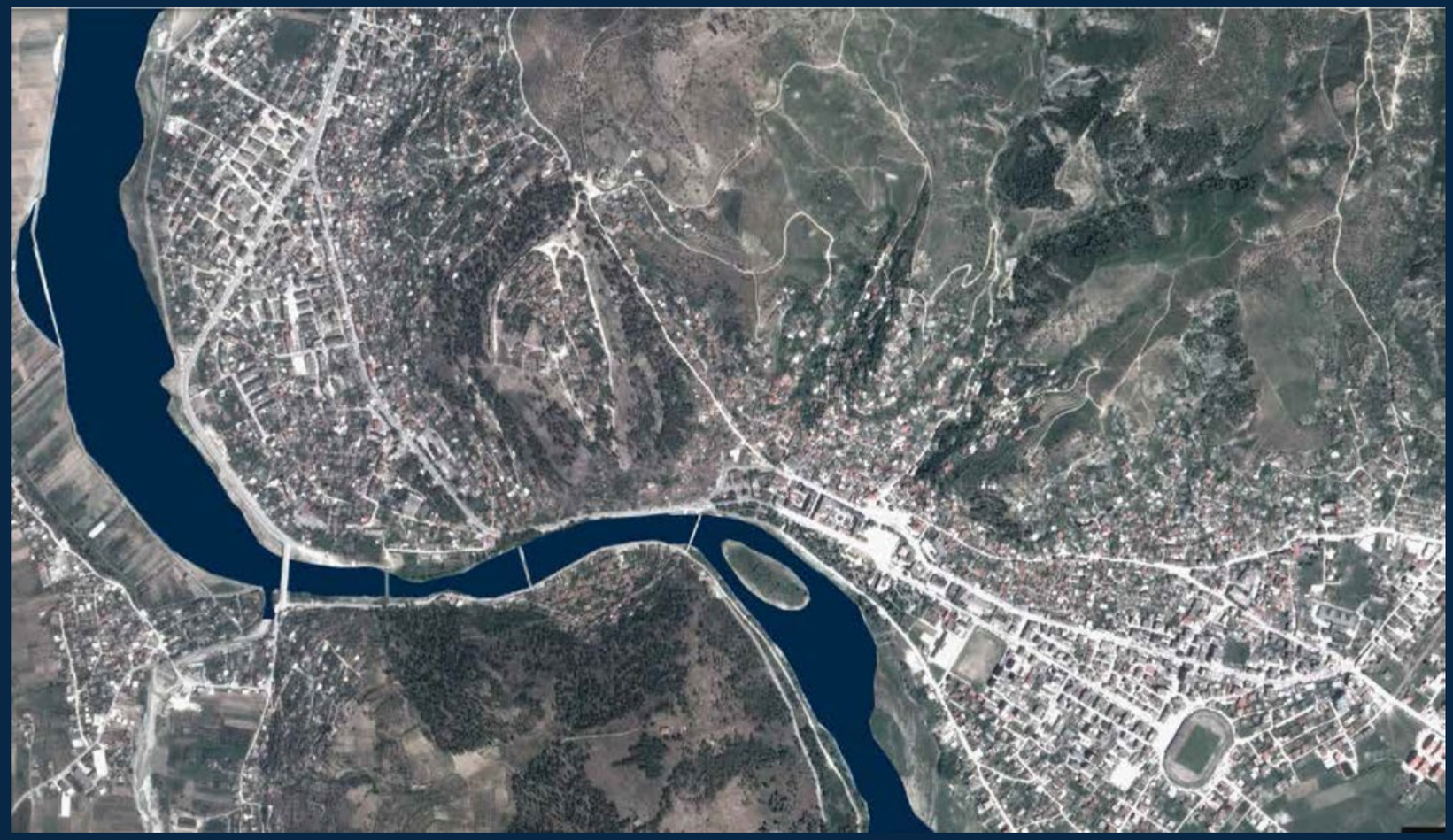
RESEARCH BY DESIGN

EXPLORING RESILIENT WAYS OF ‘URBAN BY NATURE’

Osumi Island in Berat, Albania



A&I design

Marialaura Polignano Architect

Urbanformgrammars / Politecnico di Bari

City&Landscape /Politecnico di Bari

ARKE’ Ingegneria Company

MEMBERS OF THE DESIGN TEAM AND THEIR ROLES

ECONOMIC OPERATORS

A&I Design Studio
Arch. Urb. Indrit Hamiti
Arch. Suela Dragovoja
Arch. Odeta Balla
Arch. Agron Mandro
Arch. Anila Voi

Marialaura Polignano Architect
Arch. Marilaura Polignano
Coll.: Nicola Davide Selvaggio, Giuseppe Galliani, Luca Schepisi, Gaetano Turturro, Elena Savino

SPECIALIST EXPERTISE

Urban design

Urbanformgrammars / Politecnico di Bari
Prof. Arch. Francesco Defilippis
Prof. Arch. Anna Bruna Menghini
Prof. Arch. Carlo Moccia
Prof. Arch. Michele Montemurro
Prof. Arch. Giulia Annalinda Neglia
Arch. Giuseppe Resta

landscape design

City&Landscape /Politecnico di Bari
Prof. Arch. Francesca Calace

Hydraulic planning and economic evaluation

ARKE' Ingegneria Company
Prof. Eng. Alberto Ferruccio Piccinni
Dr. Eng Giovanni Vitone
Dr. Eng Gioacchino Angarano
Dr. Eng Luigi FanelIi

Heritage and culture monuments

Prof. Arch. Giacomo Martines
Arch. Domenico Pastore

Artist

Franco Dellerba

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City&Landscape / Politecnico di Bari
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DESIGN CONCEPT

Osumi Island and the city of Berat constitute **two different entities**: the first is a **changing and dynamic landscape**, whose natural forms are defined by the interaction between the waters of the river and the ground; the second is the "artificial" urban settlement, with its "solid" **static forms**, composed of several parts.
The principal aim of the project is the formal and **physical connection of these two entities**, so that they can become complementary and benefit from each other. But, according to us, it is necessary to recognize and consider their different characteristics, above all those of the island, in order to institute an appropriate relation between them.
Our contemporary common desire to **accommodate 'green' spaces within the body of our city** is a righteous desire, as well as a necessity in relation to the climatic questions, but **the risk is to 'domesticate' the nature**, according to the current models which conceive it as 'green' space pertaining to the buildings, giving it the character of 'urban garden'. Together with this kind of spaces, **the contemporary city needs to accommodate open wide natural spaces, characterized by their physical forms: empty spaces from which is possible to look at the city, places whose identity is founded on its closeness to the city itself.**

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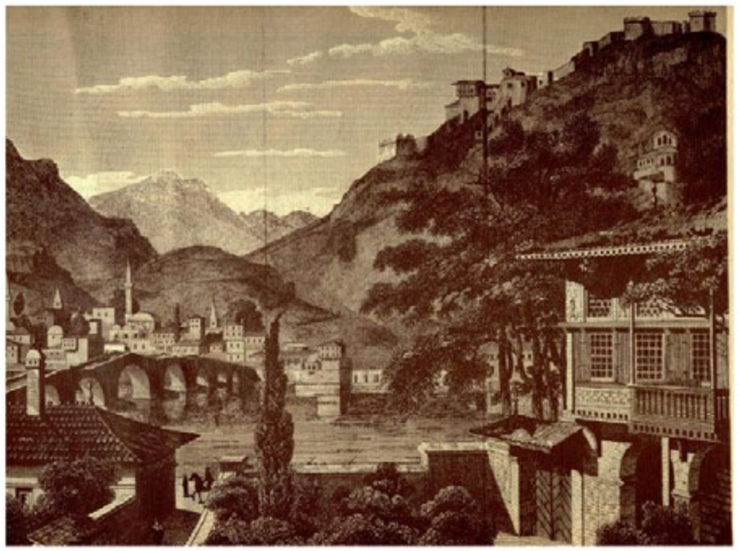
THE LESSON OF THE PAST



Berat is a paradigmatic example of a reconciled relation between nature and architecture, of a close association between 'forms of the ground' and form of the city. Here architecture describes and gives strength both to the powerful 'forms of the ground' and natural landscape characters.
Significant in this regard is the myth of the Osumi's river birth. According to a popular legend, it was originated from the tears shed by Berat, a girl fought over two giants (the two facing mountains **Tomor** and **Shpirag**), and petrified in the form of the city. This story highlights Berat's landscape forms, and interpret them by giving them human characteristics.
A recurring settlement principle in the Albanian territory is given by the presence of towns set along the 'waterways' (this is the case, for example of Kukes and Shkodra, which are currently subject of research carried on at Polytechnic of Bari).
The Osumi island is an lengthened strip of land that emerges from the river with a variable form, in a singular point of the city, where the two historic districts of Mangalem and Gorica face each other.

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STRATEGY OF THE PROJECT. GREEN ISLAND VS STONE ISLAND AND

The river with its island, a strip of land outcropping in its bed, has a great iconic power and a **recognizable 'spatial character'**. We can define it a 'territorial room' with precise limits to a territorial scale.
The island has a spatial condition of 'internality', determined by the fact of being between the steep slopes of the city. There are two peaks, two different landscape conditions in the background, with different morphologies (Mount Tomori on one side and Shpiragu on the other).
The new project of design will work on and develop this condition, which already exists in nature.
The architectural and landscape design should activate strategies to read and comment the natural and anthropic landscape, to put in relation the composing elements, to mark peculiar points from which one can overlook the landscape.
The river, the island, the mountains, the bridge, the fronts of the facades, the castle on the top, are all almost archetypical elements, able to form a coherent whole landscape, characterized by a strong formal, spatial, and symbolic meaning.
The 'island between two shores' is a landscape 'morpheme' that characterizes many cities,and has been declined according to two settlement principles, resulting in 'stone'or 'green' islands.

- The **'formal' stone islands**, made up by large platforms with landscaped gardens or by real 'city-island'. For example, Bosio's strategy was to give a definite form to the island (according to the historical model of Isola Tiberina).

- The **natural 'polymorphic' islands**, a kind of lagoons, with the architectural system superimposed (like pileworks) to the changing substrate.

A contemporary interpretation of this approach could integrate the shaping of the ground of the shores, with the design of some strategic points,and lightweight structures on the water, like walkways or wooden piers.

The two strategies, the one that shapes the ground and the other that 'comments' the resilient riverside with lightweight manufacts, could coexist starting from the recognition of the whole/part relationship and the form of the ground.
Mangalem and Gorica are characterized by different relationships with natural substratum, different in its connection to the river.
The project should strengthen the 'hinge' vocation of the island for Gorica and Mangalem districts, which face each other mirroring. In this way, will be designed an architectural device that may bring them in reciprocal tension. Because of its strategic location in the urban structure, **the island could become a unique urban center or hub, with places devoted to leisure activities designed in a large park**.
The island retain its original state and its **changing form** over the seasons, while preserving the **natural ecosystem**.
Footpaths traced in the green areas and hanging over the water **could connect the fragments of island that emerge from the water in dry periods.**

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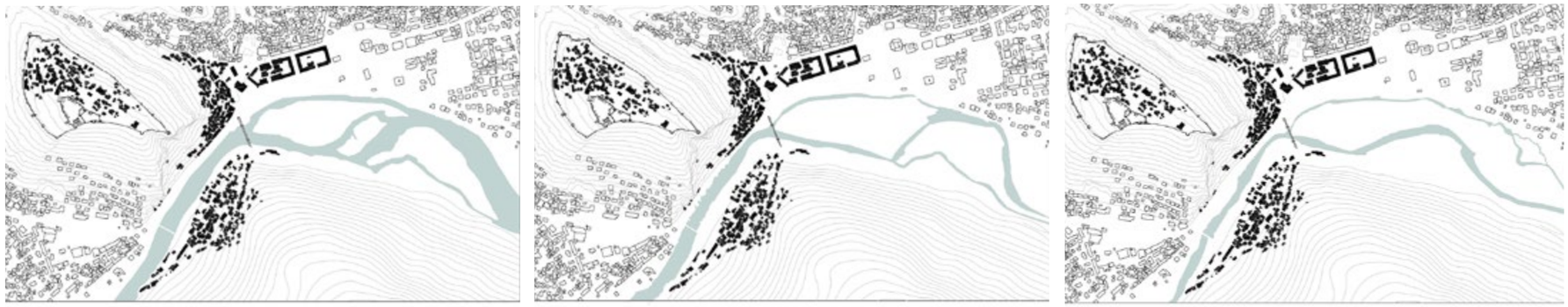
ABOUT RESILIENCE: THE RIVER'S MORPHOLOGICAL ACTIVITIES



The Osum river basin is a morphologically active natural system.
The strip of land on which the project is set **cannot be considered as a real island,** but instead an outcropping part of the shore, which is sandy in the lower areas (which are in direct contact with water), and covered by vegetation in the central higher area.
The project would focus on permanences and transformations of the river landscape through the seasons.
Enhancing the values of the physical integrity of the territory and **the preservation of natural cycles**, the project aims to build a resilient landscape, which can be envisioned as an indicator of the state of health of the territory.
The project aims at **safeguarding the changing structure that the river has in the different seasons** (due to different flow rates) or in relation to weather events, leaving its bed free to expand or shrink.
However, it needs to define the edge of the river on the city side through riverbank masonry works, to protect Berat from the risk of flooding.
The sandy margins of the 'island' will be instead naturally stabilized through the use of aquatic plants.

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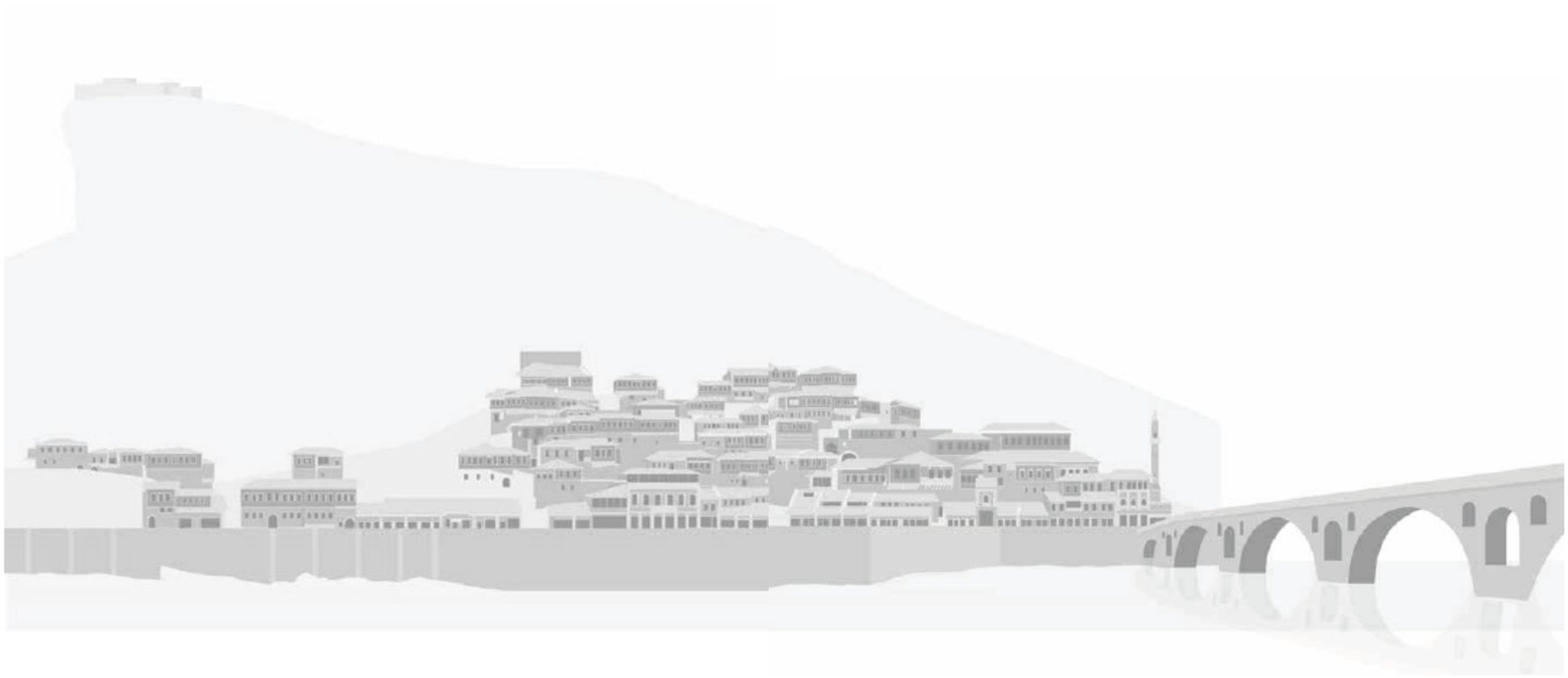
LANDSCAPE DESIGN



The Albanian landscape is strongly characterized by natural and human aquatic resources given by its dense hydrographic network, which is composed of streams, rivers and water basins.
This gives rise to variable landscapes, according to the water availability.
In the different seasons of the year, lakes can become rivers and rivers can be streams.
Consequently the landscapes nature, which is given by the relationship between natural and built environment, doesn't have a 'still' form, but **needs to be interpreted according to its mutable characteristics**.

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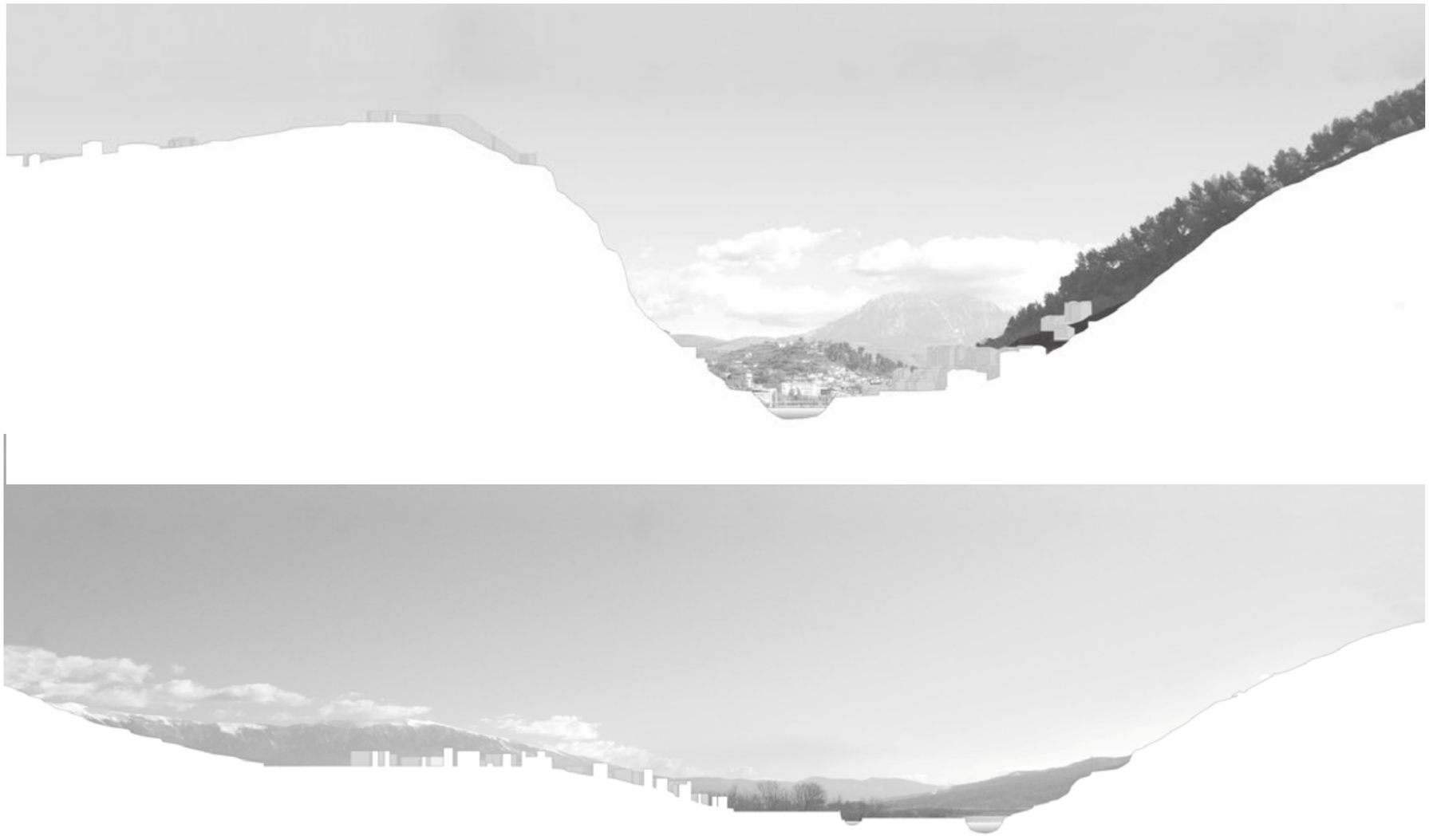

This is particularly true for some areas, as the Berat riverfront, **which is subject to these 'mutations'.** Berat's riverfront is characterized by its rich flora, vegetation, and diversity of habitats, from constantly submerged areas, moving on to areas subject to flowings, and ending in areas that are always above water level.

Our landscape design started from these considerations and interpreted the different ground and water forms of the Osum island according to different vegetation forms.

The project assigns to the flora an important role for the identification of the different landscape forms of the island and deals with two different fundamental types of plants: **those of a strictly aquatic nature that live in or on the river-bed, and riparian vegetation growing along the banks.**

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Aquatic vegetation forms

In stretches of the river where the water flows with force and speed, the plants are sparse, the riverbed is unstable and moves continuously, and only a small community of algae is able to form colonies. For this reason, **the head of our project was designed as a pool system**: inside their still water several native species of algae, floating leaved plants and higher plants can proliferate**.** In the pools or tanks will be planted Water Lily (Nymphaea alba and Nuphar Luteum), Water Chestnut (Trapanatans) Lemna minor or L.trisulca, the common Reedbed (Phragmites australis), Utricularia Australis, Myrio-phyllo-Nupharetum and Callitriche Obtusangula.

Riparian vegetation forms

The landscape design for the island riverbanks is characterized by high species richness, and by habitat diversity following floods. **Riparian veg-etation provided for the island riverbanks includes native shrubs and arboreal species** such as White and Riparian Willow, Populus Alba, Salix Alba, Salix Purpurea, Salix Amplexicaulis, Salix Elaeagnos subsp. Angustifolia, Platanus Orienta-lis, Fraxinus Angustifolia Oxycarpa: hygrophilous species, whose roots are connected with the ground water. A rich undergrowth, characterized by grasses, bushes, reed beds, and sometimes orchids, would be provided beside the riparian woods, such as the Spiny Rush, Self-Heal, Greater Plantain, Dove's Foot Cranesbills, Chenopodium Rubrum, Tamarici - Sali-cetum Purpureae and Eleocharis Ovate. The riparian vegetation works as a filter and therefore plays a key role in the purification of the water. Roots preserve the riverbanks from erosion caused by flowing water.

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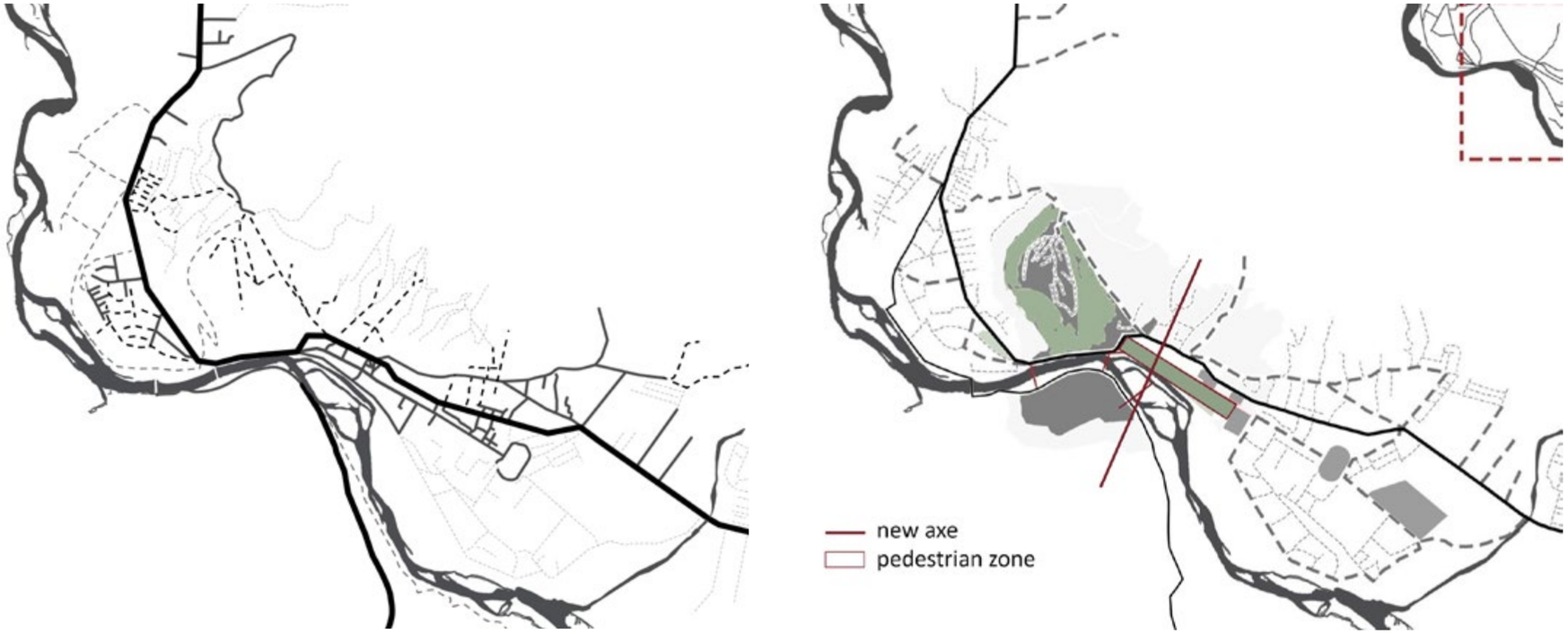
MOBILITY STRATEGIES AND ENVIRONMENTAL RESTORATION WORKS



Starting from the mobility scheme proposed by PPV, the project further emphasizes the opportunity **to regain a relationship between city and water**, diverting behind the University building the stretch of driveway on the riverfront coming from the informal suburb, thus reconnecting it to the existing road system.
In this way **the riverfront can be designed as a wide open space, linking the pedestrian monumental avenue with the historic city central areas, with the public gardens and, through them, with the river banks and the island**.
This area is crossed by two underground streams that flow into the river; **channels running through the garden show their presence**.

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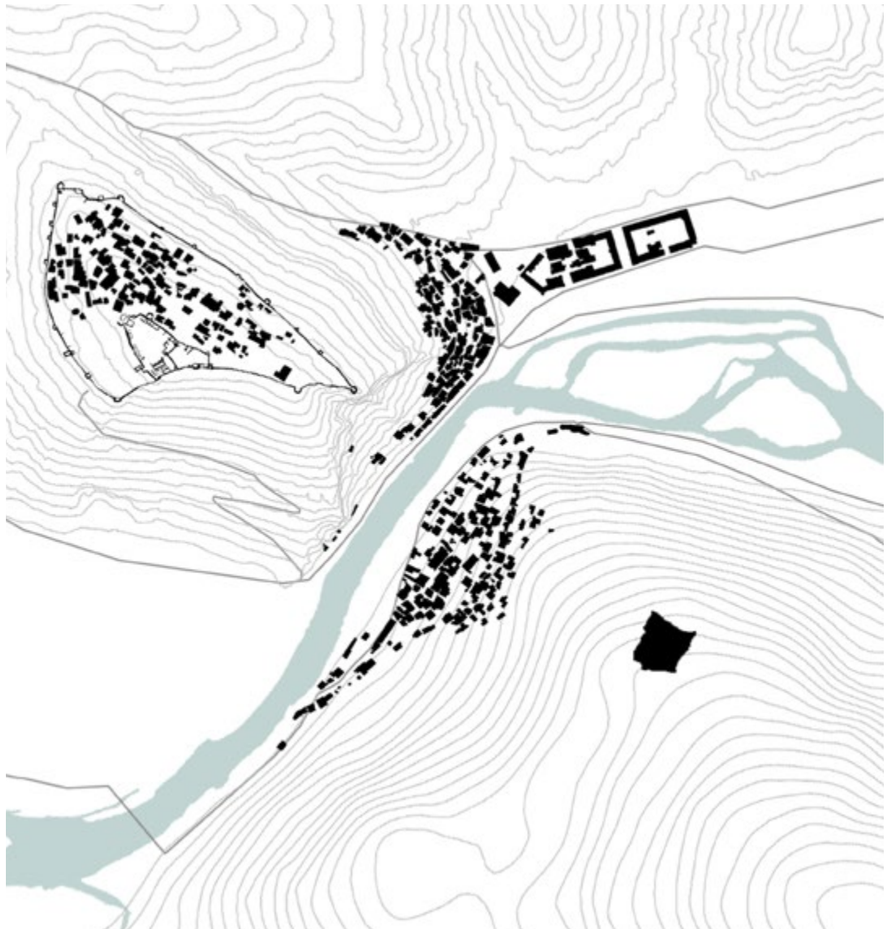
THE PROJECT AS A TOOL FOR THE RECONNECTION OF URBAN AND LANDSCAPE CRUCIAL PLACES



The project aims to visually and physically reconnect the central places of Berat and its landscape. Today the architectural heritage of the city is given by the presence of castle, historic neighborhoods, and architectural monuments, in some cases **visually linked to each other** by virtue of the landscape morphology, nevertheless they are physically disconnected.
The design of the 'inhabited bridge' and the 'lytic side' of the city wants to bridge this gap, housing a system of public spaces and a walkways network. **Variability and mutability** of the river form does not make it possible to give to the banks of the "island " a fixed architectural relationship with the water along the riverfront; therefore, **to establish a meaningful relationship with the landscape of water we adopted a wooden transversal crossing system**, which doesn't depend on the natural landscape forms.
The design strategy of the so called **'inhabited bridge'** introduces not only the possibility to connect the two riversides of the city, **but also to build new places where to contemplate the landscape, as well as to strengthen the presence of water in the public spaces system.**

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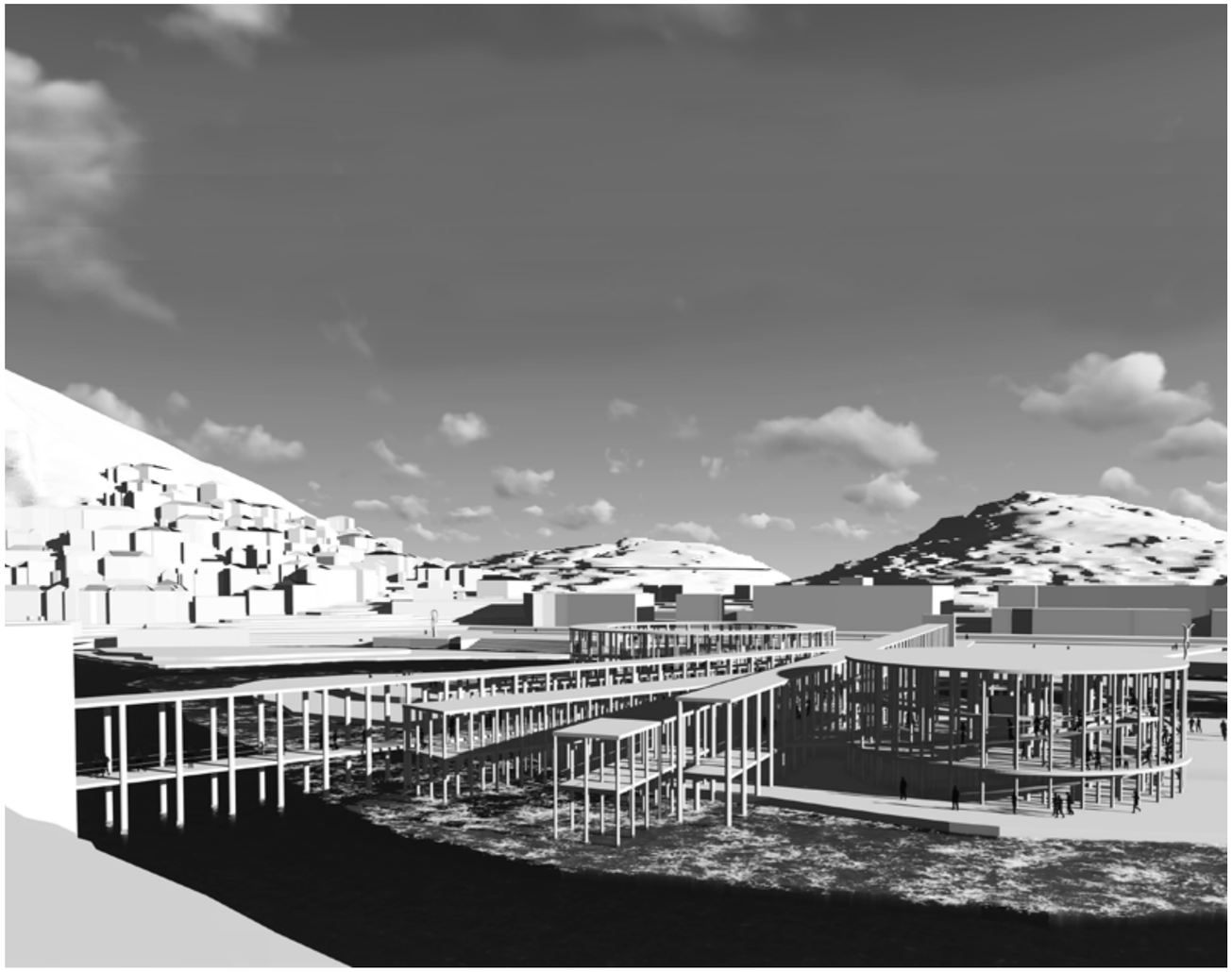
ARCHITECTURAL AND URBAN ELEMENTS



The project aims both at defining new visual and spatial relationships and identifying new specific features enhancing the natural values of the site, **establishing relevant relationships with the island form, the nature of its ground and vegetation**.
The relationship between river shore and **emerged island** area, with its **changing contours**, is at the basis of the design: new buildings and public spaces (the '**inhabited bridge'** and the **'pavilions**') at the **core of Berat** are intended as linking elements between city and nature, which is represented by the space of the island in the river.
The relationship between city, river and island is also given by the form of the shore and the mouth of small underground streams.

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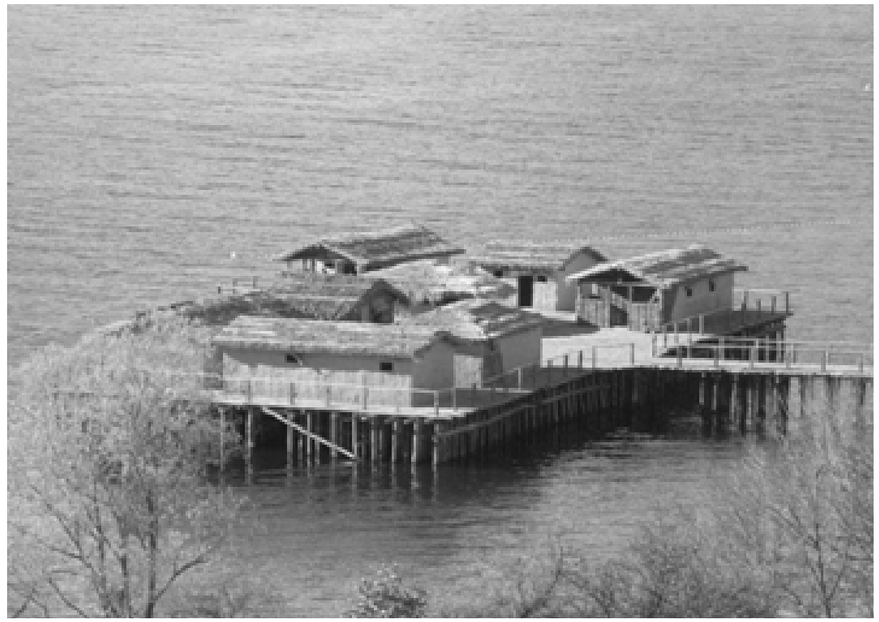

The 'inhabited bridge'
The bridge links riverbanks and allow to climb down from the city to the Osumi island, regardless of its **different seasonal shapes** depending on the water level.
The 'inhabited bridge' connects the city's river bank to the opposite mountain shore and, at the same time, allows to experience the island and two round buildings arranged within its natural vegetation. **It allows to stand above water and nature** but, at the same time, to reach emerged areas in the river basin, and to make use of the equipment provided in project sites.
The construction system based on piles is constituted by a theory of vertical wooden elements supporting walkways, stairs and ramps, which ensure the visual and spatial continuity between inside and outside. This type of construction is in continuity with **traditional Albanians buildings** and housing along rivers and lakes, by establishing a sustainable relationship with nature and local characteristics.
These structures were designed to enhance the resilience of the site and their function can vary during the day, the seasons and according to the water level.
The bridge and annexes pavilions are, at the same time, **open but confined places**, according to the Albanian architectural tradition (as in the case of the ***chardak***).
They can host a number of functions: from local products trading (bazaar), to convivial activities (celebration hall, dance hall, restaurant); they can have **different uses and conditions during the day and the seasons**.

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The 'lithic shore'
The river bank is the element that protects the city from the water. In our design it has the value of limit between city and nature, which here is mediated by the presence of the existing garden along the shore. The stone riverbank was designed as a 'stone beach' made of large steps connecting the city to the river level; a large auditorium; and a podium-building close to the existing bridge, which is home to small pools and a spa.

The 'inhabited bridge' and 'pavilions' system marks the **island gravity center**, where the 'bridge' branches. This is the preferential place to observe the space of the 'territorial room'.
This architectural system is actually a device to observe the landscape through the actions of 'walking through' and 'stop over'. Walking through the 'bridge' gaze is directed to the city backdrop and, on the contrary, of the hill; stopping over loggias and galleries we sight the river, which is closed at opposite ends by Tomor and Shpirag mountains.

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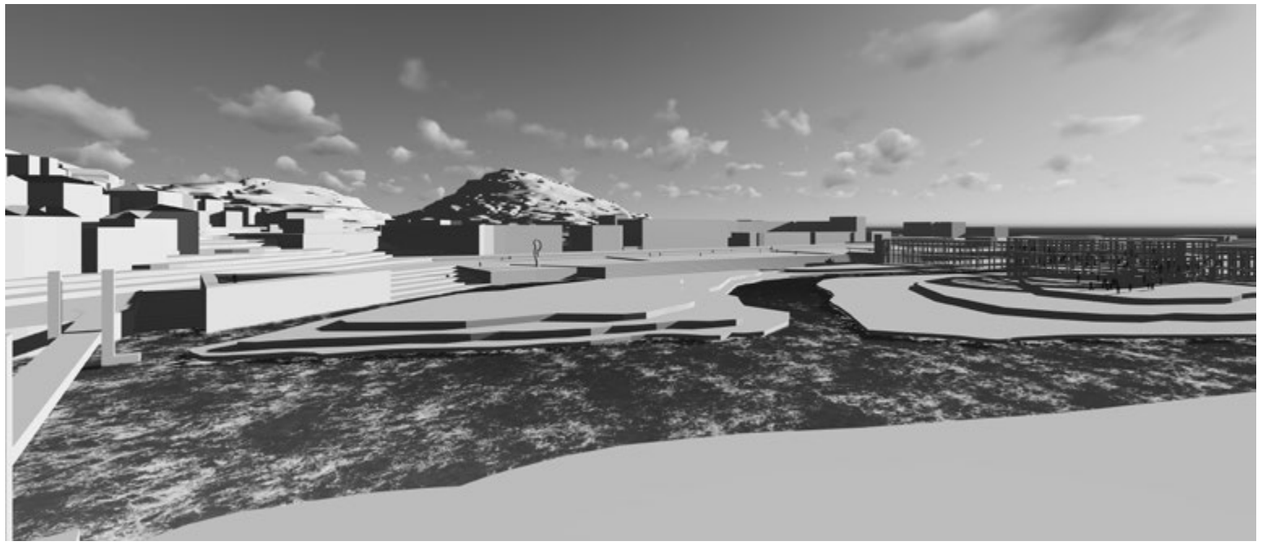

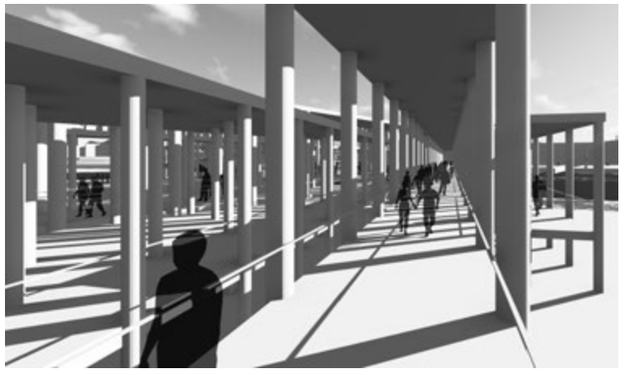

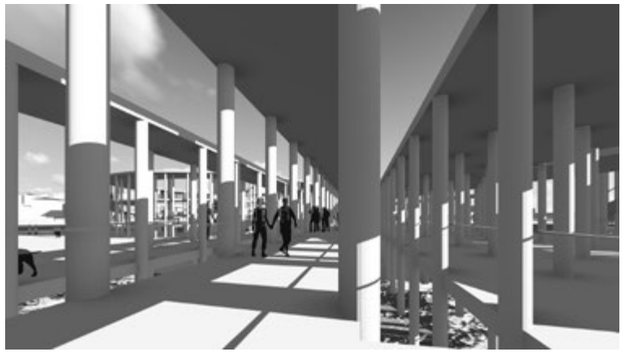

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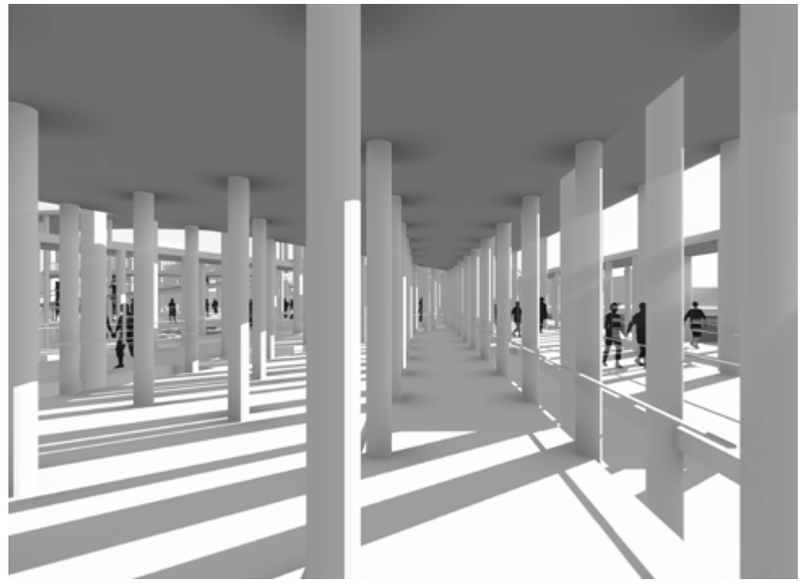

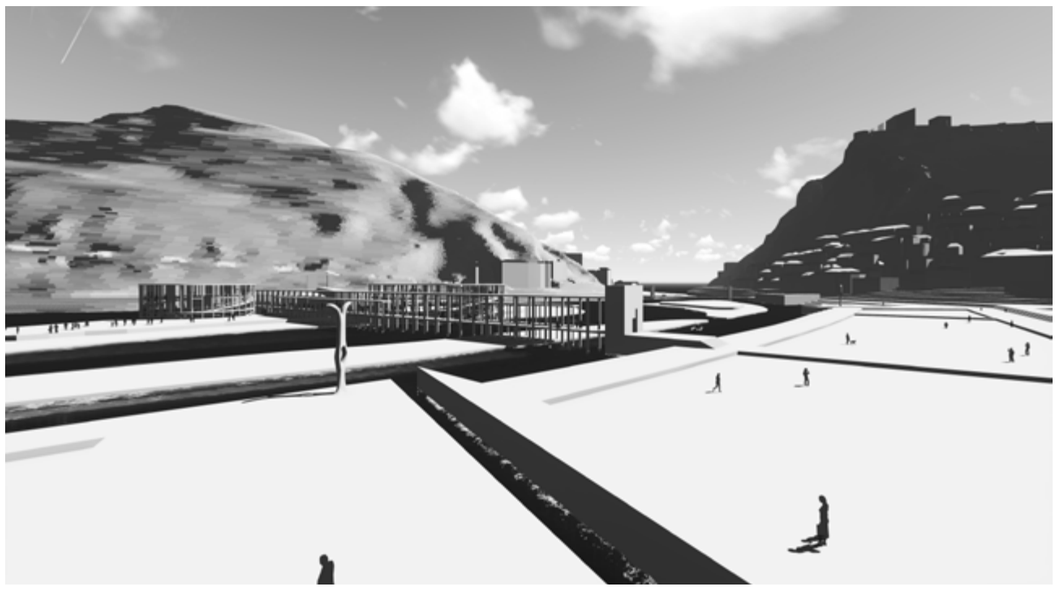

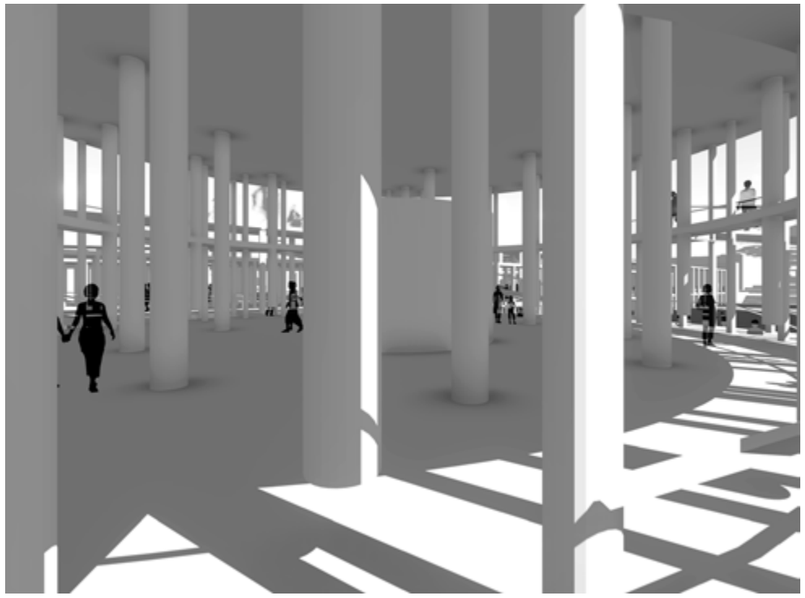

INVESTMENT COSTS ESTIMATION

OUTLINES OF CONSTRUCTION AND PHASES OF REALIZATION

Bridges, galleries and wooden pavilions

Bridge structure = mq 1794 x 500 euro/mq =	897.000 euro
Dance hall structure = mq 663 x 500 euro/mq =	331.500 euro
Dance hall flooring = mq 1385 x 200 euro/mq =	277.000 euro
Restaurant pavilion structure = mq 659 x 600 euro/mq =	395.400 euro
	Total = 1.900.900 euro

Tower and podium building

Tower = 838 mc x 150 euro/mc =	125.700 euro
Podio-pool = 556 mq x 1000 euro/mq =	556.000 euro
	Total = 681.700 euro

Remodeling of the city embankment

City's river bank shore, terraced steps and cavea = mq 2128 + 2092 = mq 4.220 x 100 euro/mq =	422.000 euro
Canals and sedimentation tanks = 50.000 euro x n. 2 =	100.000 euro
	Total = 522.000 euro

Landscaping

Urban Gardens remodeling =	100.000 euro
Park - Osum island = mq 14.710 x 20 euro/mq =	294.200 euro
	Total = 394.200 euro

Total = 3.498.800 euro

The project construction will take place in different phases but all attributable to a single process, which could be eventually be parceled out in time.

First phase. Consolidation of the city's river bank shore and construction of terraced steps. In this phase will be realized masonry and reinforced concrete works related to: the city's river bank shore; the underground streams mouth with sedimentation tanks; the towers containing stairs and elevators in reinforced concrete works and freestone masonry works.

Second phase. Foundations of 'inhabited bridge' and round pavilions on micro piles; planting of plant species provided for the 're-naturalization' of the island; integrating existing vegetation; cleaning and arrangement of the riverbed in order to ensure the smooth flow of water, urban gardens remodeling.

Third phase. Construction of the 'inhabited bridge' between the city and the mountains across the island. The structure will be realized through a series of wood spans, partially closed by glasses, and connected by wooden stairs and ramps set inside and outside the circular structures.