano recorded a steady growth, going from 2,522,789 in 1997 to 3,308,504 in 2015, with some fluctuations

Fig3 / Analysis of the Litaranea Venetian Waterway
source / the authors

and temporary falls due mainly to macroeconomic conditions. Speech slightly more complex is what emerges from the trend of presences, which go from 19.401.571 in 1997 to 21.654.432 in 2015, reaching a peak of 22.434.927 in 2011. The last few years, however, show a slight decline due to the general tendency to reduce the period of stay by the vacationers, which pushes to rethink the offer and the development strategies, especially towards a strengthening of the recreational services.

Different trends concern the agricultural sector. The number of companies in the sector in the province of Venice fell by 40% compared to 2004, showing evident signs of suffering. The technicization has also significantly lowered the request for employees and at the same time has seen a considerable increase in the average extension of companies, which are forced to merge to ensure profitability. On the basis of the data collected, it is considered that a cultivated area of about 300 ha is necessary to guarantee sufficient income for a family today. In addition to this there are the problems related to the indirect costs and the benefits denied to the community for the maintenance of such a structure. The surveys on historical data, present since 1984, clearly show a growing tendency to abandon the land. It should be noted that this phenomenon is often linked to incentives granted for the

7 / The Italian National Institute of Statistics (Istituto Nazionale di Statistica) is the main producer of official statistics in Italy. Its activities include the census of population, economic censuses and a number of social, economic and environmental surveys and analyses. Istat is by far the largest producer of statistical information in Italy, and is an active member of the European Statistical System, coordinated by Eurostat.

seasonal planting of the plots but does not hide a general tendency to impoverish the sector.

Perceptual aspects
The waterway flows along a territory made up by land reclamation. Many of the plot pattern are called "alla larga" or "alla ferrarese" which represents the most modern and most suitable method for the mechanization of cultivation operations. In it the plots are rectangular and are bordered by deep field ditches. The size of the plots, especially in the areas of more recent reclamation, are about 50 m wide with a length that in some cases may exceed half a kilometer. The reasons for the success of this pattern are essentially connected to the rationalization of mechanization and the elimination of losses due to the trees: that's means that is possible to increase the unit productivity using the same area.

Besides the positive aspects from the point of view of the volume of crops, it is necessary complain the extreme simplification of the agricultural landscape, with the onset of significant environmental problems and serious damage to biodiversity. The resulting effects on the environment are easily understood, given that all the elements of diversification of the landscape disappear, which take on the connotations of a shapeless "tabula rasa"[8]. It is worth remembering that the indirect negative effects of an aesthetic-perceptive nature that such a landscape has on the near tourist coast.

The strategy

The areas under consideration are the results of the policy of ruralization and public reclamations started on '30s, during fascism lapse. Since the post-war period, the economics of the area has gradually turned towards a view of exploiting tourism linked to the hotel facilities, along the coast. The result of this shift is a misalignment between the agricultural vocation of the territory and its actual exploitation. The aim of the proposal is a transformation process that harnesses planning tools - permeable to private initiative - that is financed through the opportunities created by the new economic configuration.

The identification of the areas of intervention
The first step was to map and recognize the critical issues by overlaying the plans of the critical issues and historical maps of the territory. In this way it was possible to identify the most risk areas and especially where agriculture production is now below projection – due to the saltwater intrusion of the soil. In this area, where now is mainly used like a high intense crop, the production will eventually disappear or reduced. The second step was to analyze the hydrography and the morphology: the territory is based on land reclamation and from this point of view, each reclamation area behaves like an independent island. Moreover, these sites are often circumscribed by banks of canals and rivers. That means that the conversion to new equilibriums is less burdensome, since many embankments are already prepared and they permit to transform large areas without affect the areas around. On the basis of these considerations, it has been decided to design the areas of intervention taking account of these banks. This fact pulled us to define different actions of transformation and to dedicate to each area a different way of mediating the relationship with the surroundings. For example, the creation of a wet area near an urban front, certainly positively qualifies the inhabited area; but if it were necessary to interpose a safety barrier of 3 meters, this would greatly reduce the potential advantages of this operation. Here is the need to create areas from the water configuration compatible with the needs required by the site.

To ensure the financial sustainability of the project it is necessary to provide for real estate development interventions, associated with the transformation actions of the territory. For this reason, the program is also divided into territorial transformation actions - that concern in large areas crossed by the waterway - and in real estate development interventions, where services and hot activities are concentrated. Some of this actions are already present in the urban plans, for example the incentive for the re-naturalization of rural areas in exchange for construction credits. The proposal aims to organize the construction according to the development of the coastline, identifying the course of the waterway as potential growth, with the advantage of being able to manage urban growth and avoiding the fragmented and disorganized development that affects the territory.

The strategy consists in triggering a process of environmental improvement through the water reconfiguration of vast areas of the coast crossed by the waterway, towards a safer and less burdensome setup to manage. Of course, this changes takes into account the criticalities that have emerged in the analysis. The

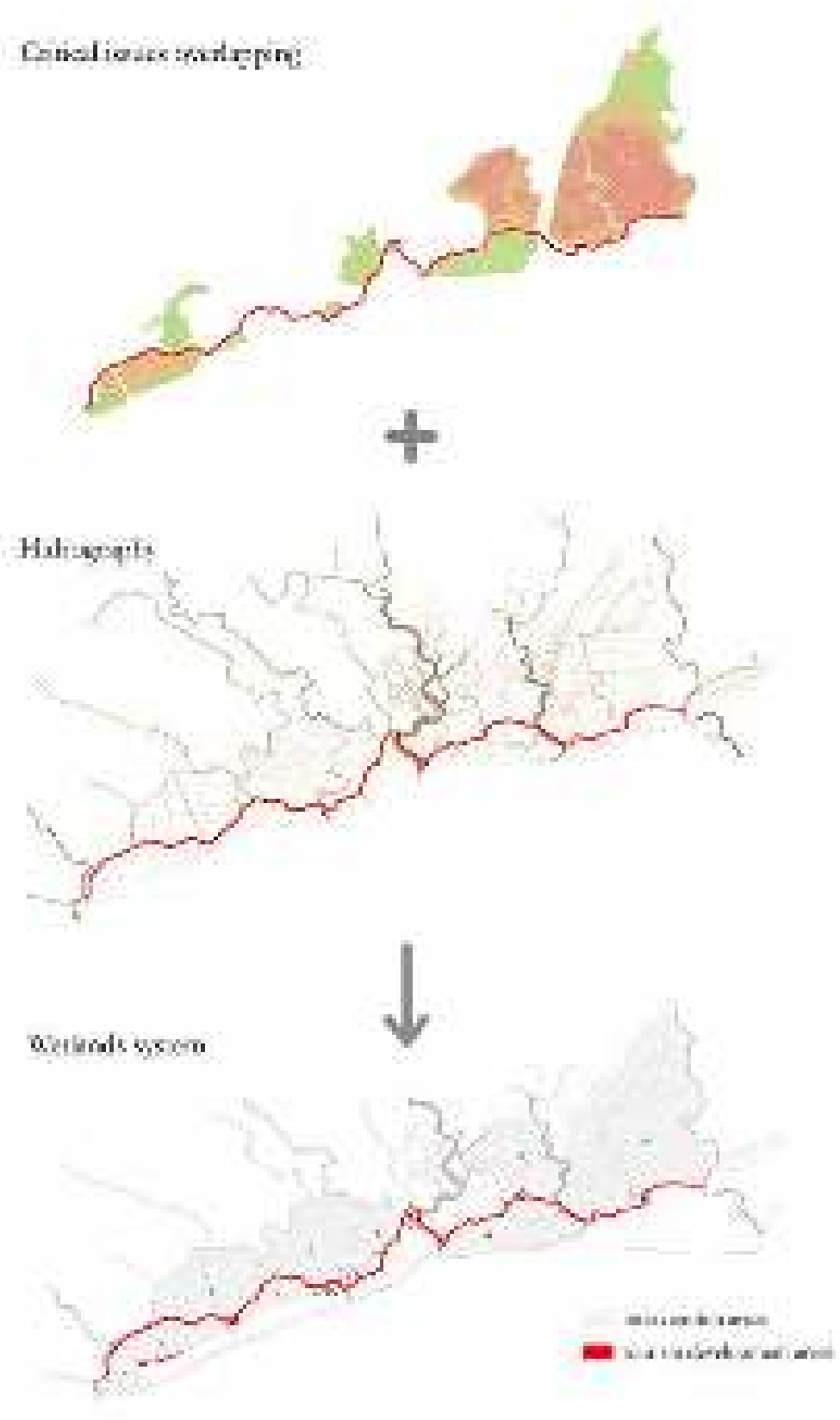


Fig4 / The strategy of interventions
source / the authors

8 / see Tempesta T. (2006), Il valore del paesaggio rurale, in Tempesta T., Thiene M., Percezione e valore del paesaggio, Franco Angeli, Milano.

project envisages the establishment of a path of wetlands along the course of the waterway. The process is financing through the creation of hot activities that allow to monetize the new possibilities created through the granting of building credits. In this sense an important step is identifying strategically important areas along the waterway. Areas with problems of flooding and stagnation are transformed into wetlands, suitable for collecting excess water in rainy periods or to keep water during the dry season, functioning as "sponges". Other areas are exploited as natural scrubbers, using plant-based sewage-treatment facilities, improving the quality of water strongly compromised by summer savage during the tourist season. These interventions are aimed to improving the quality of the landscape, as well as improving the quality of the landscape, opening up new possibilities for those areas that now constitute a rear of the coast.

The project

Due to the extension of the project area, it was decided to identify four different types of intervention, depending on the criticality, position and potential that the transformation can activate. In this way some areas become an extension of the waterway: starting from a thin stream, the infrastructure will become to assume a lagoon morphology. For safety reasons, these areas must be included within the waterway embankments. In other sites, affected by the risk of sea ingression, the project expected a decommissioning from the control of land reclamation, thus being able to recede the coastal defenses in banks more backward and less subject to the erosive action of marine currents. Here are the 4 type of interventions: A, B, C, D.

Type A Area

- Where: areas under the sea level, with low urbanization and with marked problems related to the rising of the salt inclusion and flood risk. Areas in part or in anticipation of being transformed into nature reserves and SCI[9] areas, not affected by tourism exploitation activities. Areas with limited agricultural productivity and high impact of maintenance costs, characterized by poor environmental quality.
- What: detachment from the mechanical drainage network with a consequent return to the pre-reclamation condition. It is proposed a natural flooding followed by a free and autonomous evolution of the morphology of the sandy strings, following the geological trends of the coast.
- Advantages: limitation of hydraulic risks and marine ingression due to the exclusion from the human exploitation of these areas. Indirect benefits to tourism given by the environmental quality improvement. Limited installation costs, which provide for the almost total absence of embedding work for the securing of the surrounding areas. Benefits to the ecosystem. Increase in the volume of water exchange between inland waters and sea that contrasts the silting of existing port mouths.

Type B Area

- Where: agricultural areas under the sea level, suffering hydraulic risk and in contexts where there is the possibility of qualifying less valuable urban areas or which now represent a back to the coast, with consequent opportunities for new real estate developments and phenomena of enhancement of existing heritage.
-What: inclusion of vast areas of reclamation within the embankments of the waterway. Creation of wetlands that offer development opportunities for the leisure sector. Development of a new water-front interconnected with the waterway.
- Advantages: development of hot activities related to tourism. Environmental benefits favors tourism activities and transition from agriculture to fish-farming. Benefits related to the quality of the water given by the plant-based sewage-treatment facilities. Action of aquatic plants that develop in shallow water, with a consequent reduction of the biological load given by the sewage drains, especially in the summer season. The wetlands allow to naturally stem the consumption of the territory, avoiding sprawl risk and implementing building densification policies. Increase in the volume of water exchange between inland waters and sea that contrasts the silting of existing port mouths.

Type C Area

- Where: depressed rural areas next to the waterway, under mechanical drainage and with low environmental value, located mainly upstream of the waterway, burdened by flooding and potentially useful for solving hydraulic problems.
- What: slow reduction of the flow rate of water-drainage systems until a natural water balance is reached. Formation of reservoirs in the most depressed areas. Creation of a typically humid environment, under the sea level and therefore able to receive large volumes of water to protect the surrounding territory without economic damage.

- Advantages: water stagnation improves the feeding of ground water storage, for the benefit of the surrounding crops. Water accumulation allows to dampen extreme weather patterns and avoid the overloading of mechanical drainage systems. Furthermore, some of these areas can be used as expansion basins for the reduction of the peaks of flow, to protect the urbanized coastline.

Type D Area
- Where: agricultural areas next to C areas.
- What: rural areas that needs a landscape improvement quality and a transition technologized form of agriculture, in symbiosis with the 3 areas. Redesign of the grids that characterize the reclamation to the advantage of buffer zones for the development of hedges and ditches, with consequent lower of the production pressure.
- Advantages: reduction of the useful productive pressure of the soil, that contributes at a more permeable territory, less burdensome to manage, more resilient to climatic chamges.

Expected results
The project plans to achieve the following objectives:
- a perceptually and qualitatively improvement of the territory;
- a safer territory in terms of hydraulic risk;
- a territory less burdensome to manage and more resilient;
- improvement of tourism supply and new job opportunities.

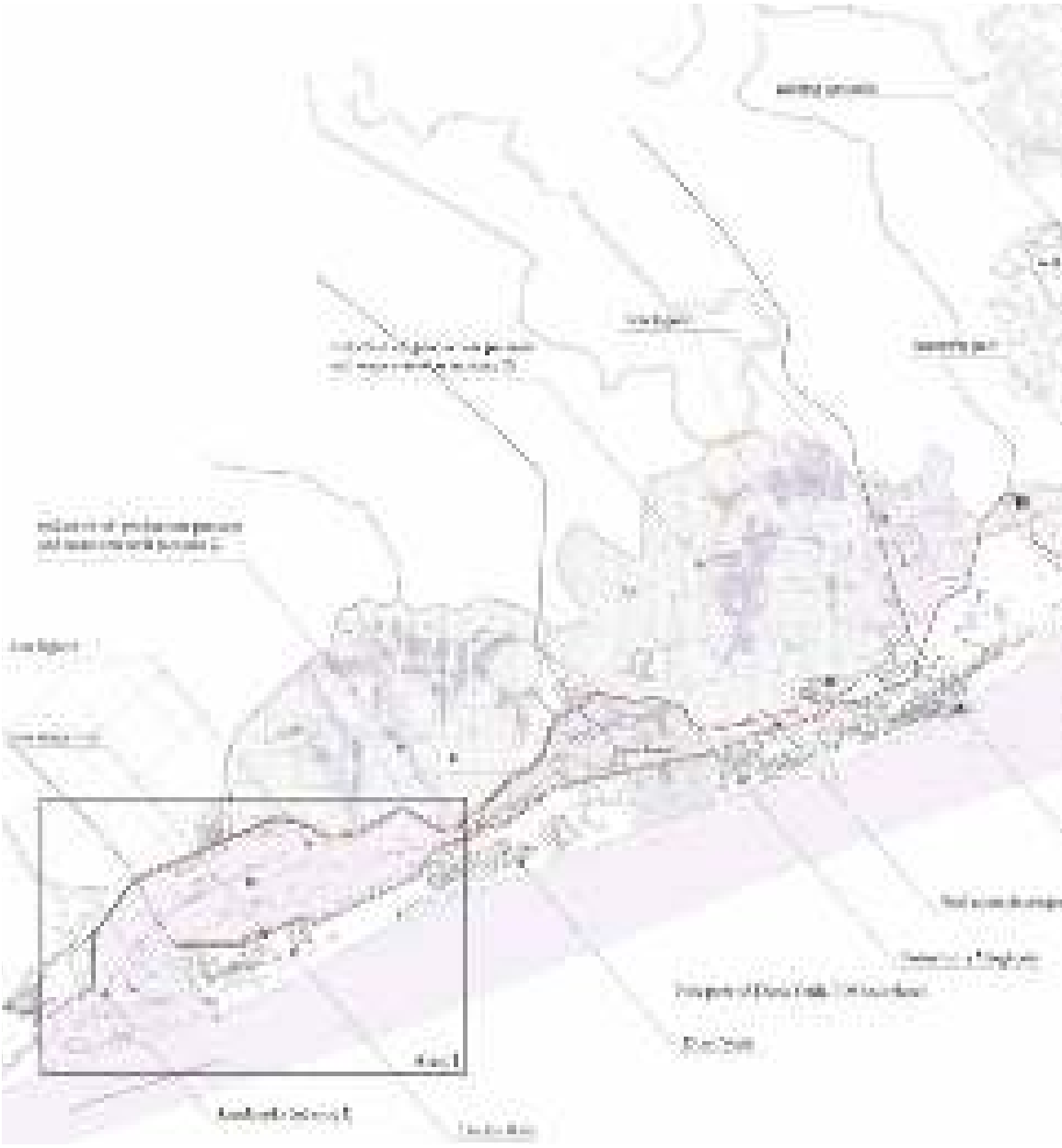
Improvement of the agricultural landscape
The reconfiguration of the territory considerably changes the perceptive aspects of the landscape. In fact, in addition to solving the problems related to water management, the aim of the work is to improve the overall environmental quality. The project envisages different transformation actions and each one leads to perceptually different results according to the planned real estate development measures. Overall, the general aspect shows the territory to a configuration of wetlands that are realigned to the morphology of the territory and result in agreement with the tourist vocation of the area. The waterway is therefore the connecting point of this system, which becomes a tourist route characterized by a wide range of services and and naturalistical interesting views. In this way, the touristic offer linked to seaside tourism is strengthened, with considerable advantages for the overall economy. For actions of type C and D, which concern the rural areas next to the waterway, trends are to make the territory more resilient, while preserving the agricultural character of the area. In this sense there are areas for water reservoir, and plantations of poplar groves and the recovery of hedges that delimit the cultivated areas. The set of measures, together with easing the production pressure, allows to positively characterize the agricultural landscape, today without any quality.

The theme of perception was dealt with in the new wetlands created: in this sense, paths have been planned formed by footbridges that allow the new lagoons to be enjoyed and which follow the country routes that characterized the reclamation. Along with the routes, a network of cornerstones has been designed, which constitute emergencies with respect to the flat territory of the wetlands, with the aim of acting as reference points and for measuring the new areas. These significant points offer services such as landing, rest area and viewpoints.

Territory safer and protection from flooding
The entire water system of the waterway, as configured in the project, is able to store more than 3 million cubic meters of water. This has also a positive effect to the areas not involved in the transformation. The management of the landscape heritage requires not to react in a rigid way to emergencies, which pushes to sacrifice some areas to ensure the safety of others. In other words, this choice implies both economic advantages, since the administration will no longer have to bear the costs of maintaining the reclamation or any compensation for damage to crops, and benefits related to safety as the exclusion of areas anthropogenic control effectively excludes the occurrence of potential flood damage.

Land less burdensome to manage and more resilient
In passing from natural ecosystems to urban ones, the role of man in guaranteeing the balance of the ecosystem increases progressively; for example, it is evident that the maintenance of the current balance between the different environmental components in urban areas

9 / A Site of Community Importance (SCI) is defined in the European Commission Habitats Directive (92/43/EEC) as a site which, in the biogeographical region or regions to which it belongs, contributes significantly to the maintenance or restoration at a favourable conservation status of a natural habitat type or of a species and may also contribute significantly to the coherence of Natura 2000.



is almost entirely due to the man. Instead, in the cultivated areas, an increasing role is played by the original natural factors of the environment. Unlike natural ecosystems, urbanized areas always have a historical dimension, being the result of a work of transformation of the environment and not of adaptation to it.

Improvement of tourism supply and new job opportunities

The creation of a second axis of development along the waterway and in direct contact with the coast, allows to qualify large fronts that today constitute a "back" compared to the beach, with obvious repercussions both for future scenarios of development of activities related to tourism, both as regards the enhancement of existing real estate assets. Moreover, as mentioned above, the transformation process involves associating transformations with tourist development interventions: it is therefore envisaged to build about 4000 boats slip and related services, able to increase the range of traffic and the wealth of territory.

Conclusions

This work highlight that a broad-minded analysis can reveal latent potential for problem solving, related with land use planning. An infrastructure as the waterway, which today is a mark in the territory without a precise functional, becomes the thorn for the development of a series of interventions that modify the landscape, attract investments and optimize the management of public resources for the securing of areas.

The result of the transformation leaves the population a less burdensome territory to manage, able to react in a resilient way

Fig5 / General Masterplan of the project proposal
source / the authors

to the increasingly acute atmospheric phenomena. The Venetian Litoranea Waterway project is able to provide a model for the development of the coastal environment capable of reacting to the problems highlighted by the analysis.

The attention given to the management of the process is aimed to demonstrating that the governance of the soil can take place, as well as the imposition of constraints or the granting of contributions for improvement, through the generation of visions. This task puts the public operator at the center of the process, the only actor able to manage large amounts of information and at the same time guarantee the transparency of the work. The project aims to be a vision that proposes a new balance with the territory, but which at the same time can reveal new economic configurations capable of generating wealth or financially supporting transformation.

6
conclusions

Planning for uncertainties / Learning from adaptive complex systems

PhD Ledian Bregasi / Dean of Architecture and Desing Faculty / POLIS University

The act of planning itself embodies a number of contradictions. Moreover, considering the Albanian context, planning has a strong cultural background that looms over every planning initiative.

It either echoes the five-year plans of the communist regime, or reminds the chaotic development of the difficult transition years to a free market economy. Considering these extremes, discussing about planning in Albania means dragging heavy concealed implications. In these conditions, drafting a General Local Plan[1] in Albania means defining the best possible solution to a very complex problem such as a territory can be, foreseeing every possible problem that would arise in the next 15 years of urban, rural, social, demographic or economic development.

The typical analytical approach to such a problem would be based on the assumption that our reality is highly deterministic and that what stops us for predicting the future is the not precise enough information that we have about the present. So a deeper analysis of the present situation would unveil the possible developments of the future and every planned activity in a territory would result in a precise outcome. This approach is based on the presumption of Pierre-Simon Laplace in 1814 which states that if some entity would know the precise location and momentum of every particle of the universe in a precise moment, the past and the future of the universe would become known.

We may regard the present state of the universe as the effect of its past and the cause of its future. An intellect which at a certain moment would know all forces that set nature in motion, and all positions of all items of which nature is composed, if this intellect were also vast enough to submit these data to analysis, it would embrace in a single formula the movements of the greatest bodies of the universe and those of the tiniest atom; for such an intellect nothing would be uncertain and the future just like the past would be present before its eyes (Laplace, 1951)

In the analytical approach, each problem and entity is to be dismounted into the basic components, which can be then analyzed and the recombination of each answer to each specific problem would construct an overall solution to a complex problem. During the years, thank to the advancement of the science and technology, it became clear that the universe doesn't work in that way. It is not physically possible to predict the future state of each particle composing a large quantity of entities interacting among each other, based only on the present state.

Taking the necessary caution, a city can be comparable to such a complex system of interacting entities, perusing conflicting objectives and interacting in unpredictable ways with each other and with the authority. In The Death and Life of Great American Cities, Jane Jacobs defines the city as a problem of organized complexity. She states that differently from the simplicity

Fig1 / View of the city from the castle source / Eranda Janku

problems having one or two variables, and differently from the cases of pure statistical probability of the disorganized complexity, the cities are made up of numerous interacting factors. In these cases, horizontal hierarchical structures would work better than vertical ones that always tend to oversimplify the problems (Jacobs, 1961). Not accidentally, Jacobs chooses the term "organized complexity" which was previously used by Warren Weaver in Science and Complexity for classifying different natures of problems (Weaver, 1948). Warren's work of the 40's of the XX century was focused on solving complex problems like automatically translating text in different languages or defining the best strategy of using a country's resources for winning wars. The solution to these kinds of problems need what Ludwig von Bertalanffy defines as a systemic approach. According to him, the mechanistic description of the behavior of living organisms as the sum of the actions performed by specialized cells as a reaction to conditioned and unconditioned reflexes was not enough for describing all the possible conducts of living organisms (von Bertalanffy, 1968).

Thanks to Bertalanffy's General System Theory, it became possible to inquire and describe complex systems and scientific fields like informatics, cybernetics, game theory, decision-making and network systems.

According to Neil Johnson's Two's Company Three is Complexity, A simple guide to the Science of all Sciences, complex systems are able to evolve and adapt to changing environment passing spontaneously from ordered to disorder states. These systems are characterized by a number of agents generally conflicting for limited resources. This interaction is able to allow the emergence of unpredictable self-organized phenomena (Johnson, 2007).

Understanding that the city development is not governed by rigid cause-effect rules, but acts more like a complex and interacting organism, able to adapt to ever changing environment, allows us to use more effective methodologies of decision-making. Charles Jencks states that modern architecture becomes obsolete, because it is based on a mechanistic and deterministic vision of science (Jencks, 1997). The same statement can be made on some simplistic versions of the modern cities. Based on the mechanistic paradigm that the city should work as a machine, city planning in Albania, during the second half of the XX century was mainly done by defining zones of homogeneous land use and urbanism indexes. Simplifying the complexity of the cities, this approach proposed a direct correlation between the number of inhabitants and the quantity of services, trying to create a perfect and efficient city for a perfectly predictable future.

1 / The General Local Plan is the document that defines the development strategies, rules and regulations of the entire territory of a municipality in Albania for a 15 years period. It is a legal obligation for the municipalities to draft it and all future developments have to comply with this plan.

The first problem with a perfectly mechanistic city would arise with the changing of the boundary conditions of the system. A difference in the predicted social or economical conditions would require a deep reorganization of the entire city structure in order to cope with the new environment. This effort would require time and precious resources that are not always available in times of profound changes. Most importantly, a strongly deterministic system would require, in times of changes, a very strong and centralized authority. It would be this authority's task to redesign and readapt the entire city to the new conditions.

The limits of this kind of urban planning were obvious in Albania after the fall of the communist regime. The two problems of the deterministic approach to urban planning arose simultaneously. A deep change occurred at the fundaments of the socio-economic system and, at the same time, the strong and central authority disappeared.

The major cities, as Jonson would expect a complex system to do, stayed away from an equilibrium state and spontaneously passed from an order to a disordered and then to a new kind of ordered state. Counterintuitively a not centrally controlled city was able to adapt to the new economic paradigm faster than the authorities that lacked behind. And the city did so by following the patterns of a complex system being able to evolve thanks to the interaction of the multitude of agents in the territory.

Considering the contemporary condition of the global economy, static systems are doomed to fail. In an ever-changing environment, constantly threatened by financial, demographic, political and environmental crisis, planning a deterministic city where the land use is fixed for a 15 years period is not realistic and undermines the real potentials of the territory. A city that is able to build on the adapting and evolving potential of a complex system would be competitive on a regional context and ultimately would be able to offer better living conditions for its inhabitants, staring a virtuous cycle that would allow the emergence of unpredictable behaviors.

A shift in the mentality of the planner and authority is crucial for allowing the emergence of positive feedback spirals. Embracing uncertainty would mean being able to use at the maximum potential the ability of complex system to solve complex problems in unpredictable ways. Some future guidelines can be drawn at this point. An overregulated city is not able to adapt to new global or local challenges. By eliminating redundancies and errors, a sterile system will develop. On the other side, some degrees of self-organization would allow more interactions between the agents in the territory, enhancing the emergence of complex and horizontal hierarchical structures, able to better respond to everyday challenges. In this sense, order should not be considered as an imposed rule, but as an emergent behavior of the city (Bregasi 2016).

Fig2 / Shkodra estuary
source / Eranda Janku

Since the basis of the analytical procedure for understanding the city are questioned, new methods of planning are necessary. These methods should consider the paradigmatic change needed for managing complex systems. Only by accepting planning methods that are borrowed from the complexity science would be possible to have urban environments that are able to deal with contemporary crisis.

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Conclusions from the planning process

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In such a highly volatile environment characterized by continuous changes in the role of authority in controlling and developing of the territory, some conclusions can be drawn. These conclusions are to be intended as general guidelines for the Albanian case specificities. At the same time, the issues faced during the drafting process of the General Local Plan for Shkodra can serve as a precedent for future scenarios of planning in conditions of future uncertainties where the role of the institutions is not historically consolidated.

The case of Shkodra reconfirmed that a participatory planning process is crucial for the success of the operation. The involvement of the public and stakeholders guarantees the legitimation of the plan, guaranteeing in this way the sustainability of the instrument in the future. The lack of consolidated institutional culture makes it common for the plans to be revised or totally dismissed every time there is a change in the administration, so guaranteeing the involvement of all the actors will increase the plan's possibilities to be implemented in the future. At the same time, the participatory process can be misused by the authority. Other cases have been observed in Albania where the public hearings of the planning process are mere formalities or are used as propaganda moments used by the local governments. So, the public participation in the planning process, when understood as a moment of sharing opinions and debating about decision making can guarantee the legitimation of the plan and its successful implementation.

Timing is crucial. It was proven very important to have an appropriate rhythm of activities during the drafting process. A good compromise between the urge to conclude the drafting of the plan in order to make it operative and the need to have as many discussion meetings as possible. The appropriate rhythm is important also for the fact that conditions in the territory change even during the planning process. By understanding that the plan cannot be a prescriptive instrument for any possible development of any possible parcel of the territory, but an open ended instrument that should guide the general development of the municipality in a unforeseeable future, the timing of the process can be tuned properly allowing participation and avoiding quagmires.

The institutionalization of the comments and feedback process proved to be important for the success of the process. Every comment or request, in order to be processed needed to follow a formal protocol that required the municipality to officially receive and forward the documents. This process increases the trust among the actors and avoided any kind of pressure coming from personal or unclear interests. Areas with high development interest or touristic areas often produce interferences in the planning process, especially in cases like Albania. Having the municipality as official and institutional guarantee of the feedback process has proven to be useful in achieving a correct drafting of the plan

Fig 1 / City of Shkodra at the confluence of the Drini and Bruna rivers source / James Stevens

and will serve as a reinforcement for its sustainability.

The involvement of three main actors increases the possibilities for further democratization of the planning process. The municipality, as the beneficiary of the planning, acted as a representative of the community interest. The local and international experts acted as drafters of the documents by bringing the most up to date know-how; it was their task to draft proper instruments for the specificities of the Shkodra case. The National Territorial Planning Agency, also as a financing agent, guaranteed the legal compliance of the plan and its alignment with national directives and plans. The three sided collaboration guaranteed a deeper understanding of the state of the art and a profound commitment in the drafting process. The check and balance principle guarantees a high degree of trust and legitimacy of the process. It also allowed a faster course of formal approval of the plan.

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