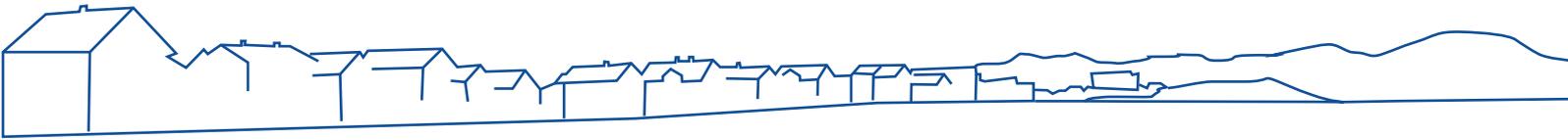


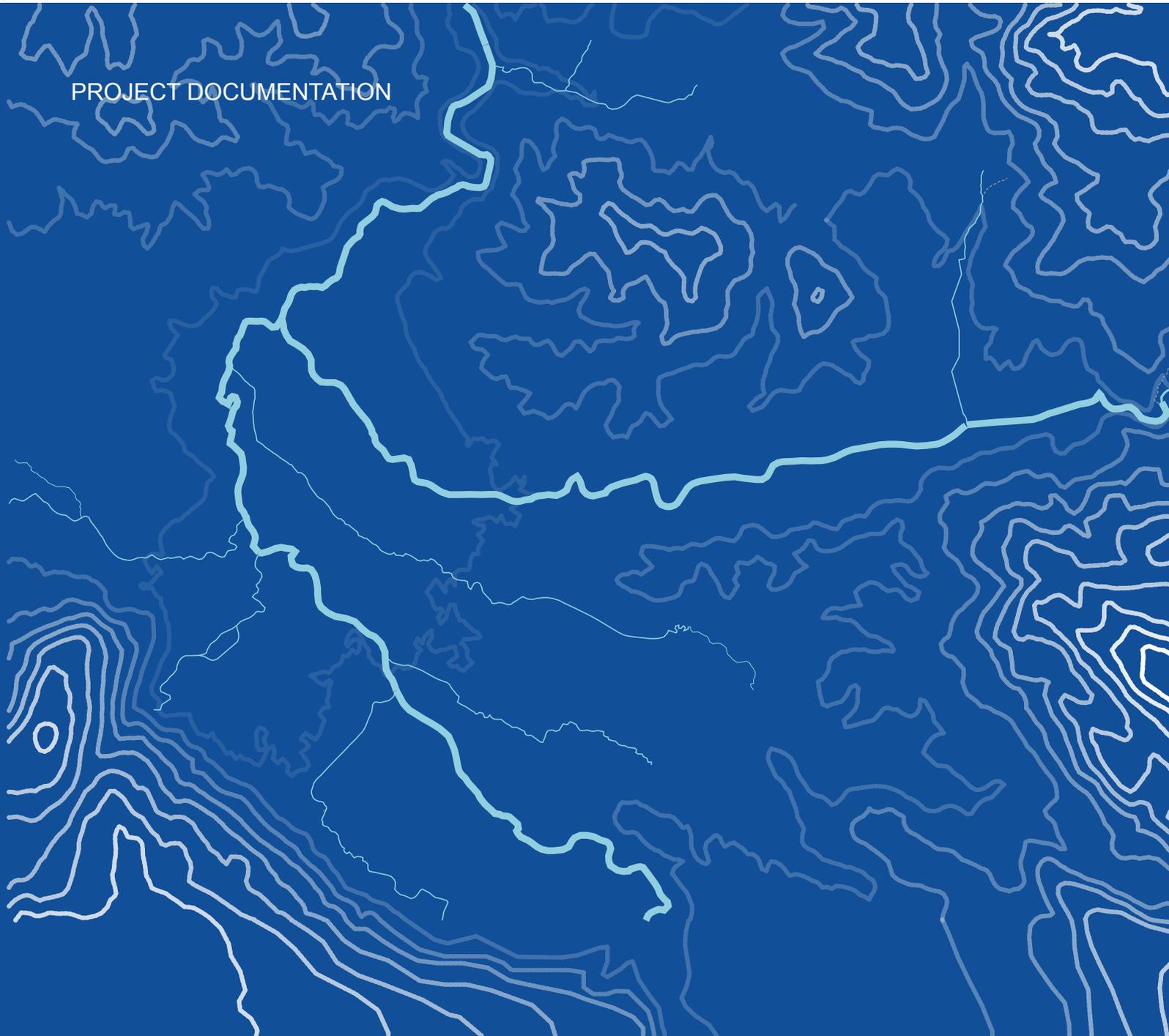


International Master of Landscape Architecture

# Alternative Futures for SARAJEVO POLJE



PROJECT DOCUMENTATION





View from Igman mountain over Sarajevo Field (Polje), the airport and the Dobrinja settlement in to the Sarajevo valley  
*Image kindly provided by Nino Sarić*

# ALTERNATIVE FUTURES FOR SARAJEVO POLJE

## PROJECT DOCUMENTATION

University of Sarajevo – Faculty of Forestry  
International Burch University – Department of Architecture  
IMLA Programme: Nürtingen-Geislingen University (HfWU) and  
Weihenstephan-Triesdorf University of Applied Sciences (HSWT)  
Université Libre de Bruxelles (BE), Architecture Faculty La Chambre Horta  
University of Sarajevo, Faculty of Agriculture  
ALA BiH - Association of Landscape Architects in Bosnia and Herzegovina

[www.imla-campus.eu](http://www.imla-campus.eu)



# INTRODUCTION

## SKRIVENI POTENCIJAL PEJZAŽA SARAJEVSKOG POLJA



Dr Erna Husukić  
Assistant Professor  
Department of Architecture  
Faculty of Engineering and Information Technologies  
International Burch University  
Sarajevo, Bosnia and Herzegovina

Suočavajući se sa novim razvojem, rastrgnutim između prevrtljive stvarnosti brze urbanizacije i novonastalih prostornih odnosa u okvirima multikulturalnog i multireligijskog društva, budućnost Sarajevskog polja je neizvjesna. Kao i u mnogim drugim dijelovima grada, prostorna, sociološka i ekološka struktura Sarajevskog polja je rezultat poslijeratne preobrazbe identiteta nastale kroz ishitrene i neplanske intervencije koje nameću novi sistem vrijednosti a koji je podržan od strane nadležnih organa vlasti. Unatoč ovim promjenama, raznolik potencijal Sarajevskog polja čezne za obnovom i aktivnim učešćem u svim tokovima gradskog razvoja.

Da bi se razumio skriveni potencijal Sarajevskog polja, nužno je prihvatanje ključnih karakteristika pejzaža koje su vremenom evoluirale i predstavljaju današnju sliku pejzaža. Također, važno je

početi razmišljati o Sarajevskom polju kao ključnoj komponenti u planiranju budućeg razvoja elastičnog grada koji njeguje sve aspekte održivog razvoja.

Ova publikacija se sastoji od studentskih radova na temu alternativne budućnosti Sarajevskog polja sa posebnim akcentom na studiju promišljanja o elastičnom i produktivnom pejzažu sa multifunkcionalnim zonama a sve to kroz održivi pristup planiranja – pristup Sarajevskom polju kroz zelenu infrastrukturu.

Radionica je posmatrana kao izuzetna prilika za grad Sarajevo i Internacionalni Burč univerzitet - Odsjek za arhitekturu, da ugosti lokane i internacionalne institucije - učesnike (Univerzitet u Sarajevu - Šumarski fakultet, Asocijacija pejzažnih arhitekata u Bosni i Hercegovini, IMLA Programme: Nürtingen-Geislingen University, Weihenstephan-Triesdorf University of Applied

Sciences and Université Libre de Bruxelles, Architecture Faculty La Chambre Horta) i kroz zajedničke aktivnosti pokuša dati odgovor na aktuelnu dilemu: Koje su buduće putanje razvoja Sarajevskog polja?

Internacionalni Burč univerzitet - Odsjek za arhitekturu izražava zahvalnost svim članovima radionice koji su velikodušno podijelili svoje stručno znanje i sa time osnažili vizionarske ideje studenata o mogućim smjernicama budućeg razvoja Sarajevskog polja.

# A LANDSCAPE APPROACH FOR THE POLJE



Dr Ellen Fetzer  
IMLA programme HfWU Nürtingen-Geislingen  
LE:NOTRE Institute Board  
Vice President of ECLAS  
European Council of Landscape Architecture Schools

Here we are again in Sarajevo with our great friends from various faculties and institutions. What brings us together is a common aim: sustainable landscapes for Bosnia and Herzegovina.

Sarajevo is one of the very few cities in Europe where city and landscape are symbiotic. The mountains surrounding this densely urbanised valley are omnipresent. They have determined the cities' morphology over centuries. However, the relationship of the urban core to its surroundings has been challenged in various ways during the past decades. The loss of state-controlled planning after the fall of communism gave room for accelerated urban sprawl. The Dayton Agreement left a politically fragmented country with Sarajevo being only one of many places where the former administrative structure has been broken up.

Today, the city is split between the two entities. Both are governing

an area that was once the entire functional urban zone of an urban region, including a rural hinterland which was supposed to provide essential recreational services for the urban dwellers.

Regardless of this specific Bosnian condition, the country is of course not exempt from general European trends. Across Europe we observe internal migration to urbanized areas and parallel rural abandonment. With our series of planning and design studios we aim to raise awareness for Sarajevo's landscape as a natural, cultural and economic resource for the common good.

Infrastructure and capital (both in social and monetary terms) are needed to turn this resource into tangible and intangible values for the local community. Values are essentially needed for reactivating Bosnia's devastated socio-economic basis. A green infrastructure approach could help

triggering this value chain. We looked at Sarajevo Polje in the first place as a landscape unit. It is not just by chance that Neolithic tribes settled in this wonderful plain full of natural gifts as early as 5000 BC. They were followed by Romans, Ottomans, Austrians, Sarajeveans. What unites them all is that every cultural group sought for recreation, health and nature experience in the Polje. What a great gift for a capital city is it to have such a rich landscape in front of its doors.

The Polje and its numerous natural and cultural values are highly under threat. This landscape needs an overall vision, a vision with objectives that are shared by all residents and stakeholders.

We hope that this brochure will inspire the local community to work towards this aim.

# LANDSCAPE ARCHITECTURE!

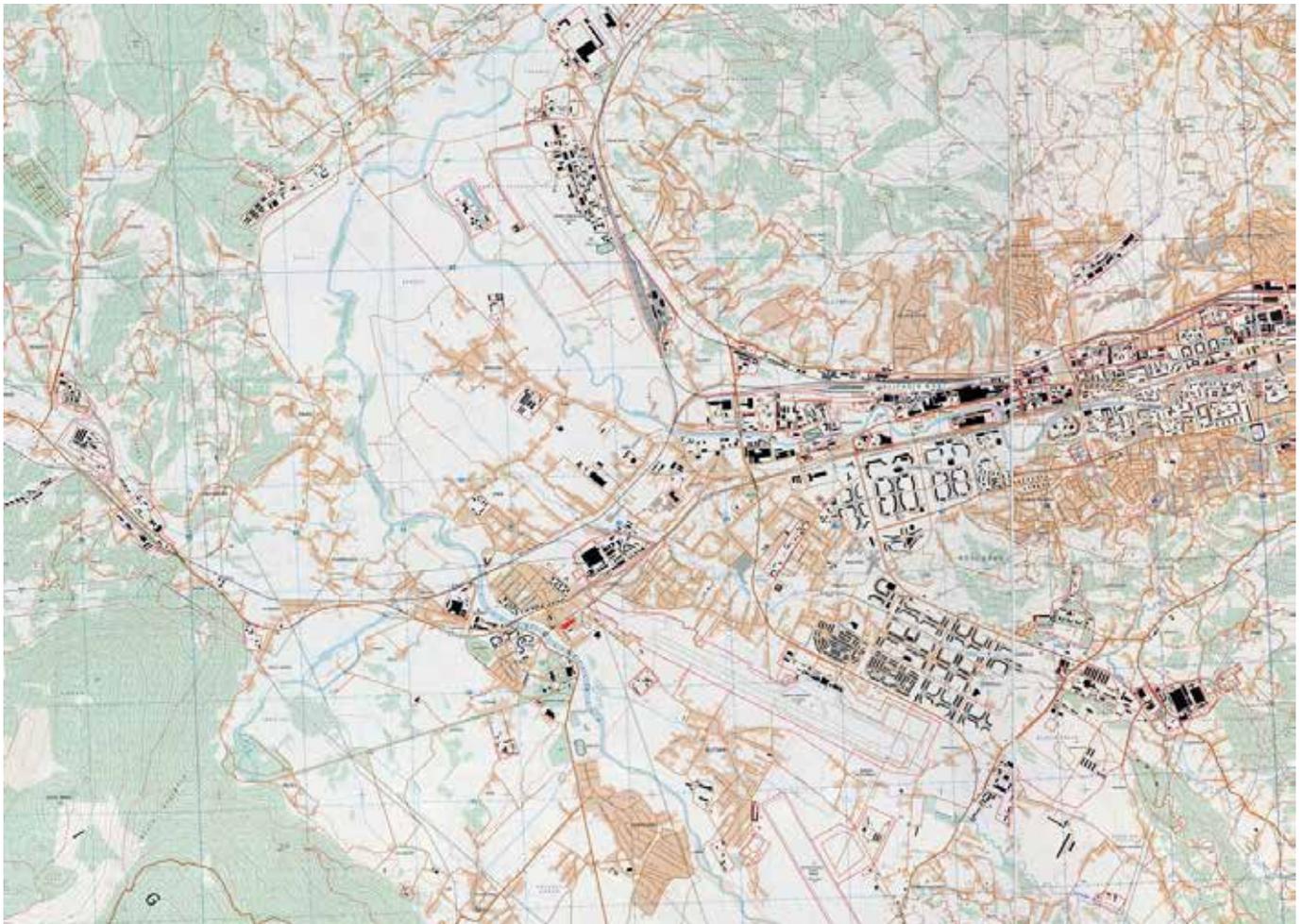


Dr. sci. Mersad Omanovic  
dipl.ing.hort.  
President ALA BiH  
Association of Landscape Architects  
in Bosnia and Hercegovina

Isa Bey Ishaković - the founder of Sarajevo - could not know how big this city would ever grow. Maybe he was aware that the Roman colony of Aquae Sulphurae existed on top of present-day Ilidža at the west side. But he transformed whatever cluster of villages there was in the east of Sarajevo Polje into a city. Nowadays Sarajevo extends between those two points. Twelve kilometers of urban desert!

Yes: desert. Because there is a huge water problem in Sarajevo Polje. Groundwater consumption is so high that the plane trees of the Great Alley are dying. Their roots are literally hanging in the air because the ground water level is running low. What to do? There is a solution given by experts and it will be solved in the near future but still, this is only a sectoral solution (hydrology

engineering). There are multiple other questions: spontaneous settlements, consumption of fertile soil, fragmentation, transport, environmental quality, to name only a few. Our answer is: landscape architecture! Any sustainable development is based on an interdisciplinary approach. This brochure is an attempt to introduce landscape thinking in Bosnia and Hercegovina. Let's go for it!



# CONTENTS

INTRODUCTION  
8

CONTEXT  
14

STUDIO TEAM  
20

LINKING POTENTIALS  
22

GREEN CILIM  
28

TOWN IS BACK  
36

THE ILIDZA TRAIL  
40

ECORRIDOR  
46

AGRICULTURE  
52

ILIDZA AS ILICA  
58

RE-USE & CONNECT  
64

SHAPE IRREGULAR  
70

BLUE AND GREEN  
76

IMPRINT  
82

# WHERE IS THE POLJE?





This wonderful interpretative-analytical map was developed by all students of the 2016 MicroMegasLab - ULB studio of architecture. Université Libre de Bruxelles

Thanks for sharing!

# CONTEXTUAL NOTES



Walking along Željeznica river in the South of Sarajevo Polje

## THE URBAN FRINGE

The specific emphasis of this study project will be on the integration of urban planning, environmental protection and landscape architecture for building a sustainable development perspective for the urban periphery of Sarajevo. It is expected that this interdisciplinary cooperation will produce innovative solutions to the planning, design and management of dispersed and fragmented areas in urban fringe zones. These areas are characterised by competing interests and land use demands of housing, agriculture, tourism, industry, education, traffic, nature protection, water management, recreation and various other sectors.

A profound understanding of the driving forces shaping these areas combined with creative procedural and spatial thinking leading to concrete planning

action is required for assuring the sustainable development of urban fringe zones. Urban and peri-urban areas are Europe's key to economic growth, social wealth and political stability. But at the same time this urban productivity is highly threatened if its ecological foundation is destroyed. Therefore, sustainable growth has become the principal goal of the Europe 2020 strategy.

The urban fringe is thus an excellent laboratory for exploring the possibilities of integrated land management leading to smart integration of different demands for example in the form of multifunctional areas that succeed in combining aspects of infrastructure, water management, recreation, environmental protection (habitats, soil, water and air), heritage protection, tourism, agricultural production as well as structural and aesthetical functions.

Landscape is understood in this project as the everyday environment of people which is the basis of their livelihood. It is the landscape scale at which competing territorial interests need to be negotiated. However, people's site-specific perspectives and possibilities are the key to sustainability, which is why community involvement is crucial. The landscape perspective should help building a cross-sectoral and community-based vision for Sarajevo Polje.



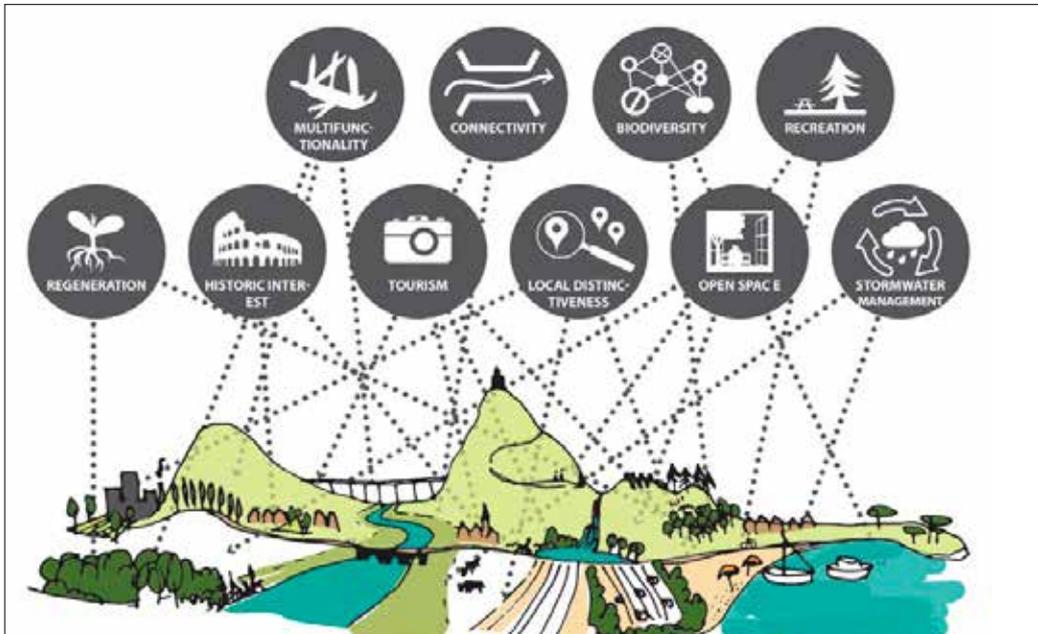
Open river spaces along Željeznica in Ilidza



Top: multifunctional landscapes along Željeznica river, bottom: riverbank regulation is implemented along the Bosna river as a consequence of the 2014 floods.



# THE GREEN INFRASTRUCTURE APPROACH



Green infrastructure functions at a glance, graphic by A. Szilágyi-Nagy

Green Infrastructure is the network of natural and semi-natural features, green spaces, rivers and lakes that intersperse and connect villages, towns and cities. It is a natural, service-providing infrastructure that is often more cost-effective, more resilient and more capable of meeting social, environmental and economic objectives than 'grey' infrastructure.

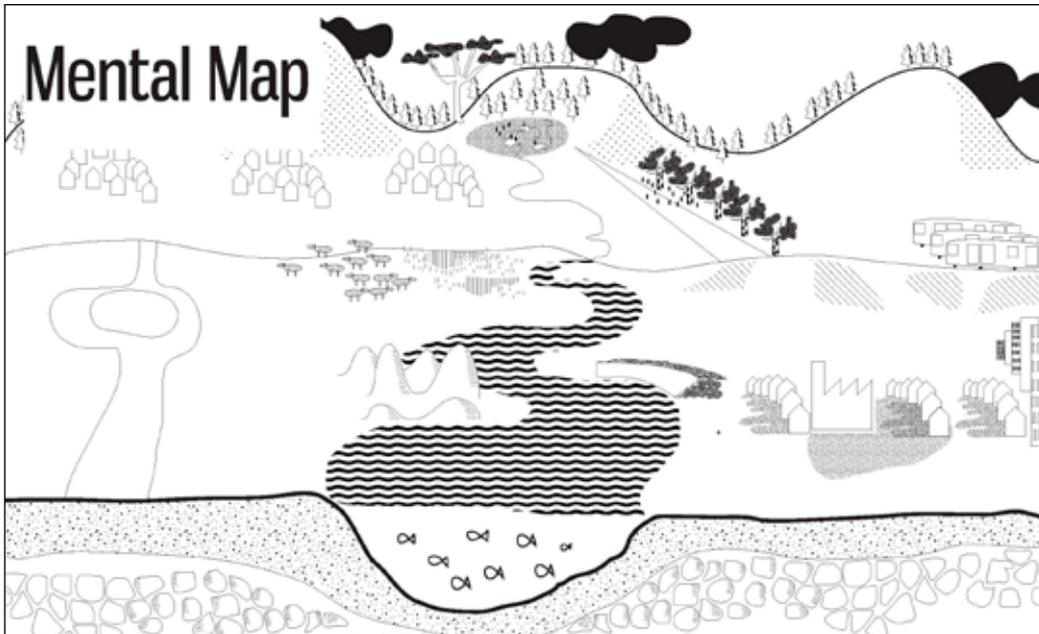
It effectively reduces the need for constructing or renovating traditional, unattractive unifunctional grey infrastructure elements like concrete pipes, floodwalls or holding tanks. It is a vital infrastructure from which economic, social and ecological benefits can be gained if it is managed and planned appropriately.

The European Union has recently published a green infrastructure communication in which the concept has been defined as follows: „Green infrastructure (GI) is a successfully tested tool for providing ecological, economic and social benefits through natural solutions. It helps us to understand the value of the benefits that nature provides to human society and to mobilise investments to sustain and enhance them. It also helps avoid relying on infrastructure that is expensive to build when nature can often provide cheaper, more durable solutions. Many of these create local job opportunities. Green Infrastructure is based on the principle that protecting and enhancing nature and natural processes, and the many benefits human society gets

*from nature, are consciously integrated into spatial planning and territorial development. Compared to single-purpose, grey infrastructure, GI has many benefits. It is not a constraint on territorial development but promotes natural solutions if they are the best option. It can sometimes offer an alternative, or be complementary, to standard grey solutions.“*

(<http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52013DC0249&from=EN>)

# INTRODUCTION TO THE SARAJEVO POLJE CONTEXT



Mental map of Sarajevo Polje: M. Virgaux, L. Raphael, A. Damblant, L. de Vataire, M. Benjak

The so-called 'Sarajevo Field' is linked to the western end of the urban area of Sarajevo where the Miljacka river valley widens and eventually opens up to the large plain shaped by the Bosna River and its tributaries: Dobrinja, Zeljeznica, Miljacka and Zujevina. The plain is limited in the Southwest by the steep slopes of the Igman-Bjelasnica massive and to the South-East by low and middle mountains of the Trebevic-Jahorina chain. The entire alluvial plateau is strongly shaped by the rivers and their catchment areas. Urban development is limited both by topography and the need to provide extensive areas for water retention because of frequent flood occurrences. Furthermore, vast territories are groundwater protection areas providing water for the entire city and characteristic thermal water areas can be found as well.

Provisions for engineered flood protection have been installed, partly with EU funds, however, the extreme flood events of May 2014 also hit this area. Sarajevo Polje is a classical peri-urban case in which competing land use interests need to be negotiated and solved by multifunctional solutions that include the natural assets of the landscape. Taking the ongoing rural-urban migration trend, future road infrastructure projects and the increasing role of the airport as communication hub into account, the development pressure on this area will inevitably increase in the coming years. Therefore, the question of how to balance the natural foundation of this landscape with its economic development perspective will become ever more pressing.



# SARAJEVO POLJE: A MULTIFACETED LANDSCAPE

## The evolution of a recreational identity

The landscape of Sarajevo Polje was shaped over centuries by agriculture, especially livestock breeding, for which the wide meadows and grasslands of the plain were ideally suited. This rare image with Igman mountain in the back shows how we could imagine those times. When the Austro-Hungarian government took Bosnia over from a fading Ottoman Empire the new governors immediately identified the recreational potential of the plain, especially around Ilidza.



Livestock breeding and herding in Sarajevo Polje around 1900



Bosna Spring lakes shortly after construction



Water based recreation in Ilidza



Ilidza train station at the beginning of the 20th century  
Bottom: Chestnut Alley to Bosna Spring



A new era started in 1891 with the initiation of the Sarajevo-Mostar railway and a new station in Ilidza. Through this investment Ilidza could develop into a recreational and touristic destination not only for Sarajeveans but also for foreigners. The location developed into a prestigious and vivid spa benefiting from thermal waters, a tradition that had continued since Roman times. Hotels, restaurants and a park were built. The Bosna spring was designed as a recreation area and connected to the centre of the spa by the famous chestnut alley. Both are protected landscapes today. Swimming in the river was common in the



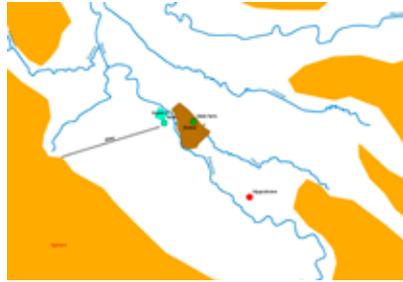
beginning of the 20th century as the awareness for public health was raising across society. Ilidza kept this spirit during the Yugoslav republic. The city was modernised and new forms of recreation appeared such as camping and famous pick-nick areas like Vrutci and Stojcevac. Sarajevo Polje became a landscape of recreation for everybody.

All images are taken from public archives and Delcampe postcard collection



## Multiple archaeological layers

The polje has been inhabited since 5000 BC because of its favourable natural conditions, fertile soils and the proximity of water from the Željeznica river. The traces of various cultures are too numerous to be mentioned here. The neolithic Butmir culture is famous across the world. The main excavation site is located on a state-owned farm nearby Ilidza. The Butmir culture was discovered by chance in 1893 when the Austro-Hungarian government started constructing

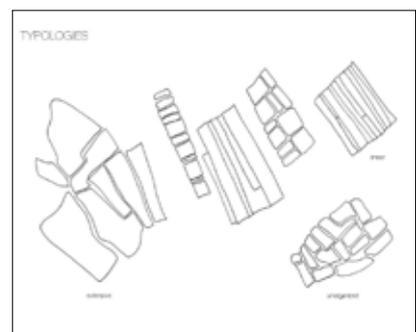
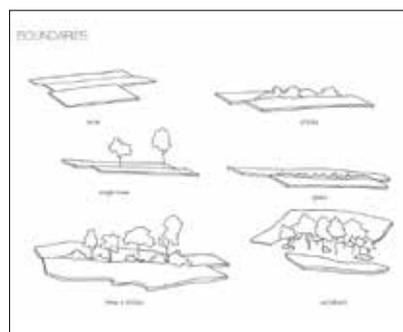
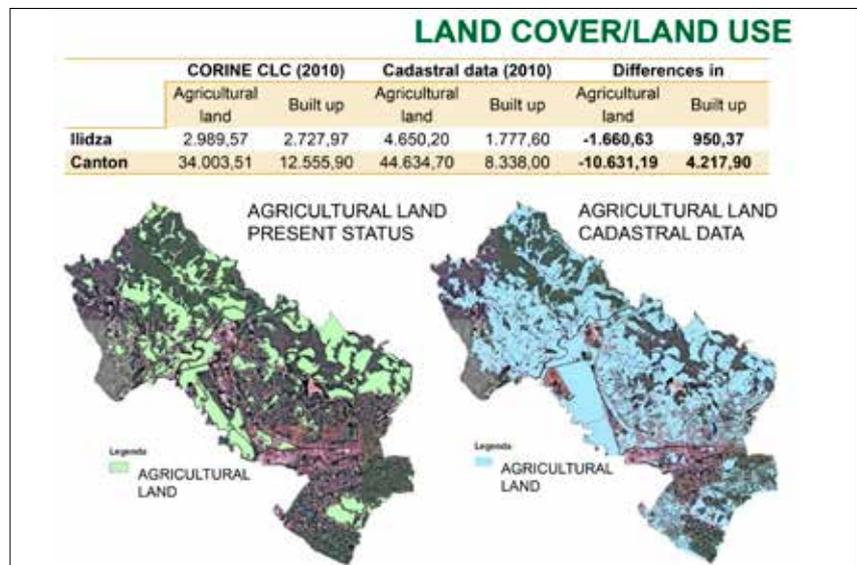


an agricultural college. The culture was very famous for its ceramics. Further archeological sites can be found from the Romans, who used Ilidza already as a spa probably called *Aquae Sulphurae*.



## A food landscape under threat

Due to the presence of the many rivers that shaped the plain over thousands of years Sarajevo Polje is in the favourite position of having some alluvial soils with high fertility which are very suitable for agriculture. The more unfavourable soils are usually covered with forests or meadows. According to a comparison of the original (basically pre-war) land designation as defined by the cadastral map and data from Corine land cover reveals a loss of more than 1.600 hectares for Ilidza municipality. These data show that new urbanisation and - partly - illegal housing is taking place on agricultural, i.e. fertile soils. Map and data have been kindly provided by Prof. Dr. Hamid Custovic from the Faculty of Agriculture and Food Sciences at the University of Sarajevo.



# SARAJEVO POLJE: A MULTIFACETED LANDSCAPE

## A landscape shaped by water

Water is the core element of Sarajevo Polje. The map shows the environments of Sarajevo around 1910 on an Austro-Hungarian military map. While the city itself has not yet expanded across the valley the rivers of the polje are much more organic than today. The water bodies have not been regulated yet. We can imagine this as an ideal habitat for flora and fauna.

This overview also shows that Sarajevo Polje has an important function as a water collection territory as various rivers from the nearby mountains are meeting on the same - limited - space. During strong rain events and snow melt a huge amount of water comes together which causes regular flooding.

Unfortunately, recent actions for flood prevention are very conventional, as can be seen on the image below. Rather than seeking for nature-based solutions in order to avoid further flooding downstreams the chosen solution is concrete embankments. It is very likely that this measure will trigger further urban sprawl in the agricultural fields. The pre-war urban development plan used to be very careful and banned construction from this important flood retention areas in the north of Ilidza, where three rivers, Bosna, Željeznica and Mijacka meet.



Water network around Sarajevo based on a military map from 1910.



Bosna riverbank regulation under construction in March 2016.



## Natural values and protection regimes

The maps here show parts of the recent spatial plan of the canton of Sarajevo. This planning instrument does not cover the entire territory of Sarajevo Polje as it is limited to the east by the boundary to the Serbian entity.

The map on the left shows the layer of environmental protection. Evidently, a large part of the polje has been declared water protection area and this status is not new. The reason is that this area serves as the major drinking water resource for the city of Sarajevo. This protection status is very efficient and urban sprawl can only rarely be seen on this territory. It is a multifunctional landscape with recreational functions. Agriculture exists as



well and conflicts to some extent with the protection objectives.

The map on the right shows the layer of cultural and natural protection. Part of this overlaps with the water protection zone, namely the area of the Bosna Spring natural heritage site. The Bosna Spring area is linked to the forest protection area of Igman mountain which is very beneficial



for biodiversity. This link also enhances the visual quality of the landscape. On the one hand it can be stated that protection efforts for the landscape of Sarajevo Polje are in place and effective. On the other hand some important changes to the pre-war spatial plan have been made which represent a major threat for the future.

## Important changes in the land use plan

The map on the left shows the 1986 -2015 urban development plan of the canton of Sarajevo still within its prewar limits. The protection regime for water and natural heritage has been kept also in the new plan. But in the northern areas of the polje there have been significant changes. The old plan included clear settlement limits and green buffer zones along the flood-prone areas along the river. Also the agricultural areas are clearly designated so they can serve also as water retention areas in the case of heavy flood events.



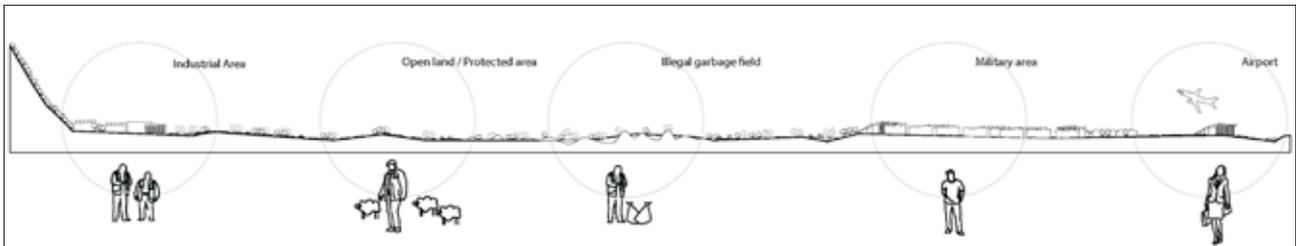
Surprisingly, those areas have disappeared in the new plan. The entire area between the new highway and Ildiza city center has been declared a semi-buildup area with mixed use. Today, the area still includes a lot



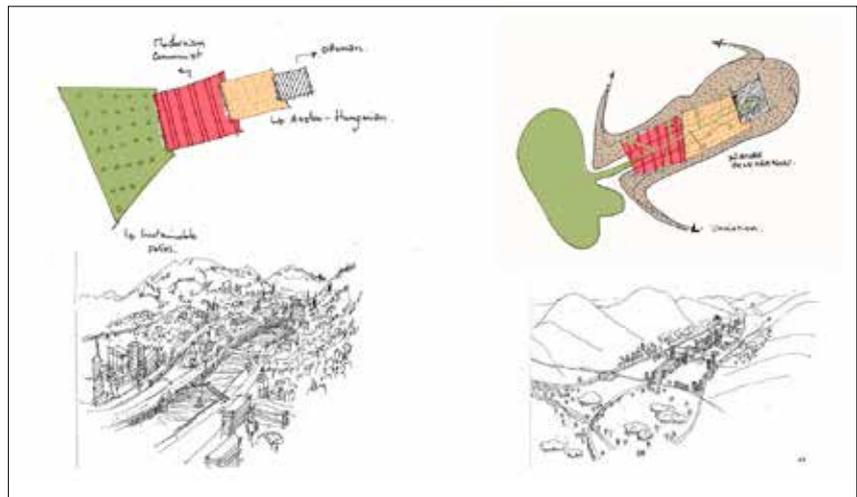
of agricultural lands as well as many uncontrolled settlements. This new designation seems to give the area free to urbanisation without consideration of flood protection and green connectivity. A very worrying decision.

# SARAJEVO POLJE: A MULTIFACETED LANDSCAPE

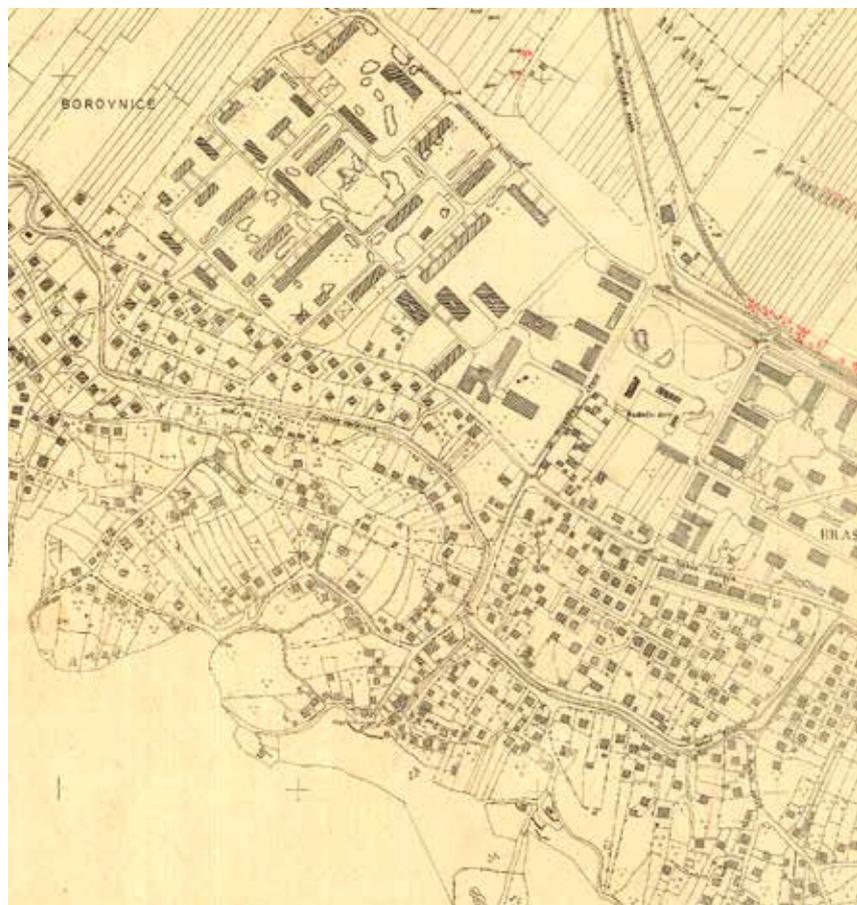
## A landscape for people



Sarajevo Polje is a great place to live. The air is fresh and the views are wide and open, framed by Igman and Trebevic mountains. The city with its working places and cultural attractions is easy to reach with the tramway. Even if the tram is not in the best condition the existence of this connection is a great asset. The section at the top shows graphically the different typologies by which people are surrounded in the Polje. Even if the territory is relatively small there is a nice diversity of land uses. The upper graphic on the right illustrates the changing relationship of the Polje to the city core.



The map section below shows the village of Hrasnica in the south-western edge of Sarajevo Polje right at the foot of Igman mountain. It is an example of wise urban planning dating back to the 1980s. The new development extends the organic 'mahala' patterns on the slopes. It is clearly limited by the water protection area starting beyond the street. One would wish that future developments followed a similar logic rather than spreading out into the territory without any link to existing structures.



# THEMATIC FRAMEWORK OF THE STUDIO

## An idea repository for the community

60 students teams and 11 teachers from four universities in Belgium, Germany and Bosnia worked together from March 14 -25, 2016, on the landscape of Sarajevo Polje.

While each team developed its topics starting from a specific landscape layer, the following questions and topics gave the overall thematic frame for this studio:

- Mapping the landscape character and the landscape capacity of Sarajevo Polje
- The role of scenarios for envisioning alternative developments and their impact on the landscape
- Apply the concept of multifunctional and productive landscapes on this urban periphery
- What does densification mean and how would an ideal settlement development look like?
- How can multifunctionality be implemented in order to reduce space consumption (i.e. combining flood protection, biodiversity and recreation)?
- How to envision natural resources as a driving force for sustainable development?
- How could a landscape approach help strengthening the identity of Sarajevo Polje?

- Can natural resources become a driving force of sustainable development?
- How can the local socio-economic condition be addressed?
- Which types of jobs could be created by multifunctional landscapes (i.e. urban farming, environmental education, tourism, local food production and others)
- Which governance and participation models are required?
- Which financing mechanisms could be developed?

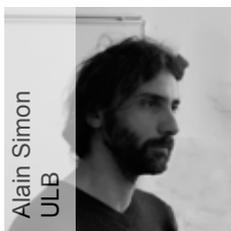
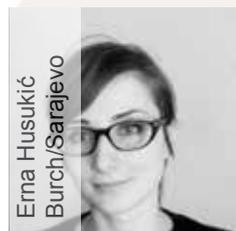
On the following pages the outcomes of the students' work will be presented. All projects are build on a specific emphasis and perspective of the landscape like agriculture, biodiversity, water, housing, culture, traffic - and many others. Together, they form a rich resource of ideas for sustainable local development.

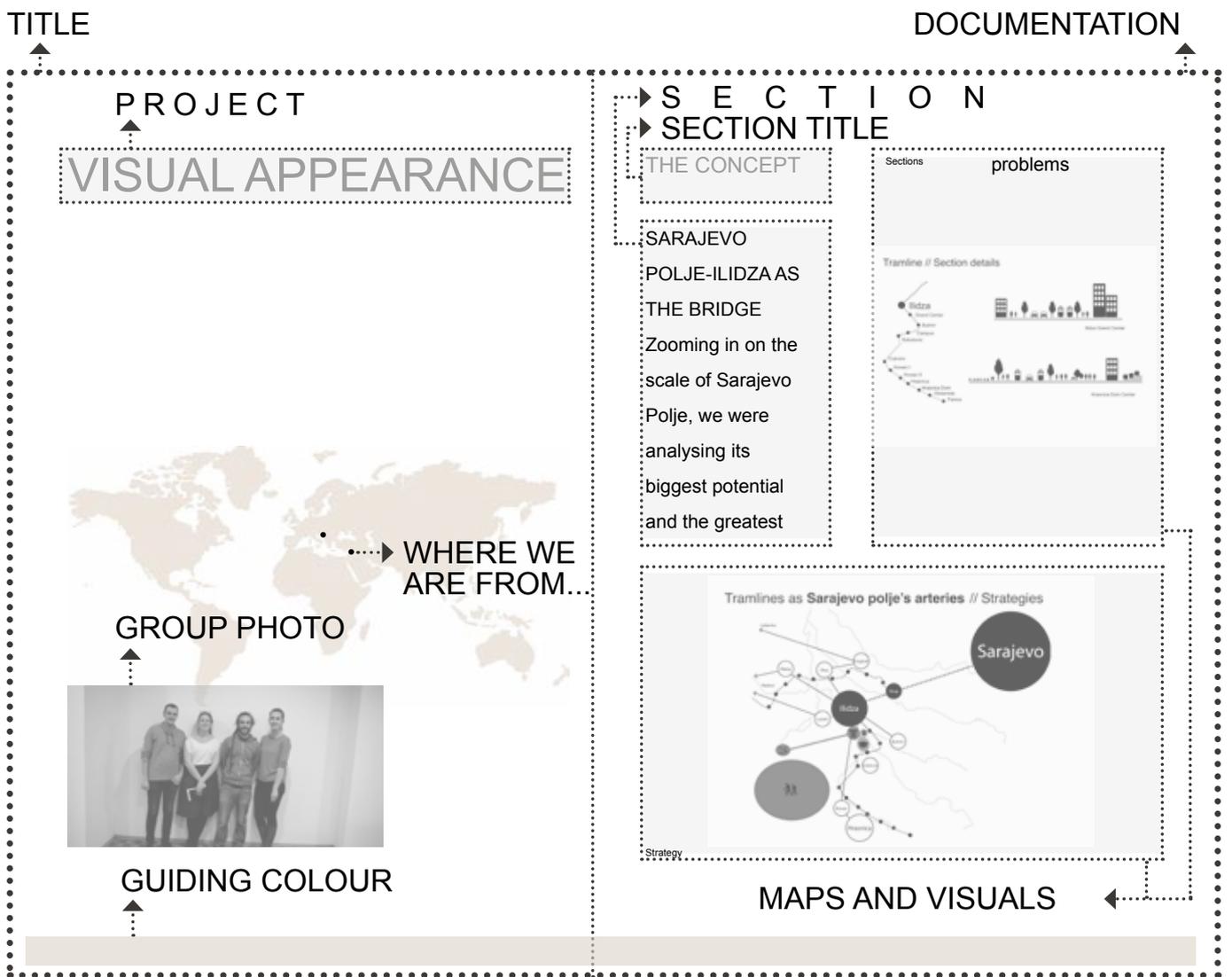
We hope that these ideas and visualisations help the communities of Ilidza, Novi Grad and their neighbours to envision alternative futures in which Sarajevo Polje is simply a great place for people and nature alike.



People enjoying the Bosna Spring  
Photo: GNU Free Documentation License

# STUDIO TEAM





Each project starts with a title page that introduces the project team and gives a short overview about the conceptual idea. In the following pages there is presented and illustrated the group work. To guide you through the brochure each project has its own guiding colour that is shown at the bottom of each page.

# LINKING THE POTENTIALS



**Šefko Hadžić** (Bosnia and Herzegovina) International Burch University; **Luana Rivière** (Belgium) Université Libre de Bruxelles; **Romain Boccadifuoco** (Belgium) Université Libre de Bruxelles; **Sumeja Dizdarević** (Bosnia and Herzegovina) International Burch University.

# SARAJEVO POLJE AS A BRIDGE

In order to activate Sarajevo Poje's hidden potentials we focussed our ideas on three topics:

(1) The new city centre

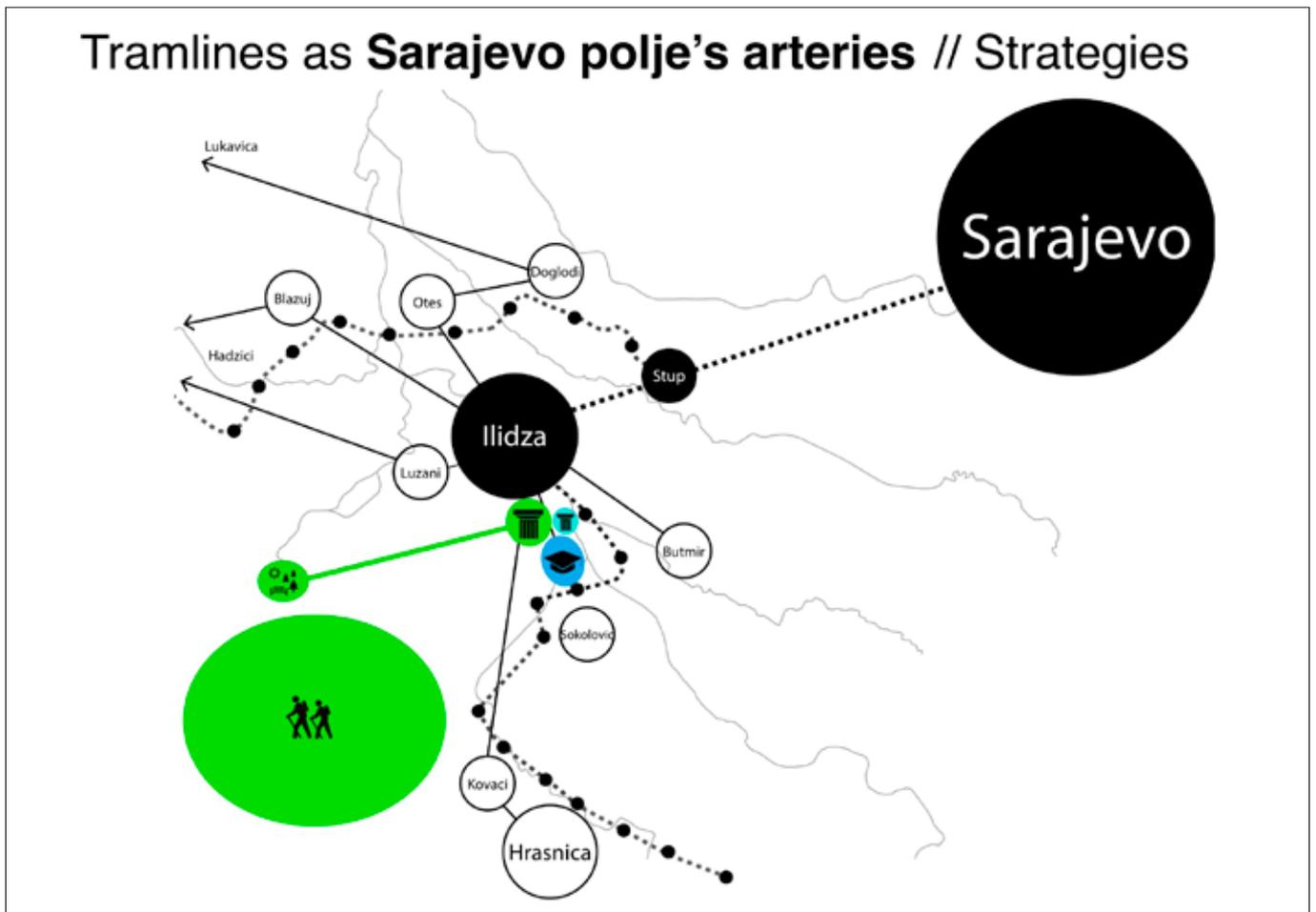
Between Alipasino Polje and Stup up until Ilidza there is an industrial zone. It was active during the Yugoslavian and post-Yugoslavian period but today the zone is abandoned. Some buildings are only ruins while others are used for private commercial purposes. The potential of this industrial zone along the Miljacka river is not used. According to the Master Plan (1985-2015) of Kanton Sarajevo the neighbourhood of Stup was planned to be a new city centre. Unfortunately, Stup is today a place of illegal residential buildings, but still the inhabitants of Novi Grad

and Ilidza need a centre which is not far away. Based on that we decided to rehabilitate the former industrial zone into a new city centre. We want to stop further new constructions on the untouched landscape and instead reuse and renovate the existing empty buildings. The new city centre would include numerous public and private facilities such as a congress hall, a cultural centre, a library, a theatre, a shopping centre and public spaces. The new centre would be located in Stup where it would connect with the existing centre of Ilidza which is expected to develop and finally it will reach the university zone. In that way the city would get a new centre and connect citizens, students and tourist of Sarajevo Polje to the

rest of the city. Currently, in the municipality of Novi Grad, the south side by the main road is densely populated and active while the north side is abandoned and empty. By implementing the idea of a new city centre on that location north and south of the main road would reach a balance. In that way the whole city would be equally active and developed, and a balance within the whole city would be reached.

(2) Tourism

One of the greatest potentials of Sarajevo Polje is its natural and historical heritage. The natural heritage is composed of the Olympic mountain Igman, the spring of the Bosna river, the green promenade along Zeljeznica river, the untouched protected green



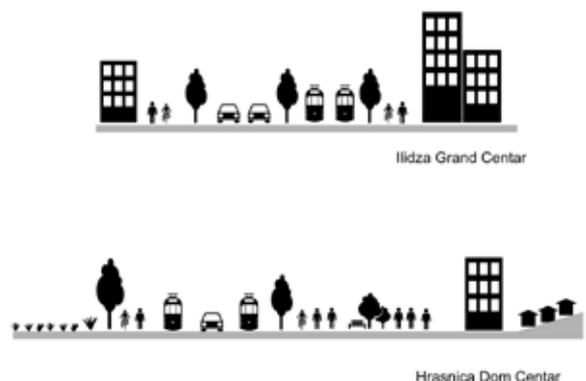
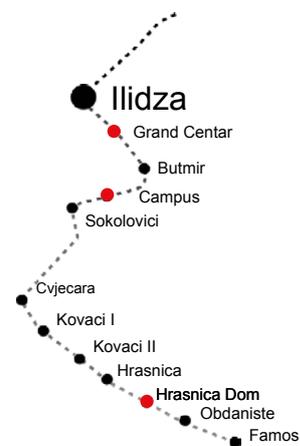
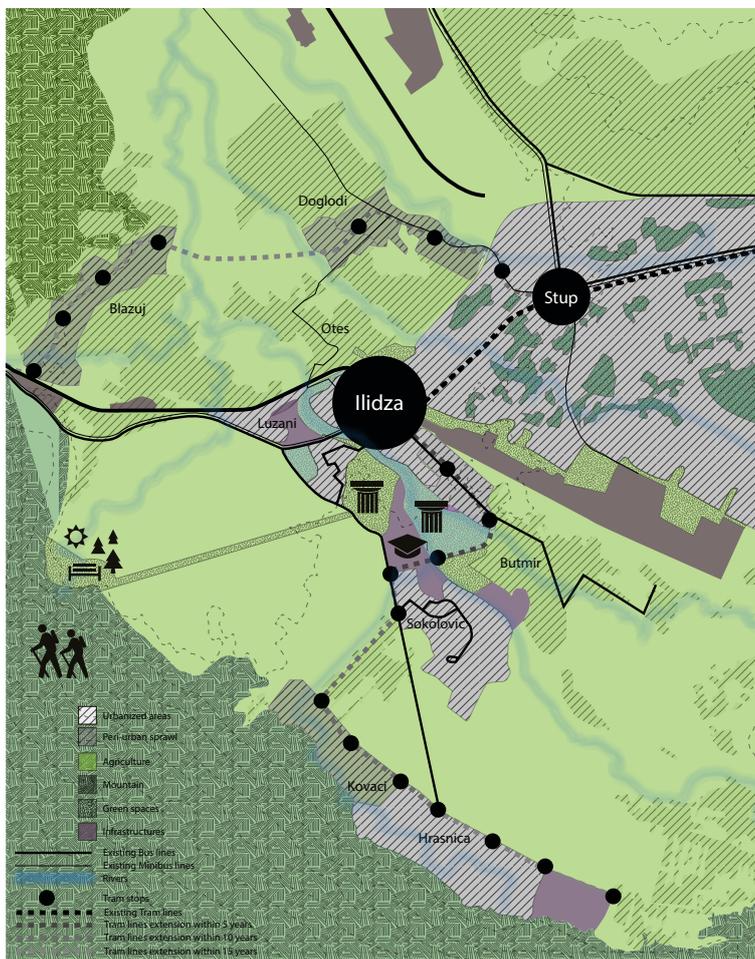
zones, the thermal waters and the agricultural land. The historical heritage of Sarajevo polje counts some Neolithic excavations in Butmir, the remains of a Roman villa, bath and bridge, medieval Bosnian gravestones (Stecak) and the Austro-Hungarian park with thermal stations. These two are also touristic potentials for agro-tourism, nature experience, mountain hiking and cultural tourism. Our goal is to facilitate the access to all these areas and elements from the new centre in order to bring tourists to Sarajevo Polje. All of the mentioned spots could be better connected. This could be achieved by a promenade along the river which will connect with the alley of Vrelo Bosne and make a perfect route for hikers. All the historical sites should

be emphasized and should have an easy-accessible way. In that way Sarajevo Polje would have urban zones and zones of untouched nature: two different atmospheres that are near to each other.

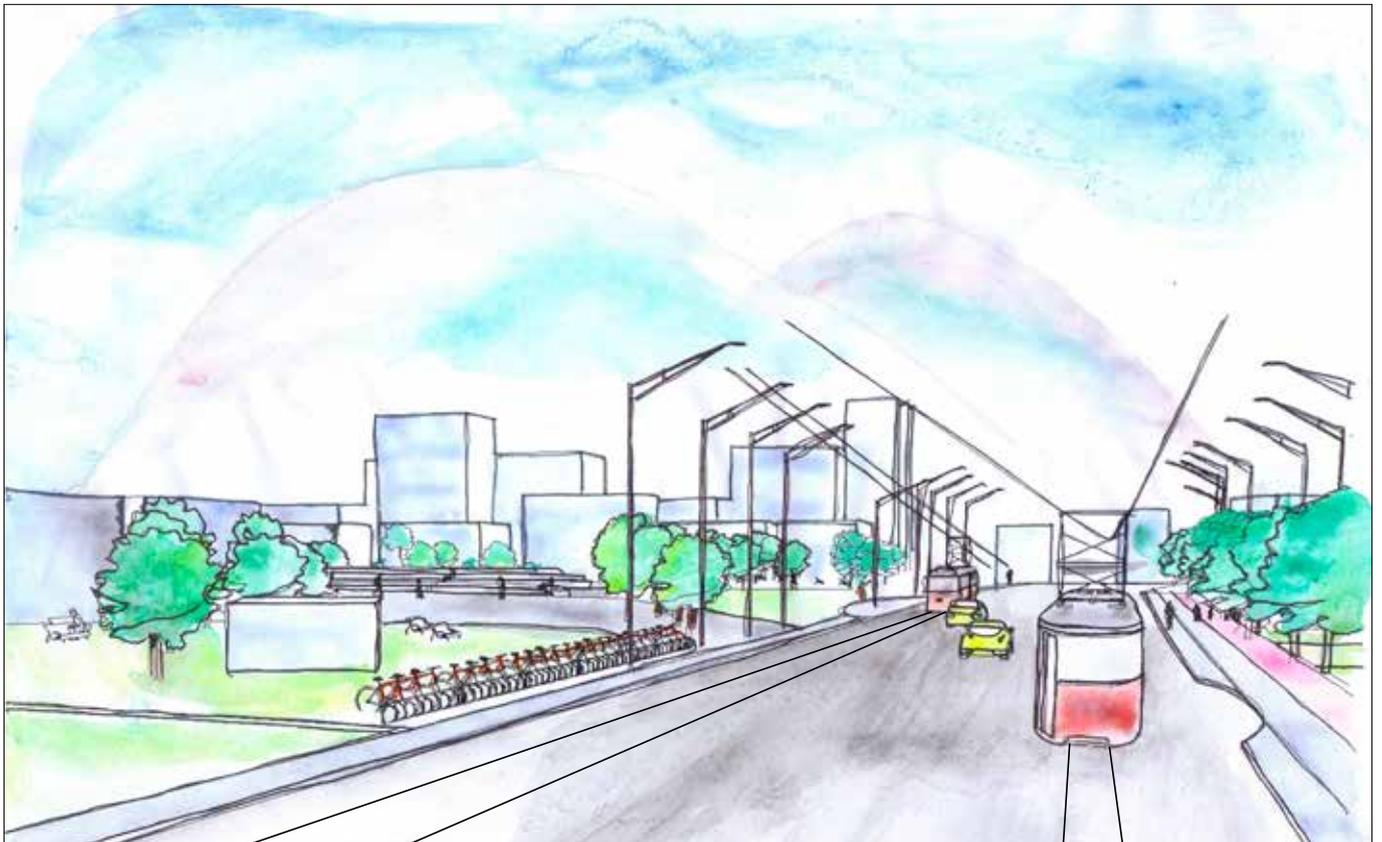
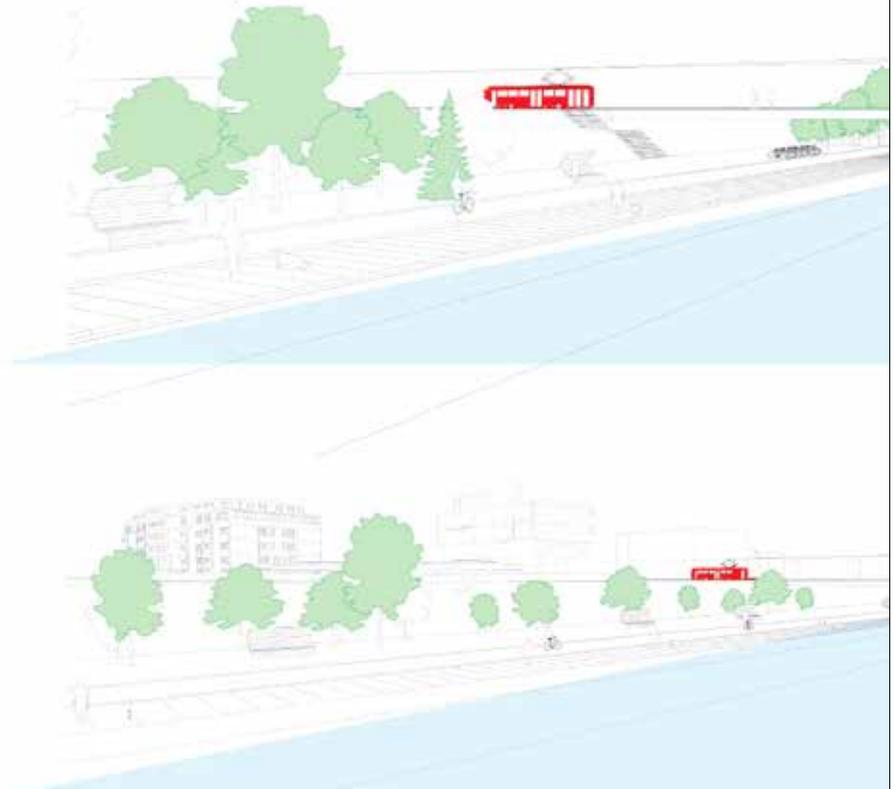
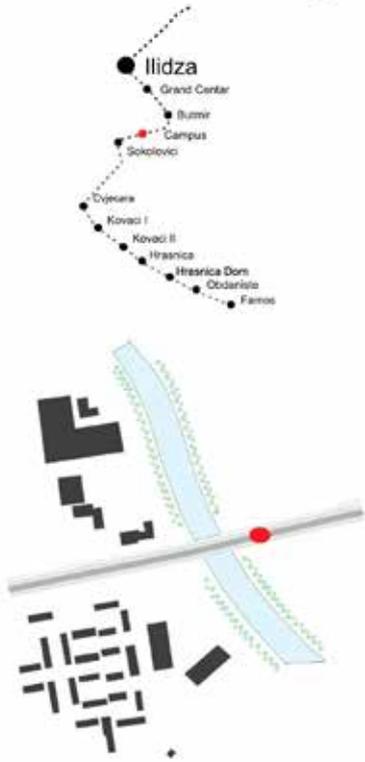
### (3) Mobility

All the settlements in Sarajevo Polje are connected to Ilidza and/or Stup with bus lines but they are not very frequent and sometimes unreliable. Those settlements are not connected in terms of public transportation to the rest of the city, as with the current transportation net people spend a lot of time to reach wished destinations. Urban satellites like Hrasnica and Hadzici should be connected with the new city centre. There are many recreational zones in Sarajevo Polje which are very attractive to

citizens and tourist but are not visited as often as they could due to poor connections. The tram line currently stops at Ilidza. Besides the settlement nodes in Sarajevo Polje there are natural and historical heritage sites and also a university zone between Ilidza and Sokolovici. In that zone are three universities that are expecting 20.000 more foreign students in the next ten years, which requires an efficient public transportation network between the university zone and rest of the city. All touristic attractions should be connected into one net covering Sarajevo Polje. Bicycle and pedestrian paths connected to hiking routes on mountain should be developed.



# Zoom 1 // Campus tram stop



# Strategies

1 // New urban centre      

2 // Tourism     

3 // Extension of public transportation network    

## FINANCING IDEAS



Governance of the extension of the tram network by GRAS, public transportation company

### Hypothesis

There are approximately 500,000 inhabitants in the Canton of Sarajevo assume that only 20% of the population uses public transport this gives a potential user of 100 000 persons

Passenger capacity	Median number of people transported/ h	kilometer operating cost	Cost / person transported	Median ticket price
160 pers	3200 pers	11 KM	28 KM	1.6 KM

#### Incomes

opening hours: 19h/d

19h x 3200 pers = 60800 pers/days

60800 x 1.6 KM = 97280 KM

97280 KM are collected daily from the users

#### Costs

60800 pers/days x 28 KM = 1702400 KM

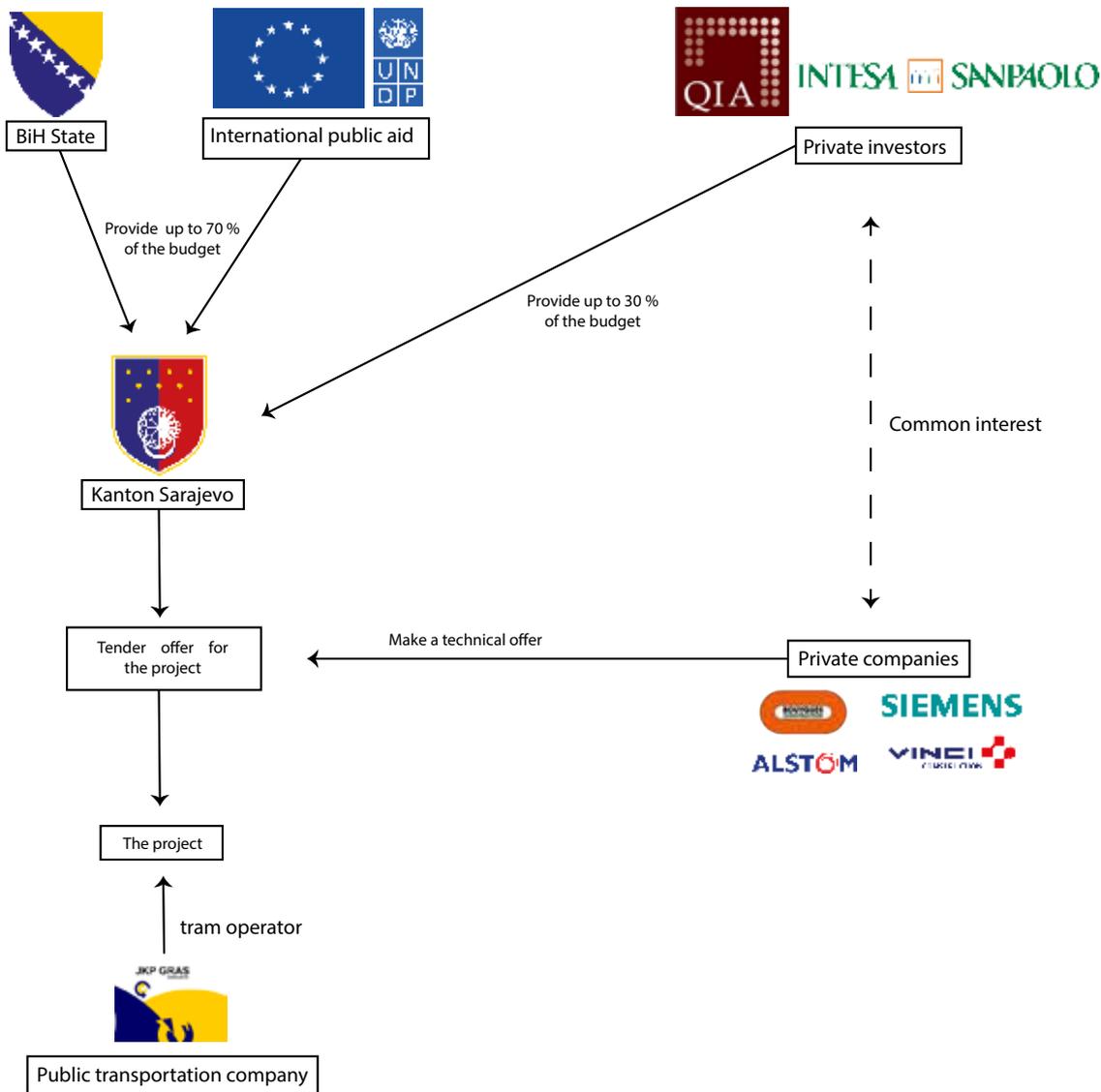
11Km x 11KM = 121 KM

1702521 KM is the daily cost of the network exploitation

**How could the daily cost of operation of the network's extension could be covered ?**

- Public funding
- Funding by users
- Toll of road and parking infrastructures
- Taxes on employers and business activities
- Land value

# GOVERNANCE IDEAS



**International public aid**  
International bodies involved in the creation of transport infrastructure projects to improve the European network.



**Kanton Sarajevo**  
Main funder of the extension project. Co-coordinator of the master studies work with GRAS. It is responsible for the development of qualitative public spaces.



**Private Companies**  
These companies have the skills to carry out the project.



**Private Investors**  
Could be involved in a partnership with the public sector. They have important financial means to carry out the project.



**Municipalities**  
Also funding the extension project. The new infrastructure will participate in their local development.



**Public transportation company**  
GRAS is the operator of the tram, it finances the rolling stock and the operating costs.

# LOOPS IN GREEN CILIM



**Ilda Kovačević** (Bosnia and Herzegovina) International Burch University; **Apekshya Dhungel** (Nepal) IMLA; **Adnane Ben Hssain** (Belgium) Université Libre de Bruxelles; **Ivana Lilić** (Macedonia) IMLA; **Lamija Durmiš** (Bosnia and Herzegovina) International Burch University.

# CONNECTING THE LOOPS

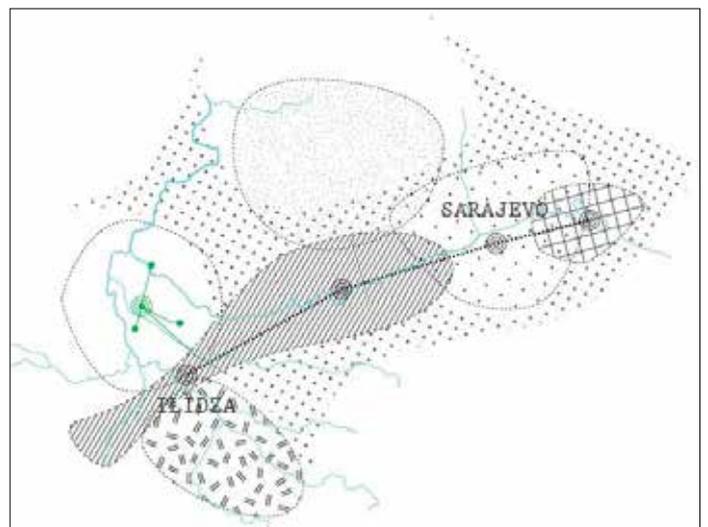
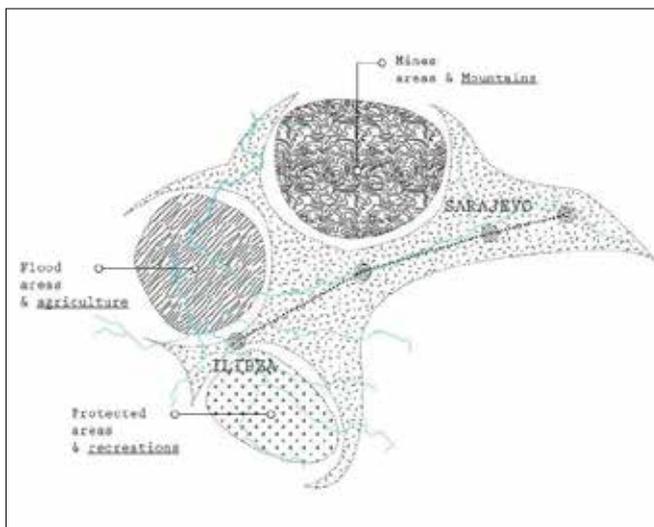
Sarajevo is a city which was created and developed under the influence of different circumstances. The most important influence are the mountains that surround Sarajevo and formed its linear development. From the mountains several springs flow creating a number of rivers. The development of Sarajevo followed these rivers. Besides the natural circumstances, since historical times, there were influences of various cultures, religions and political scenarios that have shaped Sarajevo's built form.

The linear flow of the development of Sarajevo has led to the point where nature has started resisting its linear development. As a consequence, Sarajevo Polje has

started deviating into two new directions. Development and history of Sarajevo have led to the creation of more areas/fabrics. Following this idea, Sarajevo consists of four fabrics consistent with history as following: Ottoman, Austro-Hungarian, modernist and informal.

Through the analysis of these patterns, we identified that the character of Sarajevo Polje consists of three main loops. They are created under the influence of the mountains, the water protection zone and the valley. The valley is under strong influence of urbanization. A concept for the development of these loops and the protection of the green areas within them is proposed. Among

the three areas within the loops, the most dynamic in terms of urbanization was taken for detail design. The chosen area for our design is situated in the valley area which is under influence of residential sprawl. The specific community is positioned near by the highway and between the rivers which makes it vulnerable in terms of built form as well as flooding, but at the same time it is rich with a huge surface of agriculture areas. Therefore, the first task was to protect as many agriculture areas as possible to limit the residential sprawl and to give the community its new identity within the existing form. This mosaic of green and the built forms is the main concept of development of various functions

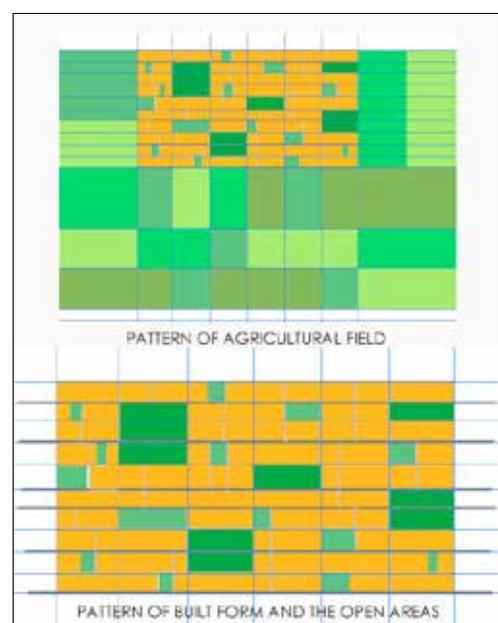
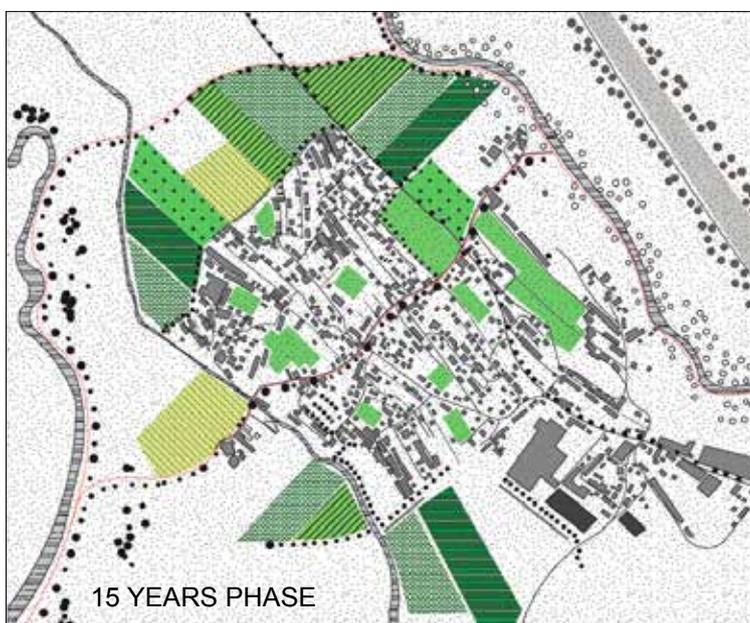
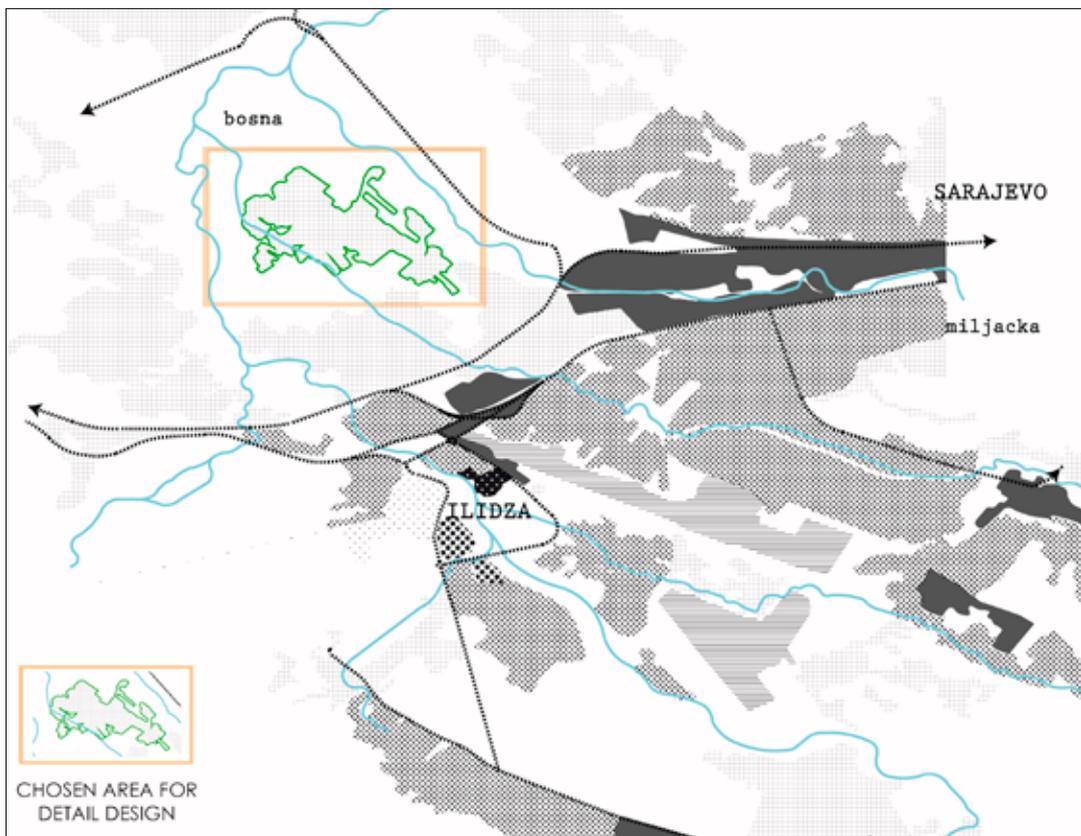


# PRODUCTIVE NEIGHBOURHOODS

in the landscape. The development of this area is proposed in two phases. In the first phase we let the nature and natural boundaries such as rows of trees, bio swales with natural vegetation which will also help in the collection of rain water to define the shape of the existing community. The agricultural area will be a combination of

different crops, orchards and animal breeding. These areas composed of agricultural surfaces provide development of urban agriculture and also the flow of economic benefits for this community. In the second phase we introduce the concept of open space hierarchy. The important functions within the neighborhood will be fulfilled

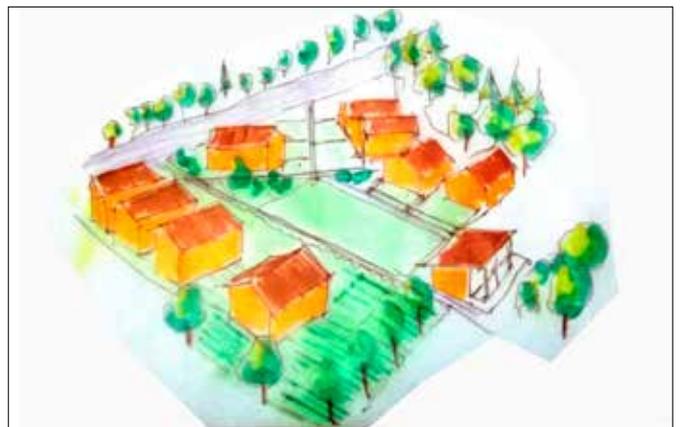
in these open spaces such as community centers, sports facilities, public spaces, educational institutes and healthcare to make them self-sustainable. Also green areas such as parks and kitchen gardens will be proposed. With all these functions the residential units are connected internally with each other. Community markets and





30 YEARS PHASE

PRODUCTION



restaurants will provide organic products for consumption and selling. Moreover, a bicycle path along the river passing through the residential area and the agricultural fields is proposed. It will become a recreational and sustainable connection from the city to this area. In this way, people passing by the community can observe their activity, they can see the farmers in the fields and neighborhood organic gardens. They will also be able to buy the local products in the market

provided in different places in the community. This connection will be emphasized by organizing various events such as 'school children in the farm day', 'pick your own fruit day' etc.

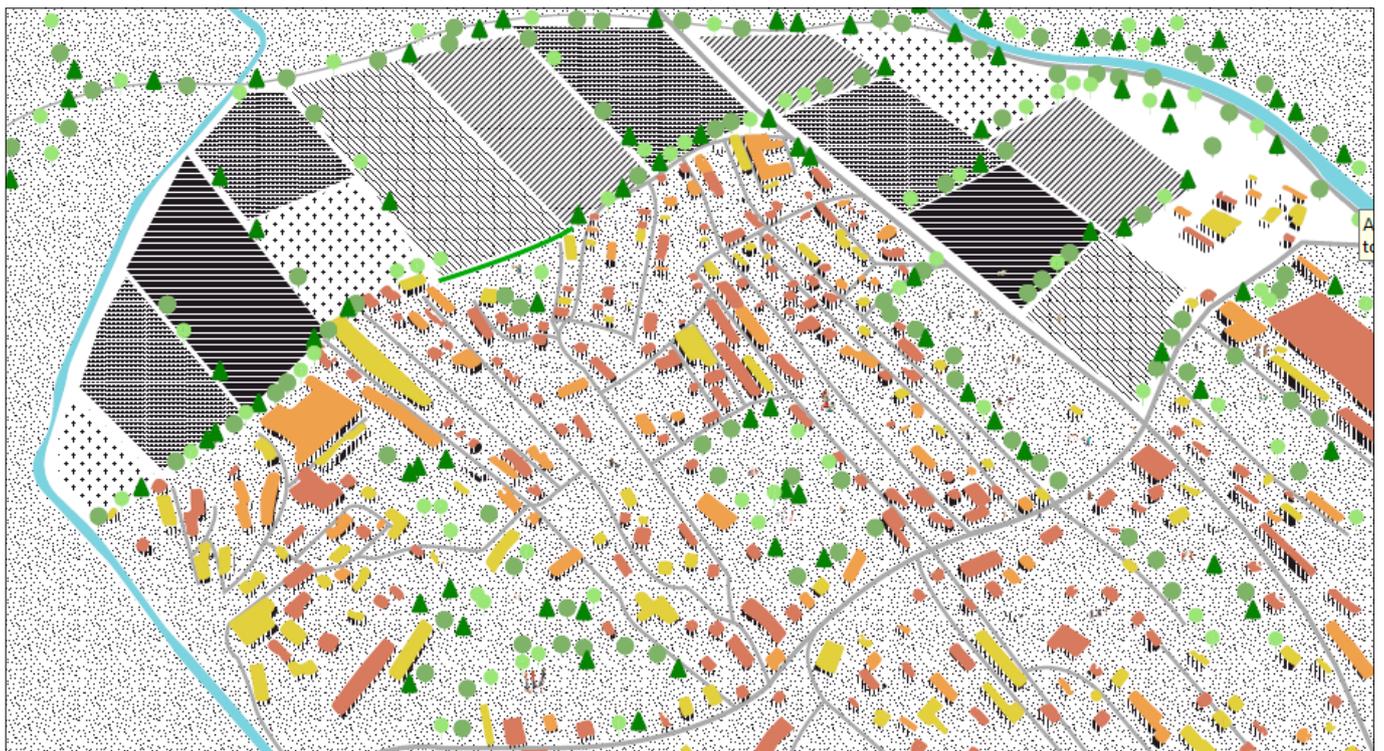
For flood protection we propose riparian vegetation which can absorb water to some extent and act as natural flood protection with the help of the vegetation and at the same time supporting biodiversity. On the eastern part, between the

river and the highway, a buffer zone is proposed with orchards and greenery for protection from pollution. It also creates visual barrier towards the highway.

Besides present constrains and challenges of Sarajevo Polje, we have concluded that there is still a good potential for sustainable development.



OVERALL SCENARIO OF GREEN CILIM



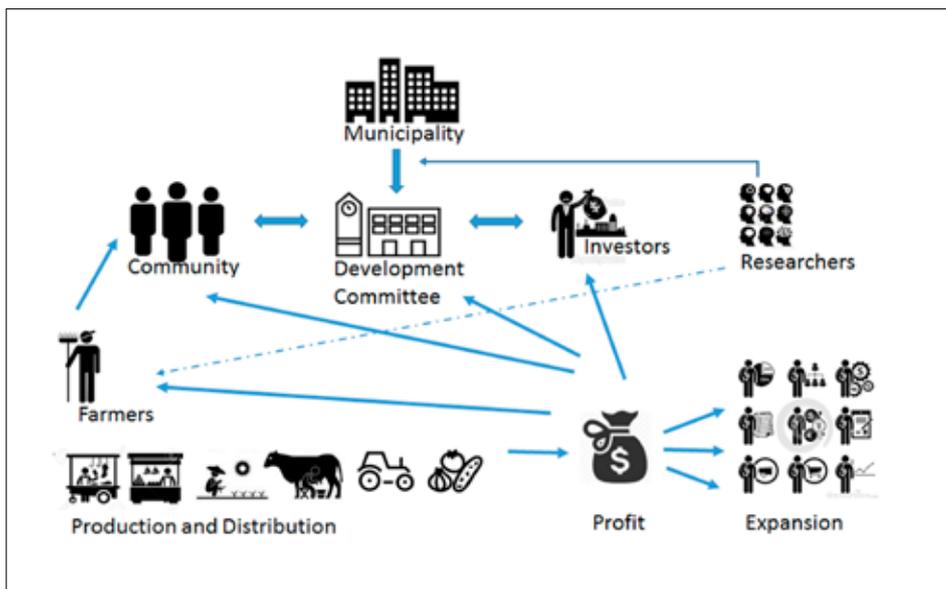
# GOVERNANCE AND FINANCE

This vision can only be possible if various groups work together and form an institution for the development. Taking the community we have chosen as an example, we propose a new administrative model with the introduction of a local development committee. This committee will take care of the local issues involving the community. The committee will be in regular contact with the municipality so that they act as a link between the urban and the rural patterns. This concept can be economically sustainable. The communities work together

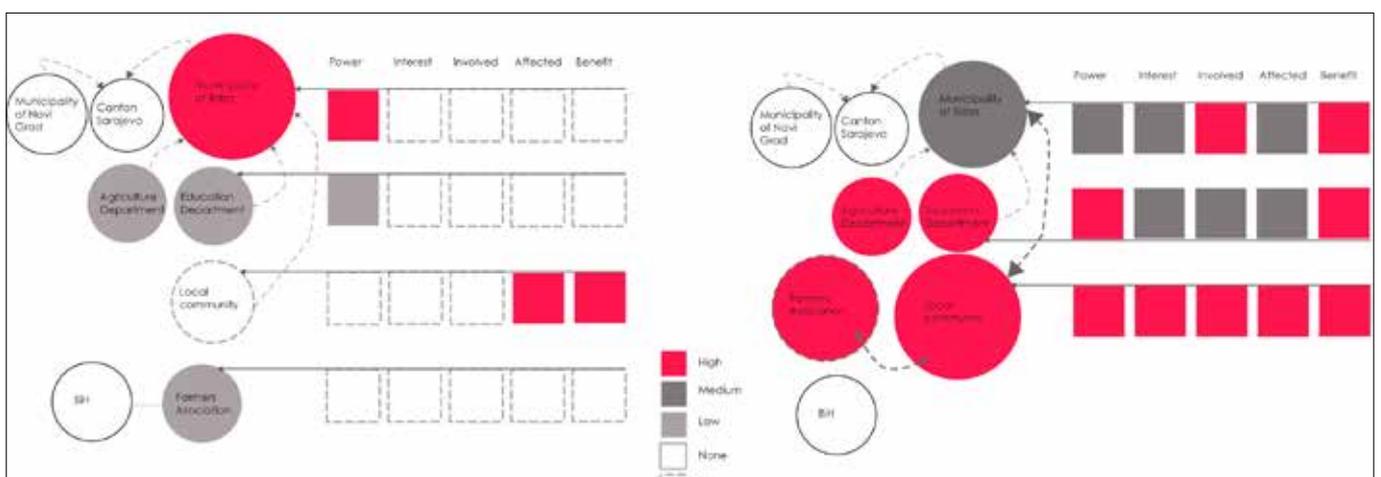
with the new authority in smaller groups. They can collect money and form cooperatives together with investors. At the beginning, small investments can be made to support the farmers with equipment. The community can also contribute by proving their waste to make fertilizers. Initial profits can be used to expand the finance through micro business schemes. Later on, bigger scale projects can be envisioned. In this way the small communities can become self-sustainable. This will also lead to social bonding as they work together to produce their

own food and meet in the open areas for community activities. Our proposal for Sarajevo is a 'loop development concept' where urban growth should take the form of loops around the green areas. Each loop holds within itself the values of nature and sustainable living. This concept of green infrastructure can lead to a well-managed sustainable city and our proposal of the green carpet with various landscape mosaic can set an example to influence and inspire others to make their living areas sustainable, connected to nature and healthy.

## ECONOMIC MODEL



## GOVERNANCE MODEL



# TOWN IS BACK, BACK IN TOWN!



**Alexandre Paul** (Belgium) Université Libre de Bruxelles; **Mehmed Hodžic** (Montenegro) International Burch University; **Mirsa Gishti** (Albania) IMLA; **Marklen Nakuci** (Albania) IMLA; **Cyprien Doucy** (Belgium) Université Libre de Bruxelles.

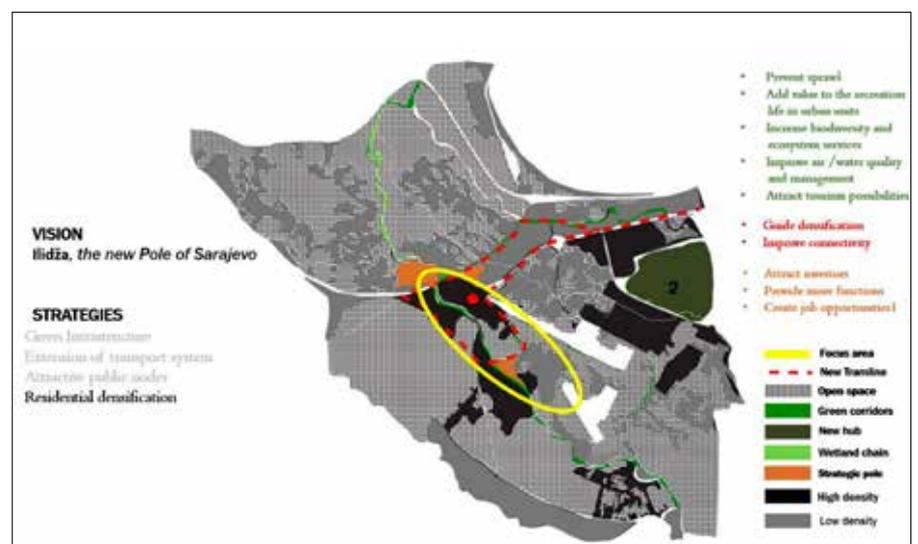
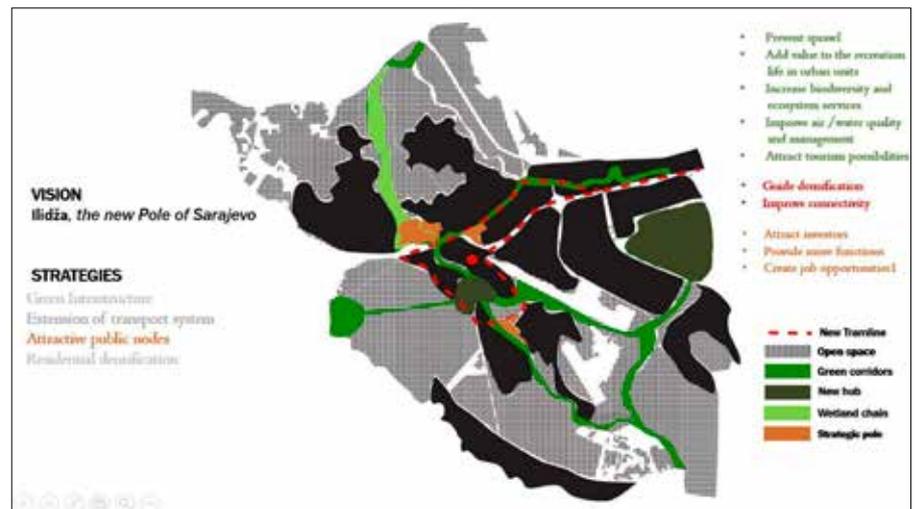
# PROTECTION BY DENSIFICATION

Since June 2015, Bosnia and Herzegovina has launched its candidature to the European Union. This triggered a new focus on sustainable development in order to meet European standards. Our work focuses on the maintenance of the biodiversity in Sarajevo Polje. The main task is to develop the settlements without affecting the potential greens areas. The most sustainable solution is therefore densifying the valley of Sarajevo by constructing housing and public facilities in the industrial zone, which is partly abandoned. Given that land prices demonstrate the high expense of constructing in the

valley, the low prices in the Polje can offer a solution to the expansion of urban sprawl that threatens biodiversity.

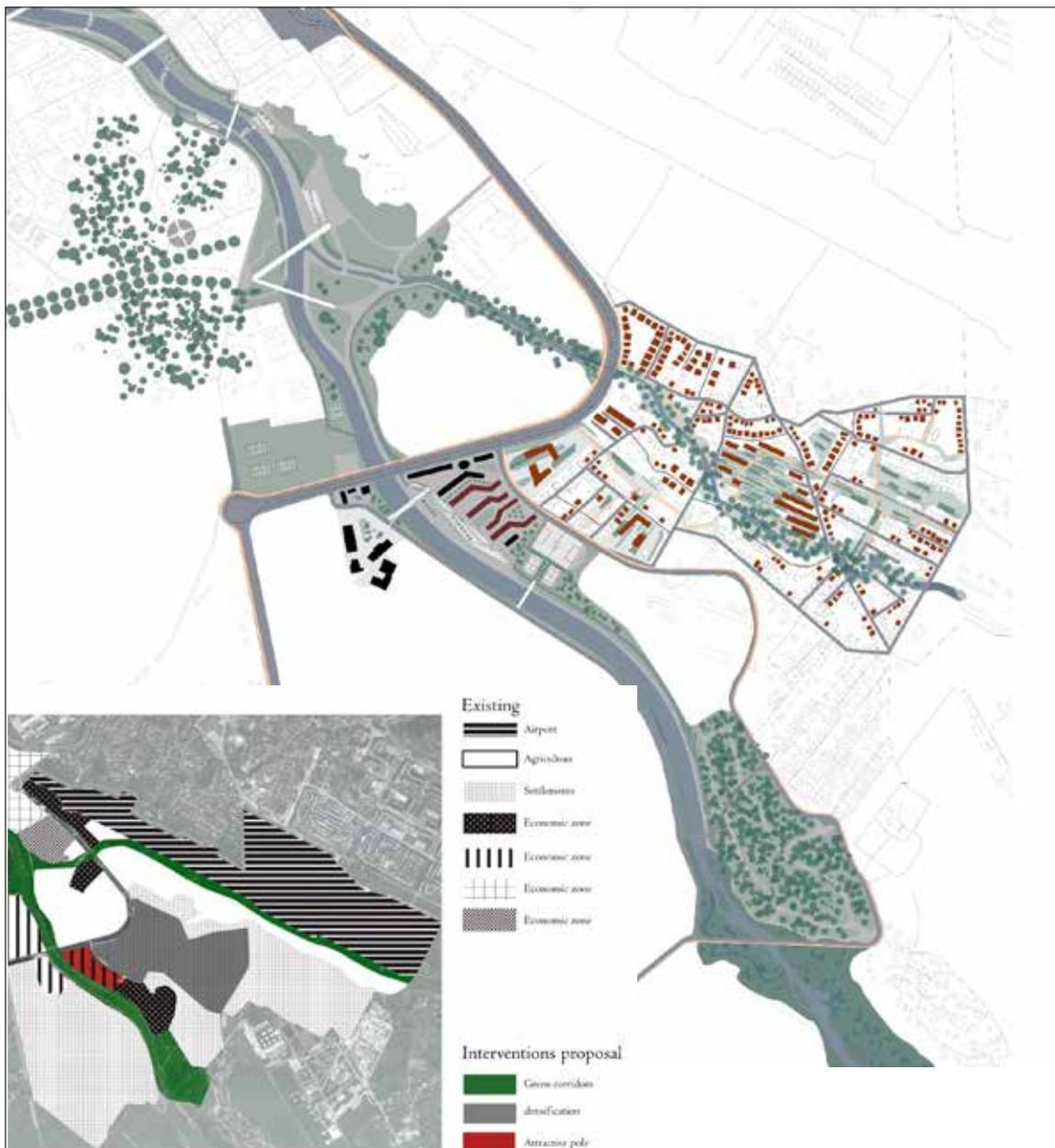
The first step is to protect the green areas through legislation and landscape boundaries all around the existing settlements. These landscape boundaries will establish a construction limit and also a new relationship between the urban and rural environment. The limit encloses some urban units that can be speculated by different ways in order to increase the price of land. The planning of the tramway intends to connect those urban

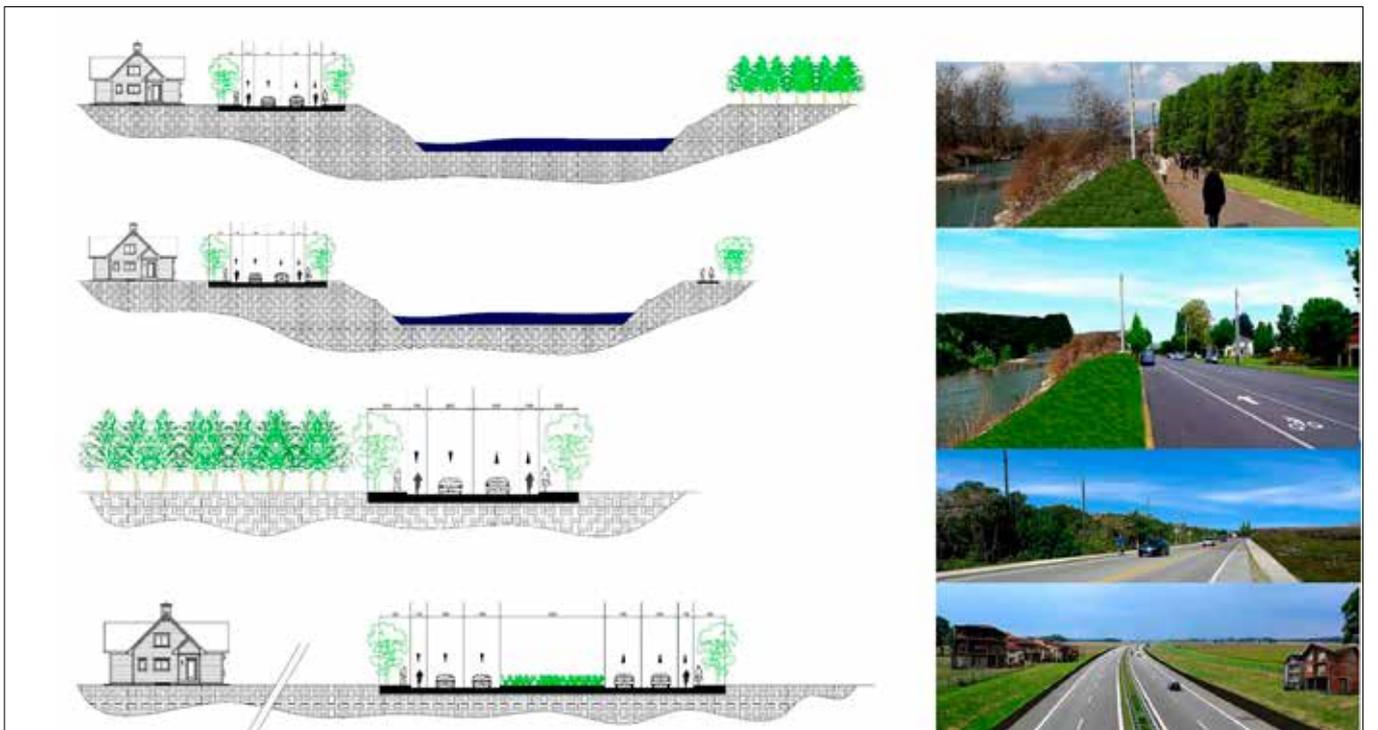
units with each other and with the center of Ilidza. One of these ways is to plan two green corridors before an eventual densification of urban units. This strategy ensures the permeability of biodiversity across urbanization. The first corridor consists of a link to connect all of the different urban units along the Zeljeznica river while the other one consists in the continuation of the green alley in order to create a touristic axis; Vrelo Bosne – Austro-Hungarian thermes – Contemporary thermes. These green connections improve urban life and tourism as they increase land prices through public facilities. The second way

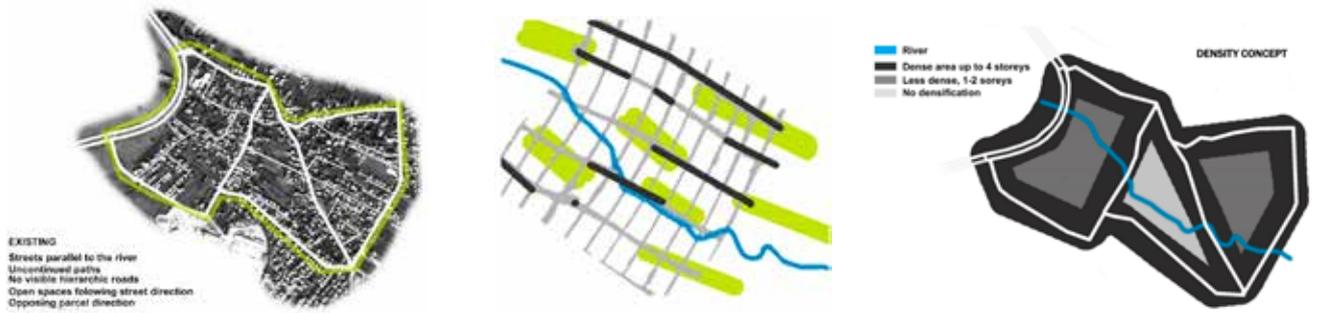


causes a densification into the unidentified settlements. The urban sprawl develops as an organic urban model. The principle is to construct the streets according to the same pattern. This gives guidance for densification, because the people will construct naturally along the streets. In addition, the establishment of several public facilities can support the densification of these zones. The last suggestion is the expansion

of the educational area, since the amount of students is increasing year by year. Through these extensions, the objective is to create a big university pole. The influence of these public facilities will increase the densification of all surrounding urban units. The second step will begin after the realization of these three interventions, when the Polje's land prices will be equal or higher than the valley's land prices.

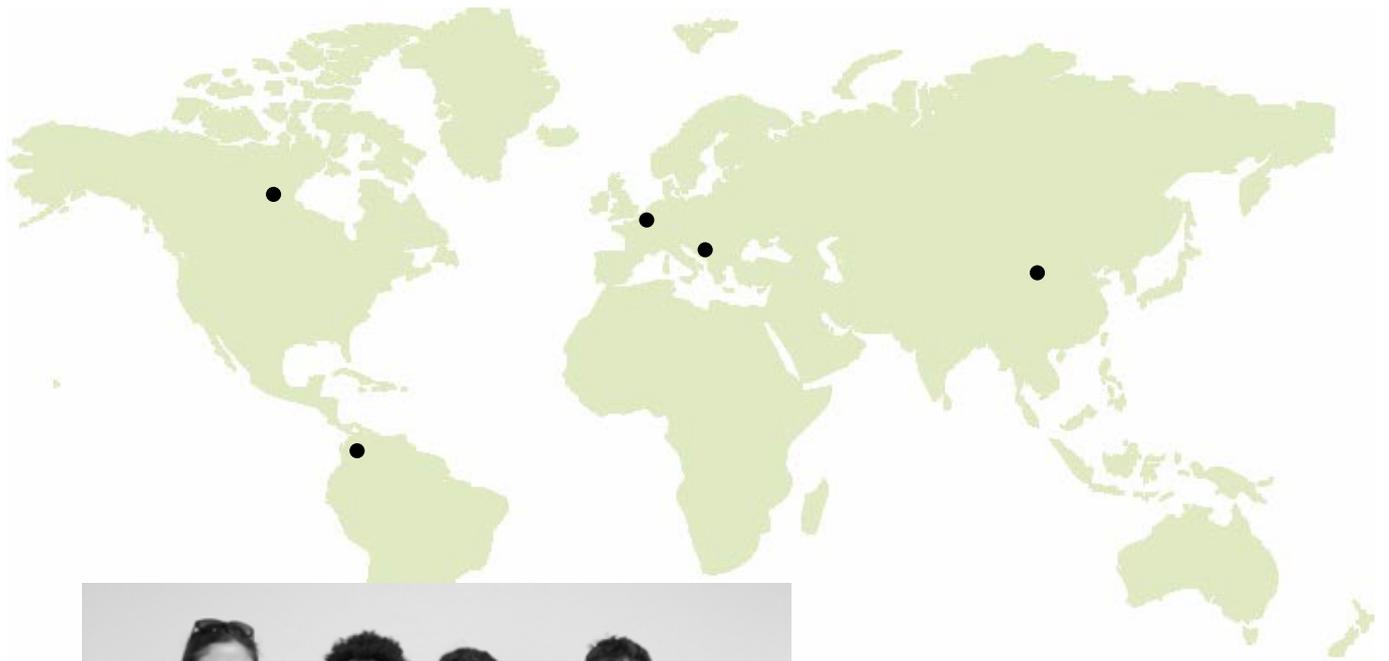








# THE ILIDZA TRAIL



**Melika Ascerić** (Bosnia and Herzegovina) International Burch University; **Victor Selle** (Belgium) Université Libre de Bruxelles; **Ilhana Verunica** (Bosnia and Herzegovina) International Burch University; **Nataly Montoya** (Columbia) IMLA; **Yuxin Wu** (China) IMLA; **Yannick Etoundi** (Belgium) Université Libre de Bruxelles.

# THE TREE MODEL

The Ilidža trail project was raised as a future mobility alternative for Sarajevo Polje. Through the research and the analysis made on site, different issues were identified, where its potentials and weaknesses were highlighted guiding the process of the mobility proposal.

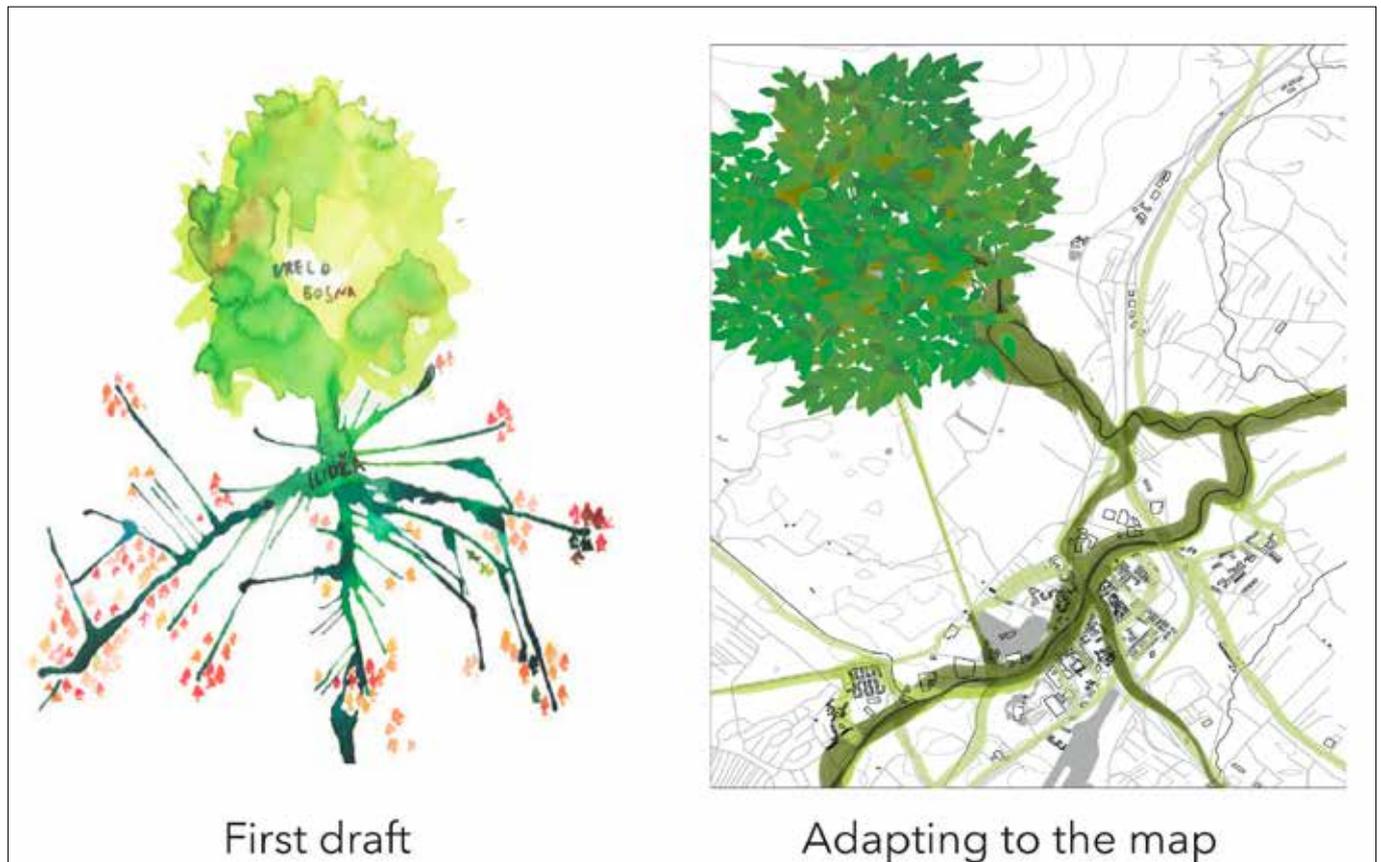
With Ilidža being an important centre, hosting different land uses, it became an important point where public transport routes start with the aim of connecting different points of the Polje, serving also as a middle point for those who come from the Sarajevo historical downtown as main routes end at this point.

The land use of the sector, predominantly residential use, has been evolving over time reinforcing this use, however other uses are

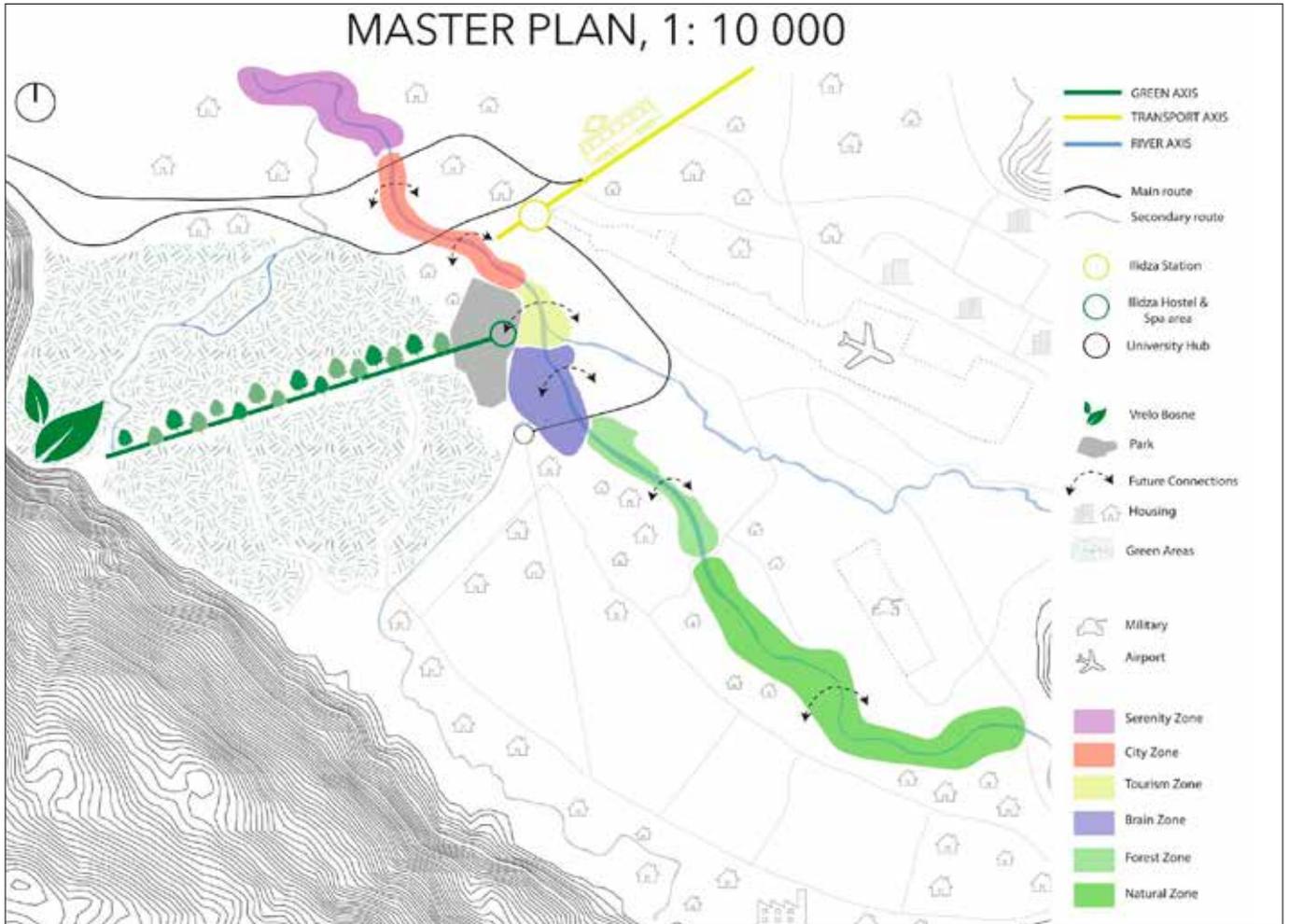
strongly positioning themselves in this territory like education and tourism. The result of this city dynamics, and the high demand in mobility, has led the city to seek for a restructure in the traffic infrastructure to be more efficient and friendly with the environment.

In response to these issues, a tree model concept has been implemented. It aims to integrate the most important places by different modes of transport, having Ilidža centre and Vrelo Bosne (an outstanding public park) as the most important places to connect. As one of the main routes (or root of the tree), it was identified the river (Željeznica) as the place for the final proposal, being an axis that crosses important sectors of the Polje, suitable for implementing an alternative mobility proposal.

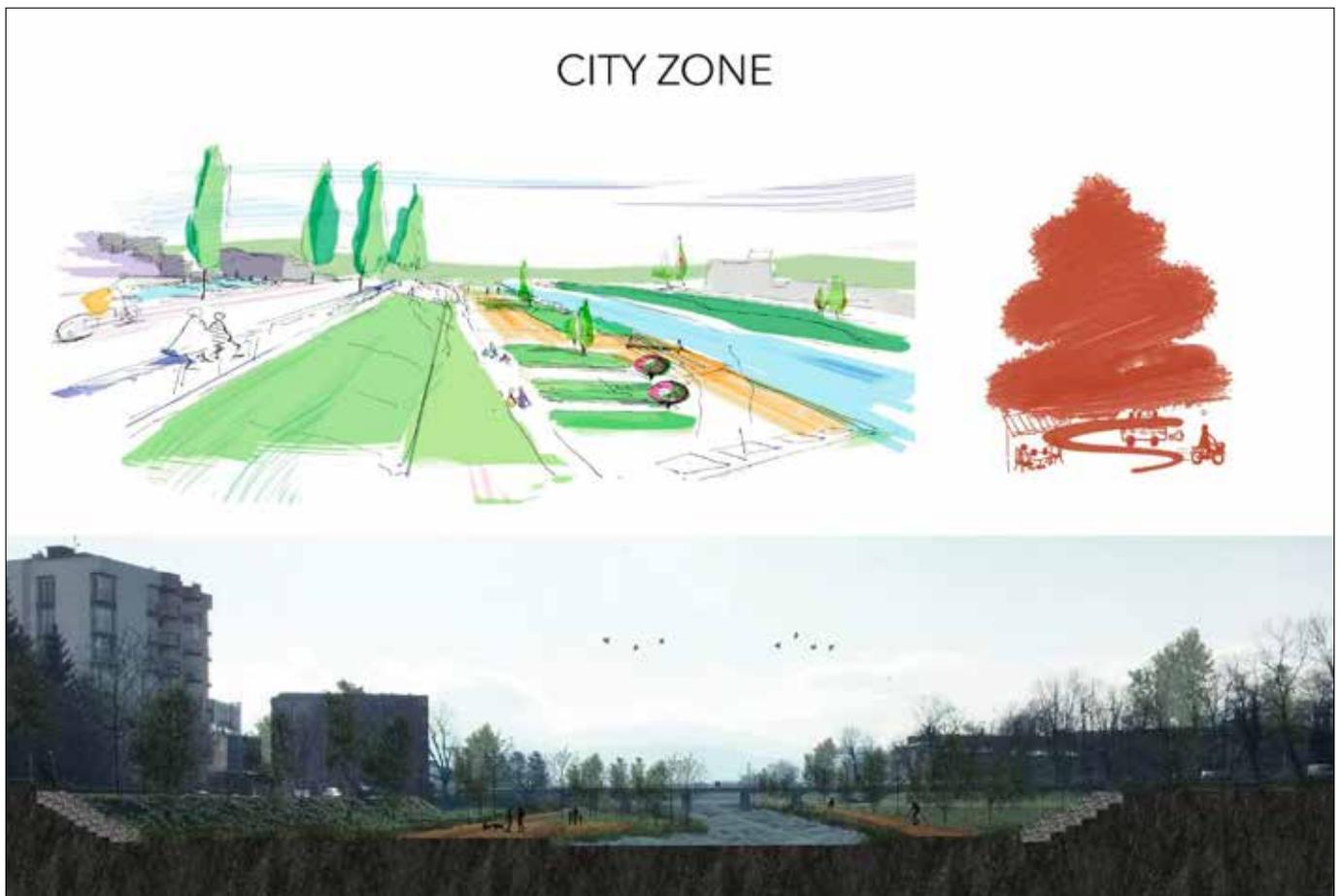
The river was divided by outstanding uses or activities found in each zone. Among the zone we find the Serenity Zone (where religious facilities and park are found), the City Zone (the centre of Ilidža), the Tourism Zone (hotels, Spa facilities and touristic places are found), Brain Zone (where educational facilities are allocated), Forest Zone and Natural Zone (mainly with agricultural and farming uses). The proposal offers to enhance the public zones taking into account the category of each zone, proposing mainly cycle-paths, which can easily connect to public transport, improving mobility in the area, providing also a pleasant journey for all users while promoting the value of the nature and its countless ecosystem services a green infrastructure can provide.



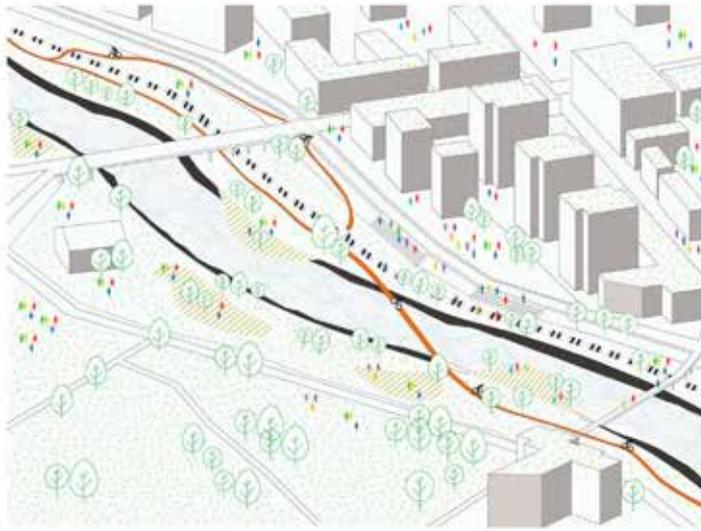
# MASTER PLAN, 1: 10 000



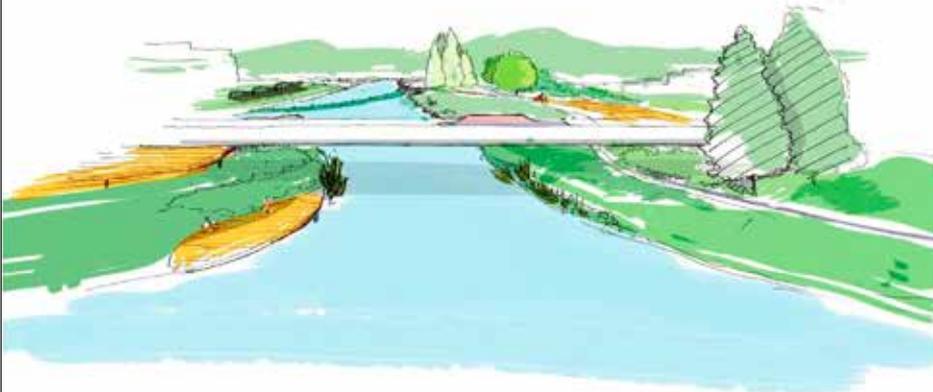
## CITY ZONE



## TOURISM ZONE



## BRAIN ZONE



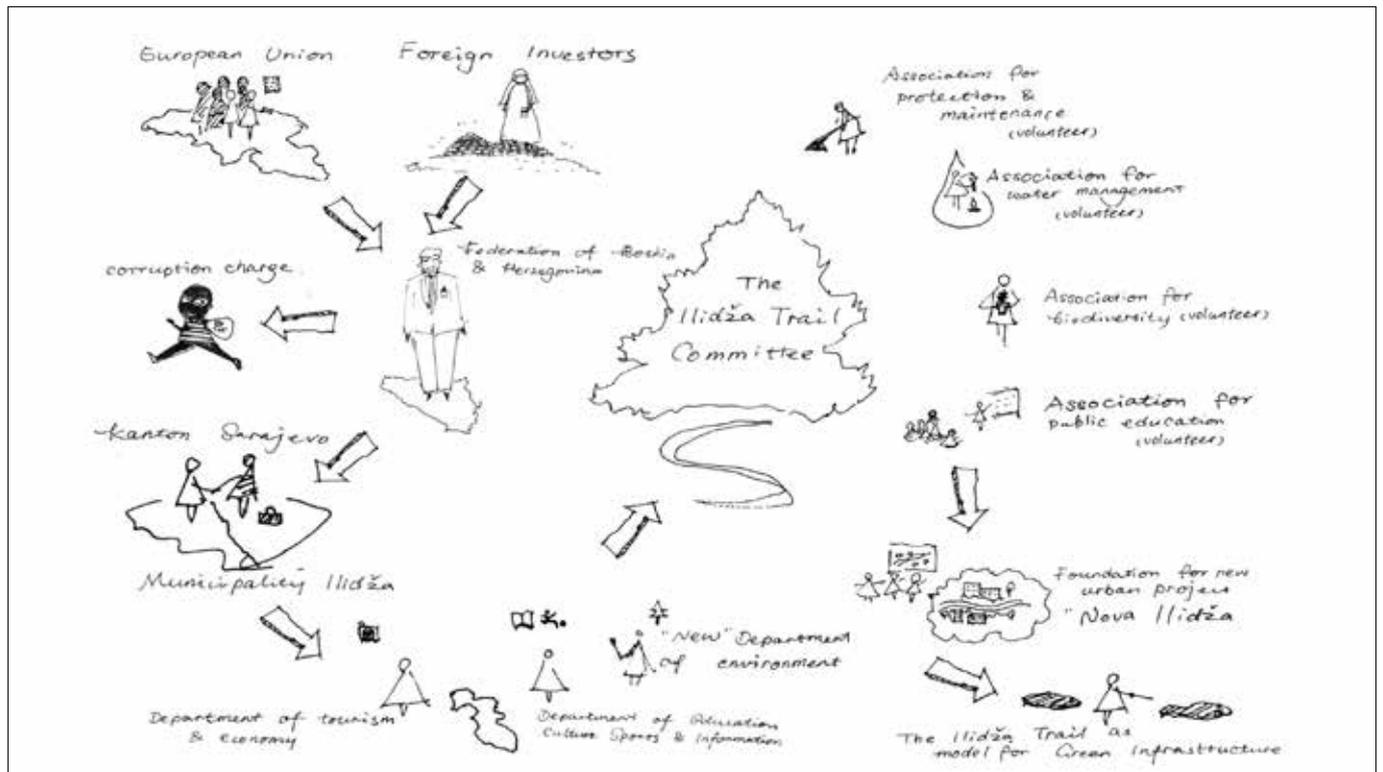
## FOREST ZONE



## CONCLUSION & VISION FOR THE FUTUR OF SARAJEVO POLJE



# GOVERNANCE MODEL



# POTENTIAL SPONSORS



# ECORRIDOR



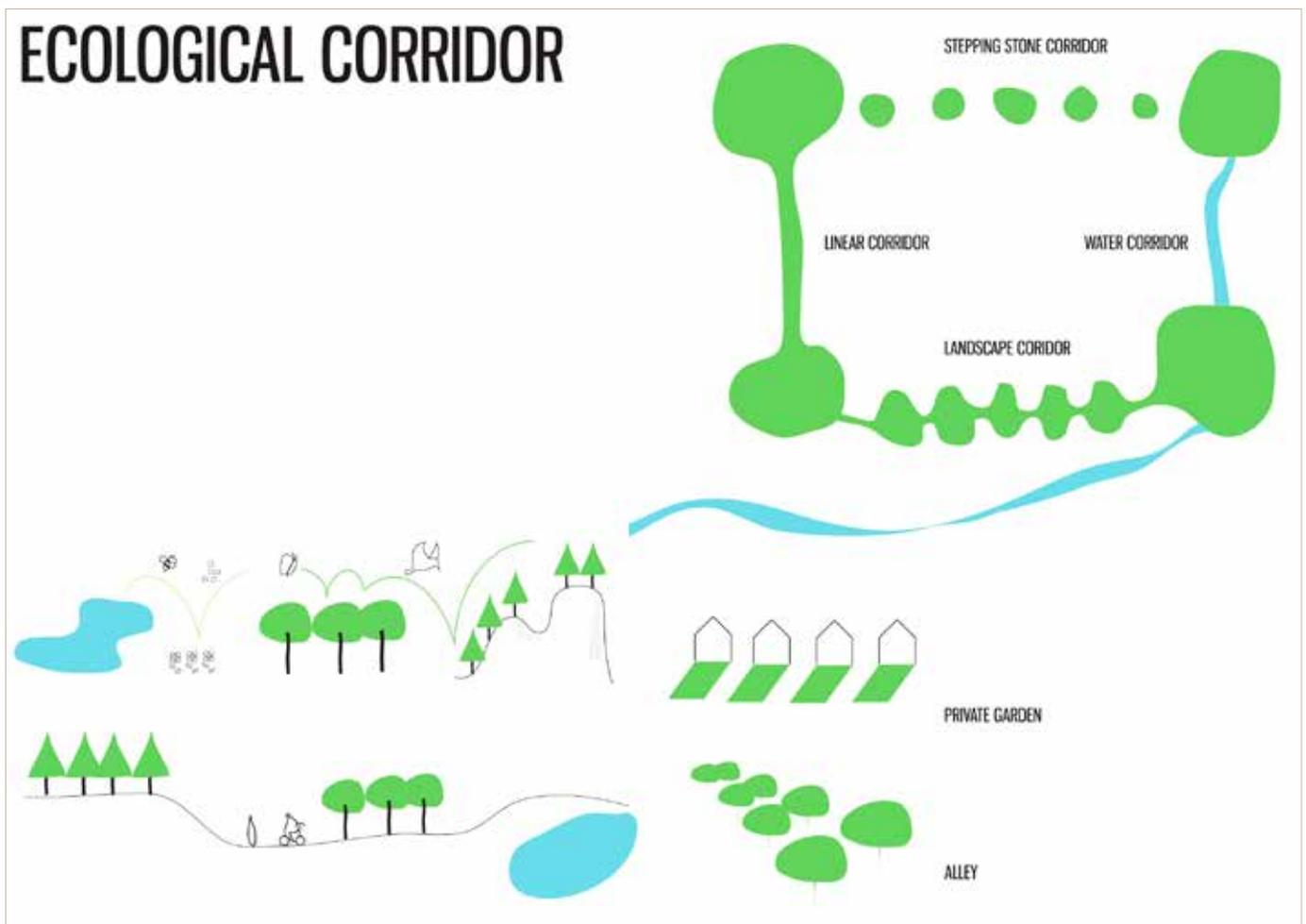
**Martha Virgaux** (Belgium) Université Libre de Bruxelles; **Léo Raphael** (Belgium) Université Libre de Bruxelles; **Angéline Damblant** (Belgium) Université Libre de Bruxelles; **Lola de Vathaire** (France) IMLA; **Matija Benjak** (Croatia) University of Sarajevo.

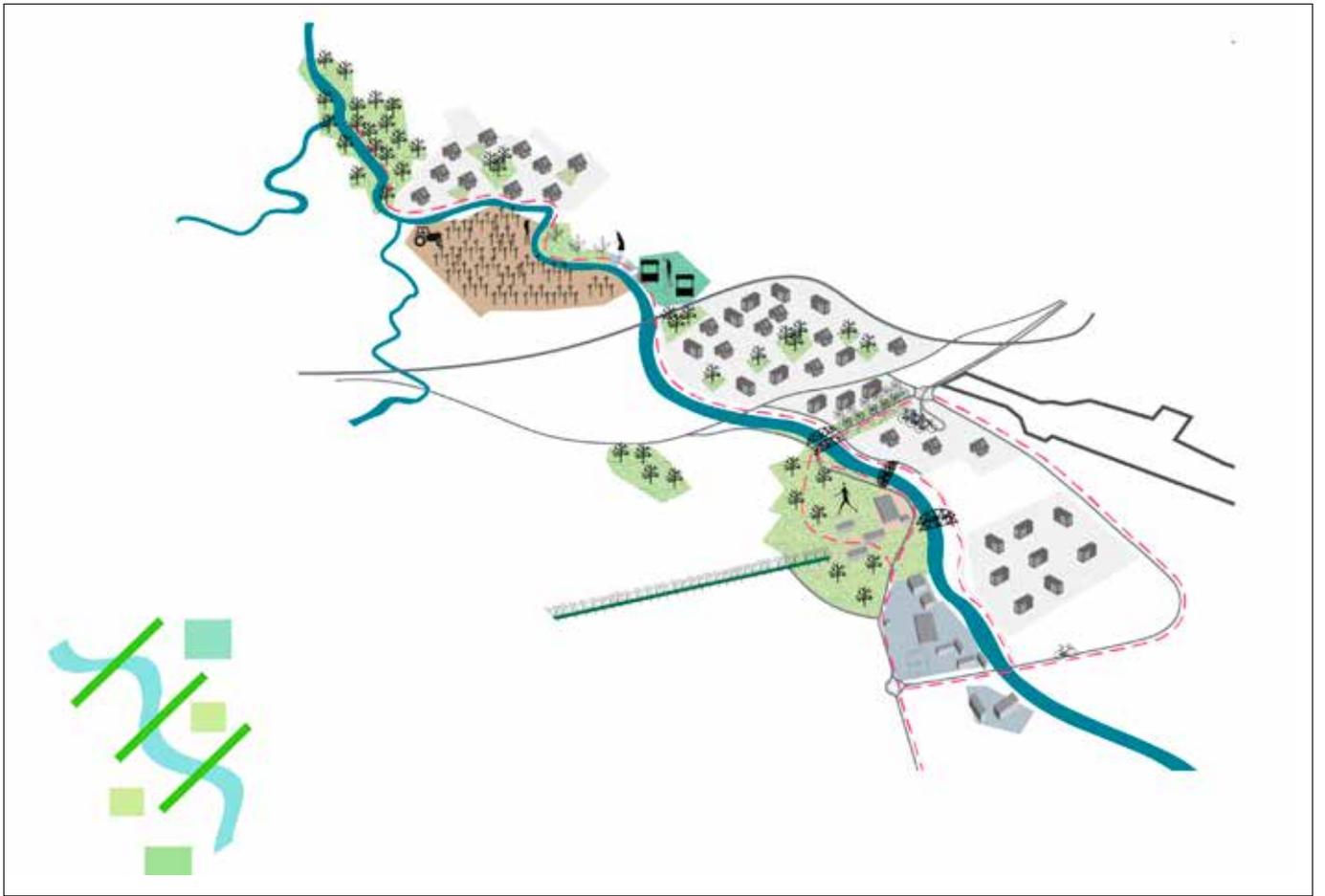
# CONNECTIVITY FOR ALL

This project builds on the idea of reinforcing the ecological structure of Sarajevo Polje and generating multiple benefits on that basis. The principal design element is the ecological corridor. These corridors are connecting elements in the landscape that serve as links and habitats for flora and fauna. These connections also serve as important structuring elements and support the visual quality of the landscape. The core element is the river itself as an ecological corridor. But in addition to this major link there could also be many vegetation patches and lines of trees along the fields which could support the overall ecological quality.

It is important to consider urban and open areas in an integrated way. Ecological structures and habitats can also continue into the built-up areas and serve important functions there. Besides the importance of biodiversity the ecological corridors are considered as multifunctional areas. They could further become connecting routes for sustainable transport such as cycling and hiking and thus serve important recreational functions and support public health. We therefore developed a kind of pattern language showing opportunities for ecological restoration for every land use type that can be found in the Polje today.

We believe that the needs of man and nature can be balanced this way. Sarajevo Polje will become a rich landscape with a healthy flora and fauna in which people can enjoy the many natural benefits that can be found here in direct vicinity to their homes.





Connecting patches of habitats through corridors along the rivers crossing the Polje...

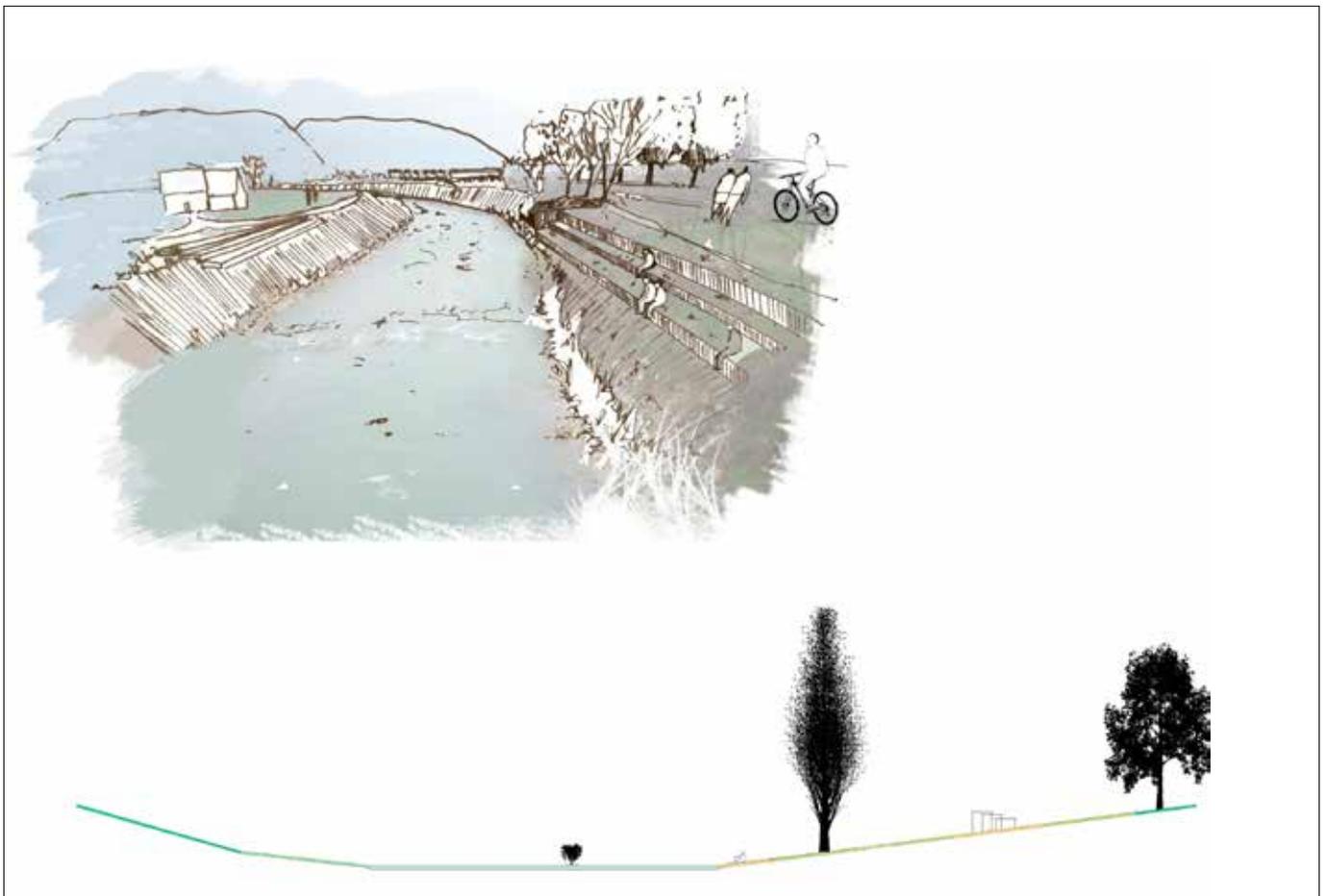
...and in the urban context of Ilidza

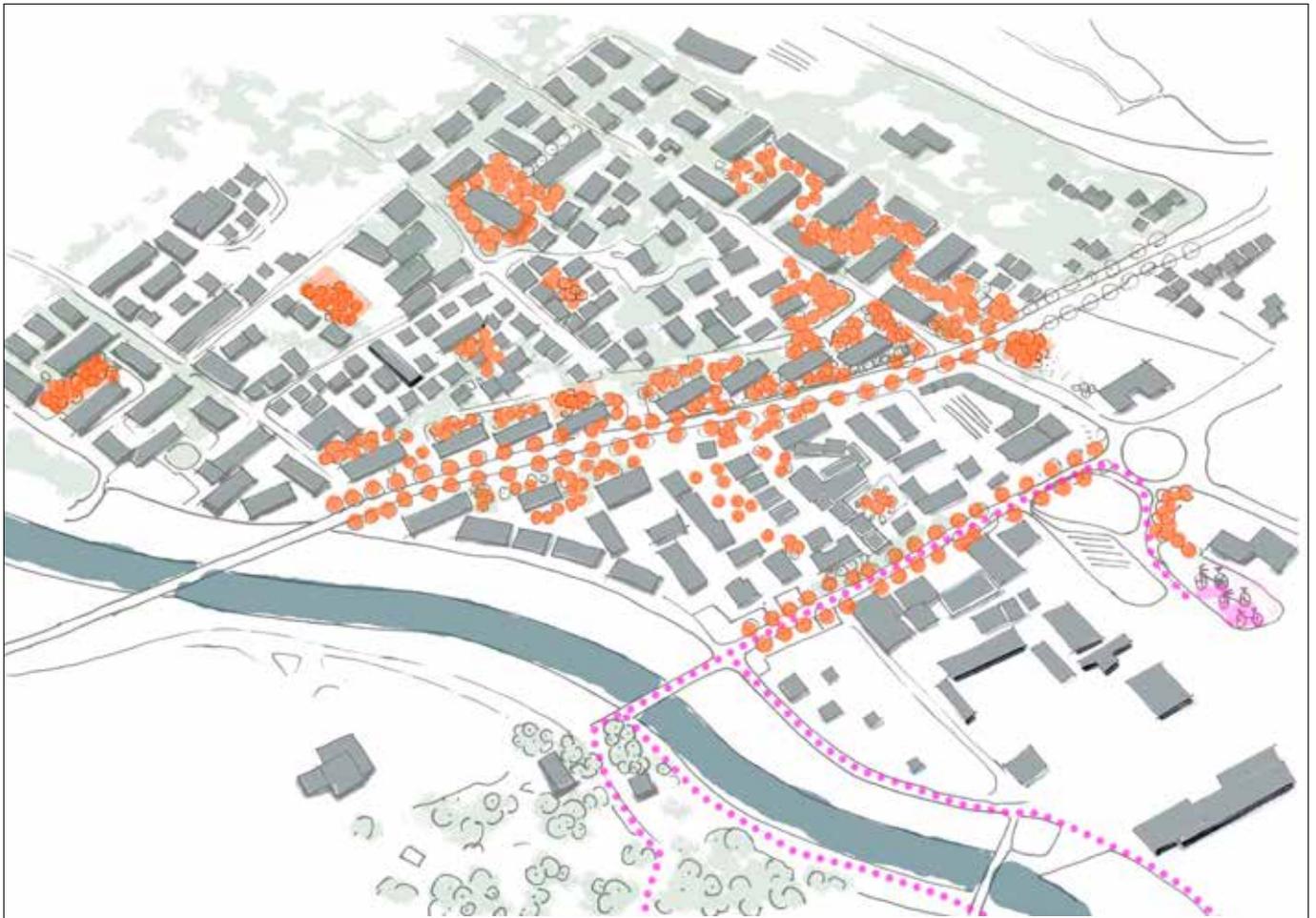




Multifunctional zones along the river with high value for biodiversity

Perspective sketch of the new situation



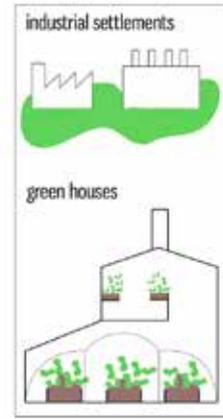


Rows of fruit trees and orchards as multifunctional elements: aesthetics, food production, habitat and environmental education

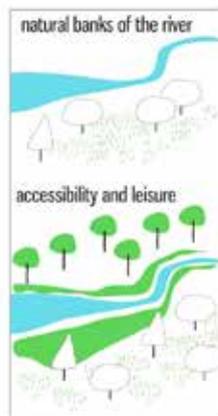
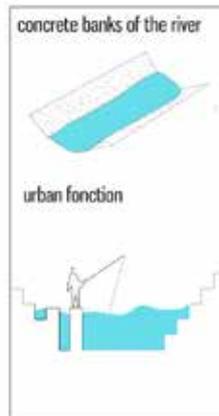


# TOOLS

## URBAN TISSUE



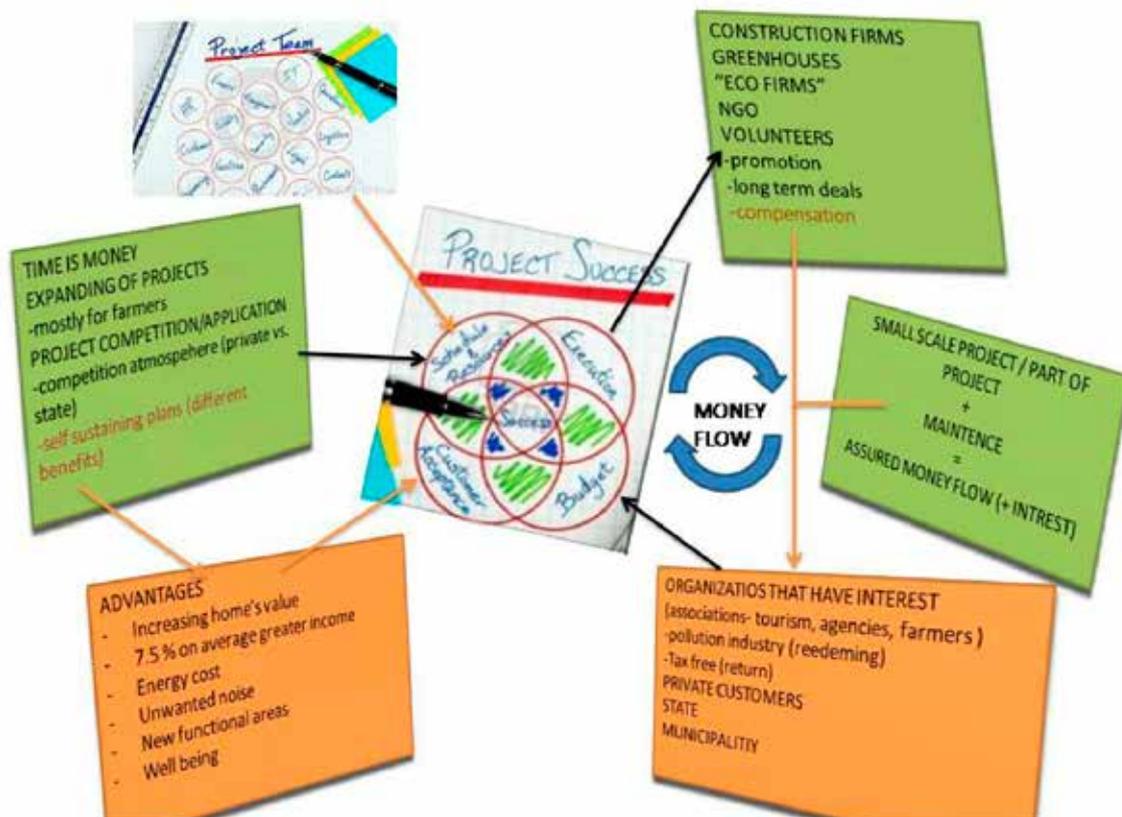
## RIVER



## FIELD



# FINANCES



# RECONNECTING AGRICULTURE WITH THE CITY



**Emina Mašala** (Bosnia and Herzegovina) University of Sarajevo; **Alice Delpeyroux** (Belgium) Université Libre de Bruxelles; **Michèle Mannes** (Belgium) Université Libre de Bruxelles; **Sofia Cherif-Messaoudi** (Belgium) Université Libre de Bruxelles; **Erika Jurevičiute** (Lithuania) IMLA.

# LOCAL GREEN FOOD PRODUCTION

The main issue of the Sarajevo Polje is continuous population growth which raises the question of how to manage food security and urban expansion. In order to avoid further rural-urban conflicts agriculture needs to be reconnected to the expanding city. The benefits of urban agriculture are grouped into three main categories: social, environmental and economic. Each category provides different benefits which are linked with each other: food security, education and training, land quality, water management, job creation, boosting of local economy. All those benefits were considered in this project.

The project itself is located in the southern area of the Polje in the water protection zone, due to the already existing but very parceled fields and the mostly unorganized settlements. The agriculture-based project focuses on the revaluation

of locally produced food in an organic and social way, in order to respond to the disappearance of high fertile land and the continuous pollution of water and soils due to the densification of settlements and the uncontrolled use of pesticides. Furthermore, the project's view is to respond to the low income and the high unemployment rate of the population by providing jobs in a sector of local and healthy food production. Finally, everything that occurs naturally such as rain or organic material is used in order to reduce the costs of production.

The total area is about 400 ha big, of which about 300 ha will be dedicated to agriculture. This agricultural field is composed by the existing private parcels. It will be divided as follows: 220 ha for food production and 80 ha for pasture with about 800 sheep. By rotating the areas of production and pasture, two-third of

the total 300 ha will be constantly used for agricultural production, whereas the other one-third will serve as grassland for sheep. This management is used in order to guarantee a constant natural fertilization by using the sheep's dung and a sustainable and gentle soil management.

In order to increase the total crop production, the farmers will use the method of companion planting. This polyculture consists in planting different crops in proximity for pest control, pollination, etc. For example by growing green bean and lettuce in proximity, the production can increase up to 44%. When onions are used as a third partner, the production can even raise up to 80%! When 50 sqm of agricultural land is needed to feed one person, this total area of 220 ha food production could feed approximately 44.000 people. The agricultural



fields will be complemented by greenhouses, so that the supply of more sensitive plants like salads or tomatoes can be guaranteed even during cold seasons.

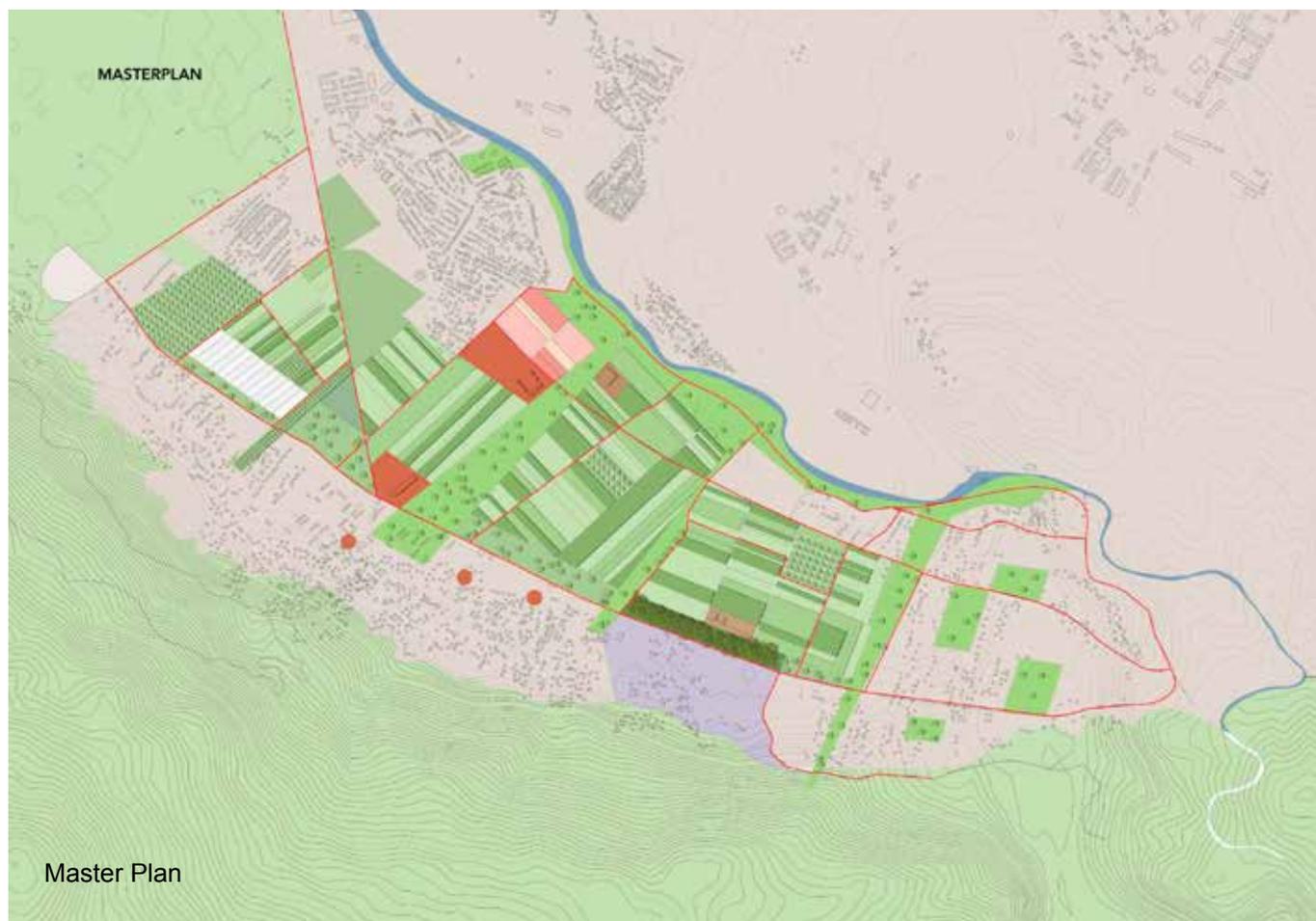
The north-western part will provide allotment gardens to the people of Sarajevo City. At the beginning, this part will be reduced to 5 ha, but can be enlarged in the future. By needing 70 sqm to feed one family, this first area could feed approximately 700 families. The area will provide common tools and equipment, such as hand tools and machinery, shared by the farmers and stocked in a joint used storage close to the farm and stables. In this way, everyone has the same possibility to work on the field, even if one has no money or storage room for personal tools at home. A local market area will sell the produced food to the visitors and consumers around the neighborhood. A part

of the gained money will directly serve to remunerate the farmers. Green classes will receive scholars to introduce them in local and organic agriculture and to sensitize the young in order to guarantee a sustainable future.

An experimental field managed by the nearby agricultural institute will develop new ways of production and share knowledge in the training center with the local farmers. The entities will widely be with local materials, in order to support local producers and to reduce long distance transits, a recurrent theme to be found along the whole concept of the project. Finally, a retention basin will collect rain waters in order to serve as irrigation. The transition between rural and urban will be underlined by green corridors departing from the settlements and extending to the agricultural land. Furthermore, the eastern

part will serve as a possible future densification zone, including green corridors between the already existing houses too. Those have to be considered by future constructions, so that green spaces in between settlements will be kept and unorganized housing will be banned.

The whole project will be managed by one cooperative which will be divided into three main parts. The cooperative of production will include the agricultural fields, orchards and pasture land. The cooperative of the market will manage the distribution of the products to the local market and in a long term to the wholesale. The cooperative of education will include the training center for farmers, the experimental fields and of course the green classes.



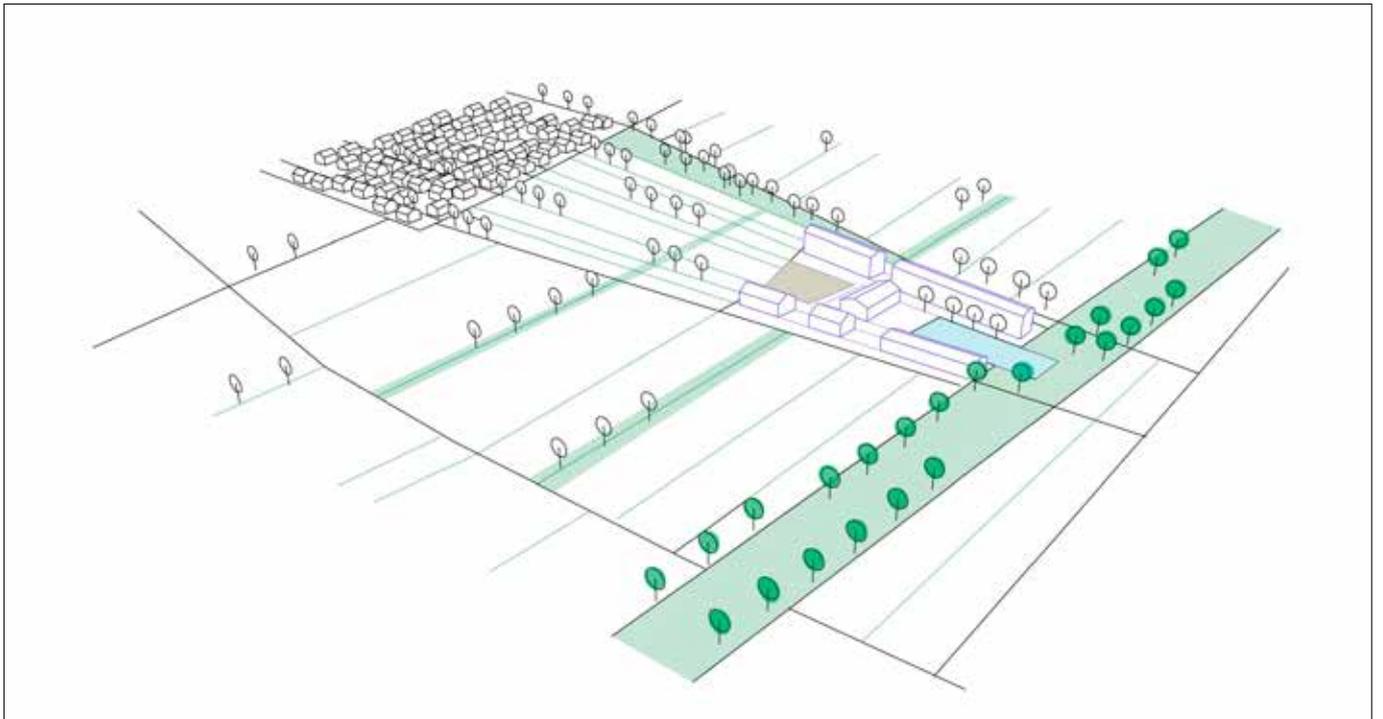


Image above: farm and green classes, image below: distribution centre



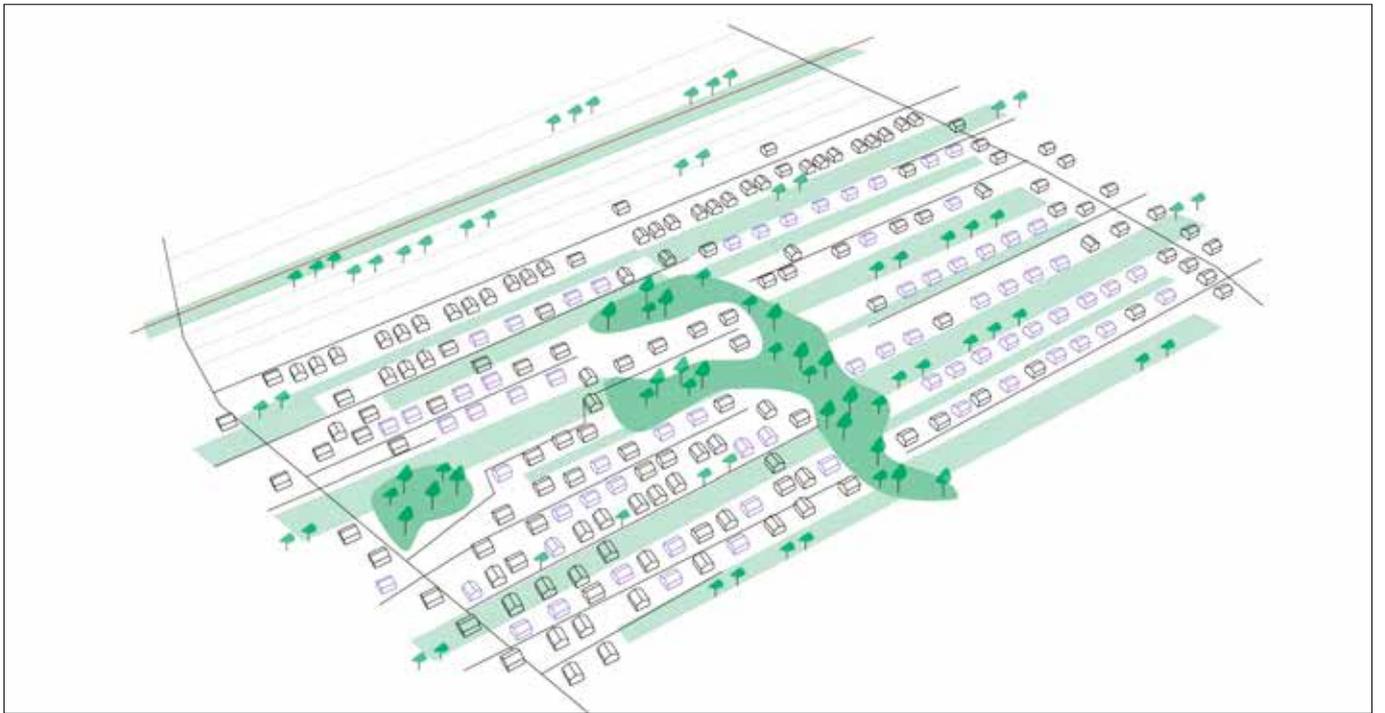
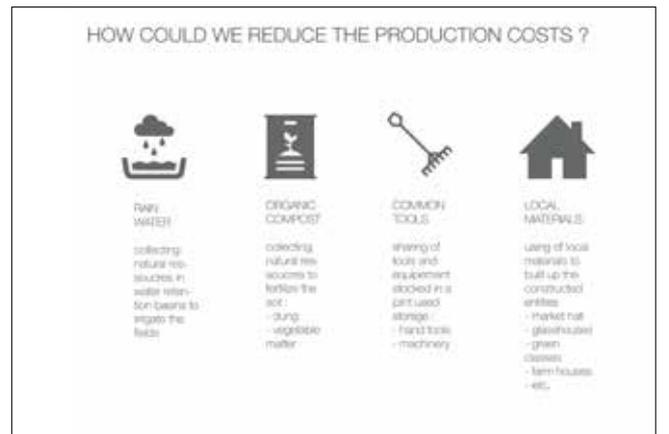
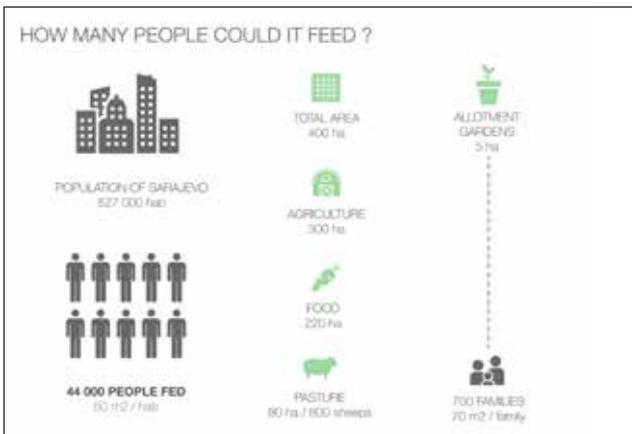
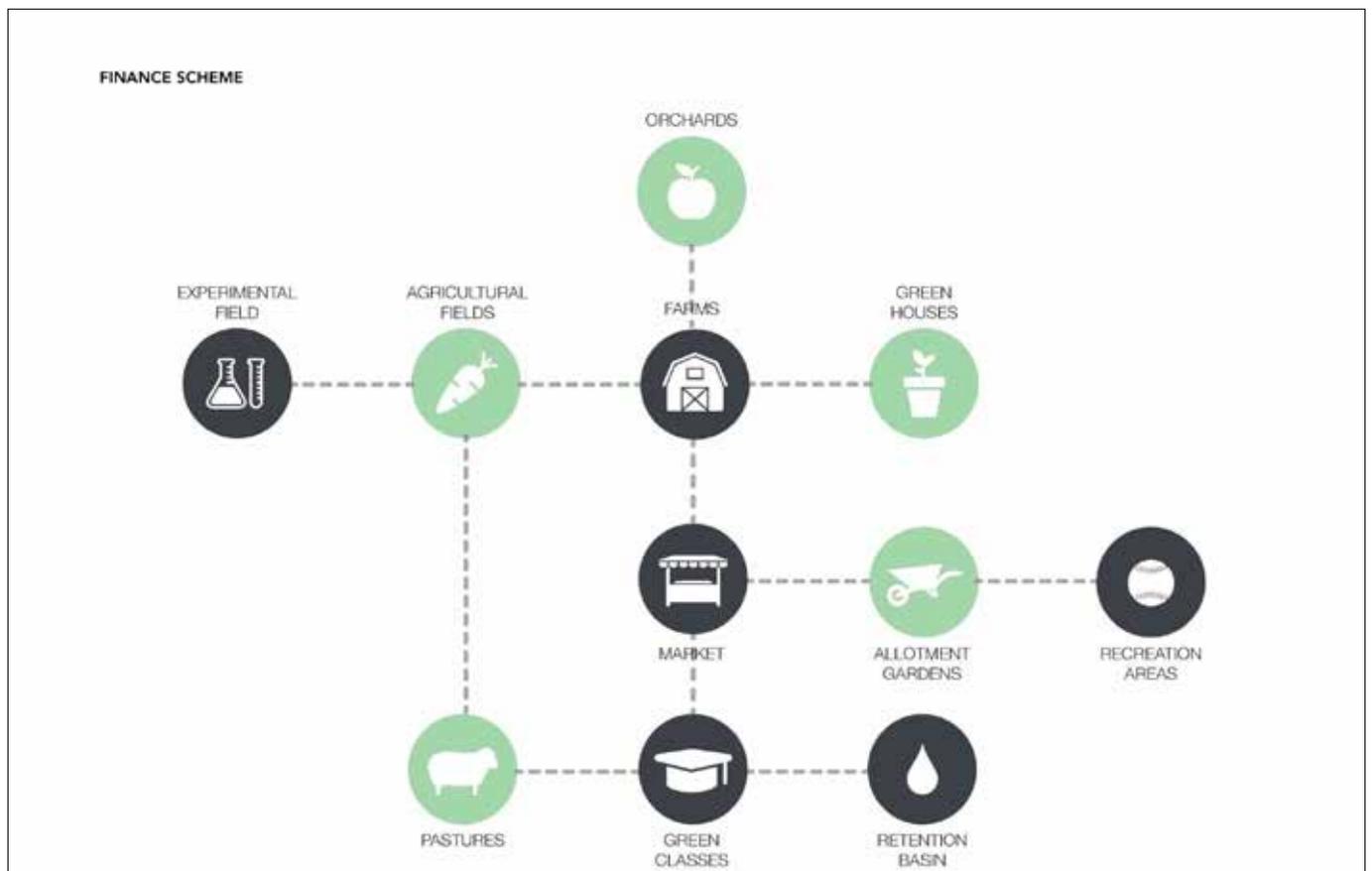
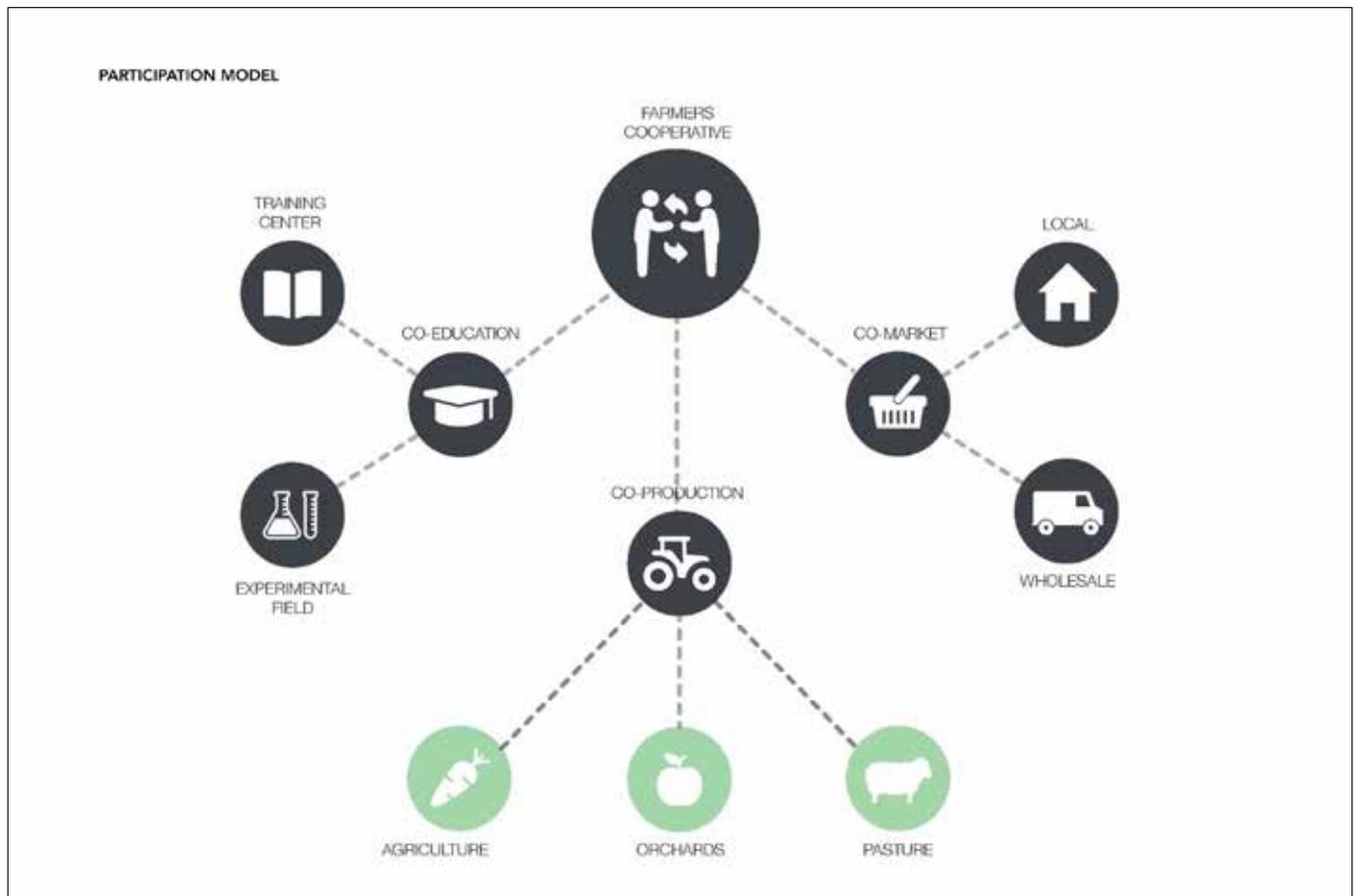


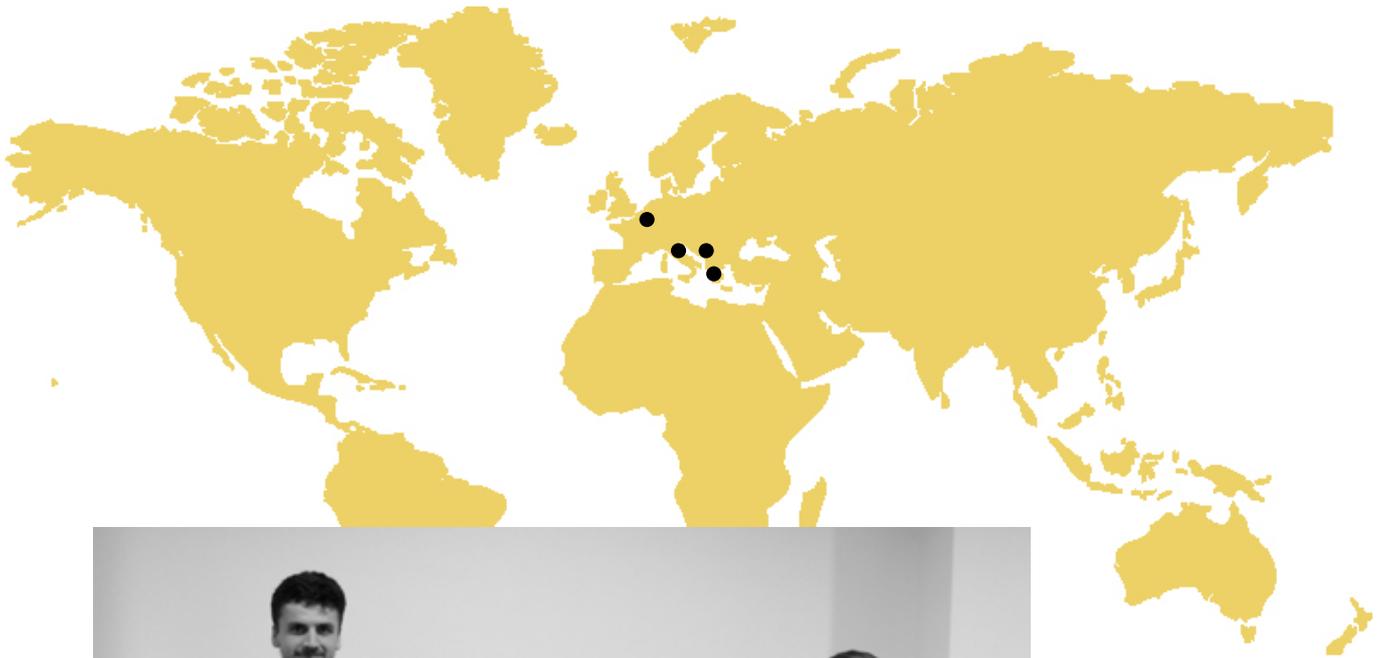
Image above: urban densification, image below: possible densification areas



# GOVERNANCE AND FINANCE



# PRESERVING ILIDZA AS ILICA



**Ahmed Delić** (Bosnia and Herzegovina) International Burch University; **Lefevre Diane** (Belgium) Université Libre de Bruxelles; **Huiyi Zhan** (Luxemburg) Université Libre de Bruxelles; **Esgiona Ntoulari** (Greece) IMLA; **Elena Staffoni** (Italy) IMLA; **Anne Faure** (Belgium) Université Libre de Bruxelles; **Amsal Mešić** (Bosnia and Herzegovina) University of Sarajevo.

# A PLACE FOR HEALTH

The word Ilica derives from Turkish language and means “a place where to get health”. This is the aim of our proposal for Iliđza and for Sarajevo Polje, to preserve, or better to reacquire the original status of the place by means of a Green Infrastructure approach.

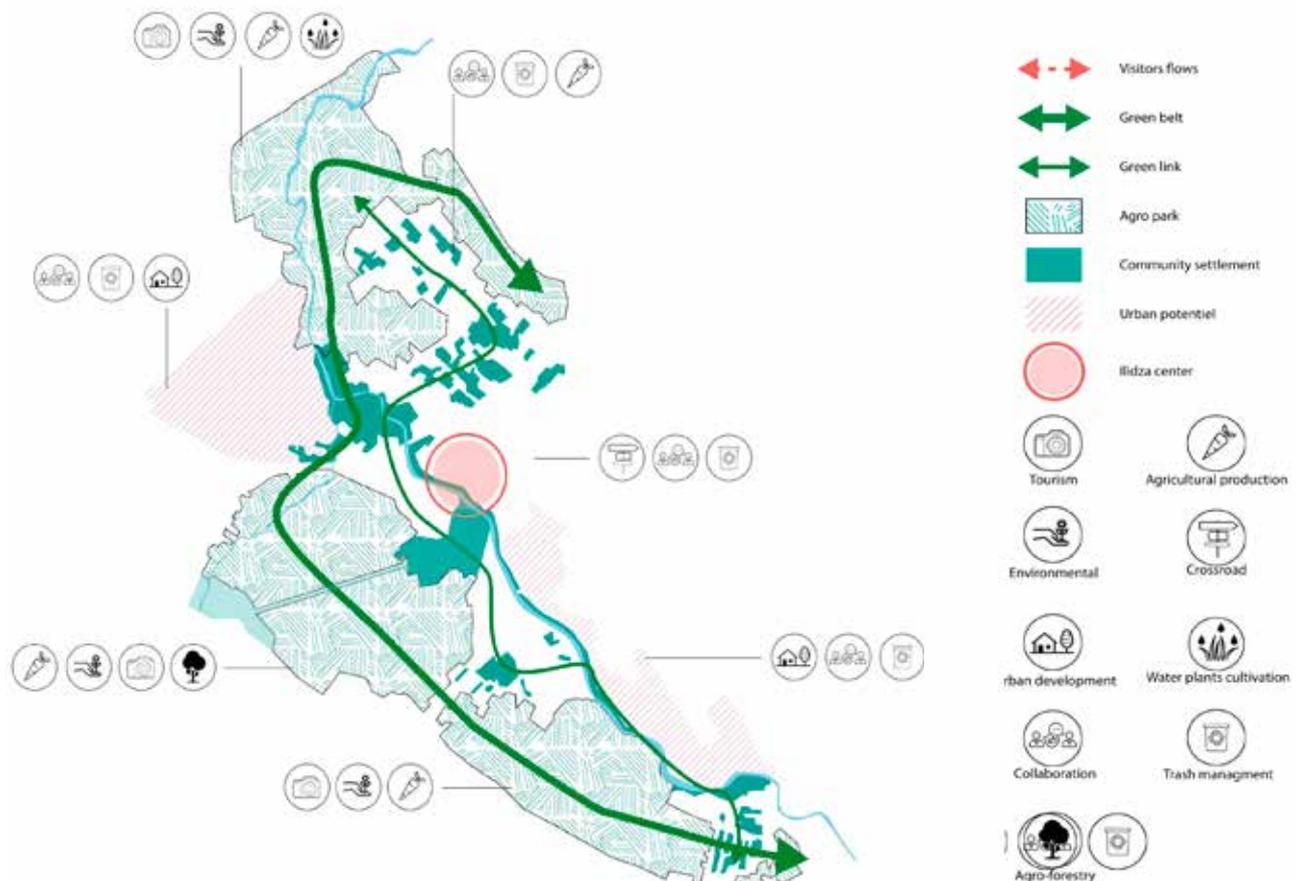
After the site visit some relevant issues emerged: economic insecurity, illegal houses, pollution and fragmentation of the landscape highlight a low quality of life and a necessity to find a solution for both people and landscape. Our strategy aims to contrast these problems and to include the interesting potentials of the area, such as the nature protected

area, the natural resources as springs and thermal water and the high sense of community that characterize the inhabitants. Both sustainable and people-centric, it creates a sustainable development of Sarajevo Polje through a Green Infrastructure network by generating economic income, controlling urbanization, forming green connection with Sarajevo city, densifying the city center, encouraging education programs and avoiding fragmentation.

Our concept is based on different scales of organization and a global management program. The first is the *private scale*, aiming to enhance relationships between people

living in the same neighborhood, creating an exchange of production goods, knowledge and materials. The second is the *community scale*, proposing a community place open for all the inhabitants for cultivation and grazing. The third scale is constituted by a big Green Infrastructure network named *agro-touristic park*. It includes plots for agriculture exploitation and tourist structures like points of view, information points, spas, sport places. The Agro-Park consists of the crop place, the forestry area and the wetland. We would like, with the help of Green Infrastructure, trade network and our management program, to create a better place for live. The network will start in Iliđza

## MASTERPLAN APPROACH



but will reach the center of Sarajevo and all the canton in the future.

Our detail area is located along the river Željeznica, from the university campus to the confluence of the Željeznica with the Bosna river. The area includes a wetland, a forestry and springs area and the center of Ilidža. The presence of the transition zones and a route

network (for bikes and pedestrian) connects all the different areas.

Sustainable governance, participation and finance are vital for this project. During the first step of the process the citizens should be educated through workshops, seminars and conferences. After that the community will be involved in the decision making process

by Citizen's associations, Local institutions, NGOs and Cooperatives. In the third step the goal is to establish communication between the community and the experts: the citizens can give advice, make questions, and suggest solutions, until the final decisions are made by municipality and experts. The four main income generator fields are tourism, agriculture, localized urbanization and Green Infrastructure. The incomes will be used for public as well as for private investments (i.e. maintenance expenses, finance young entrepreneurs).



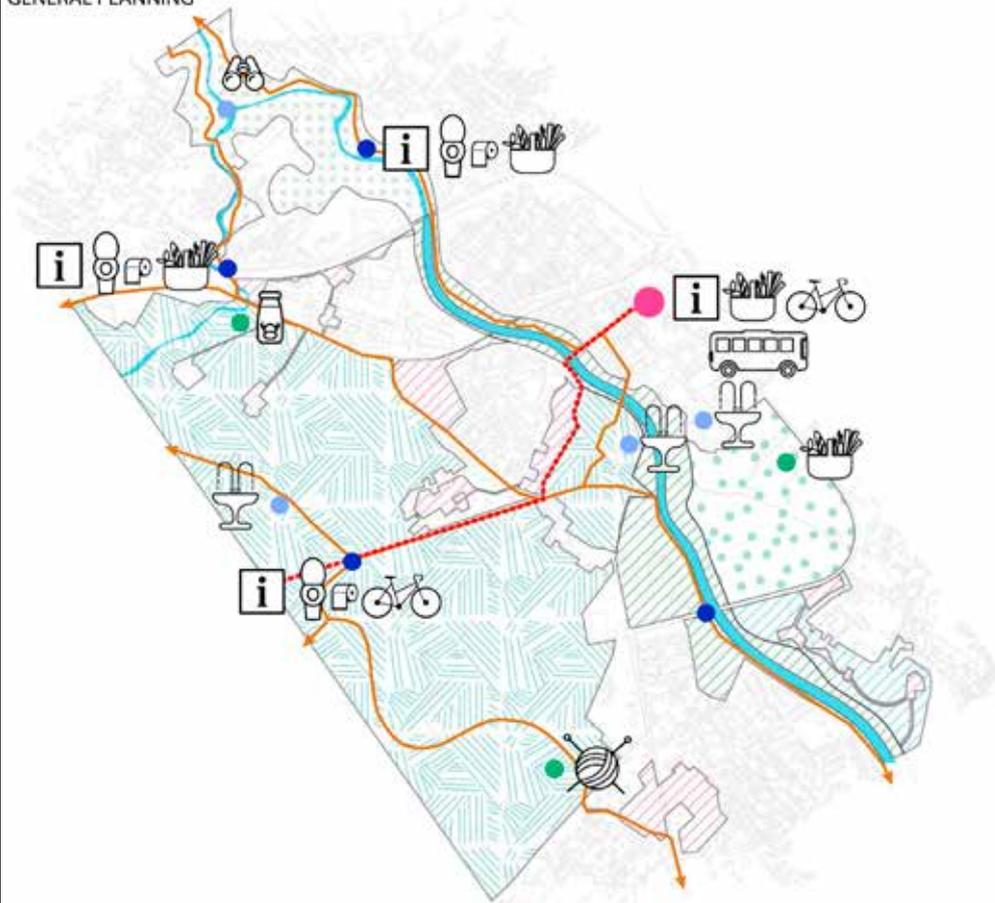
# OUTLINE PLAN

ZOOMING AREA



# GENERAL PLANNING

- WET ZONE
- FORESTRY
- COMMUNITY PLACES
- STORAGE
- URBAN DEVELOPMENT
- RIVERBANKS
- RIVER
- INFORMATION POINT
- POINT OF VIEW
- BUS STATION
- BIKE STATION
- MARKETS
- WC
- DAIRY FARM
- WOOL FARM
- SPRING



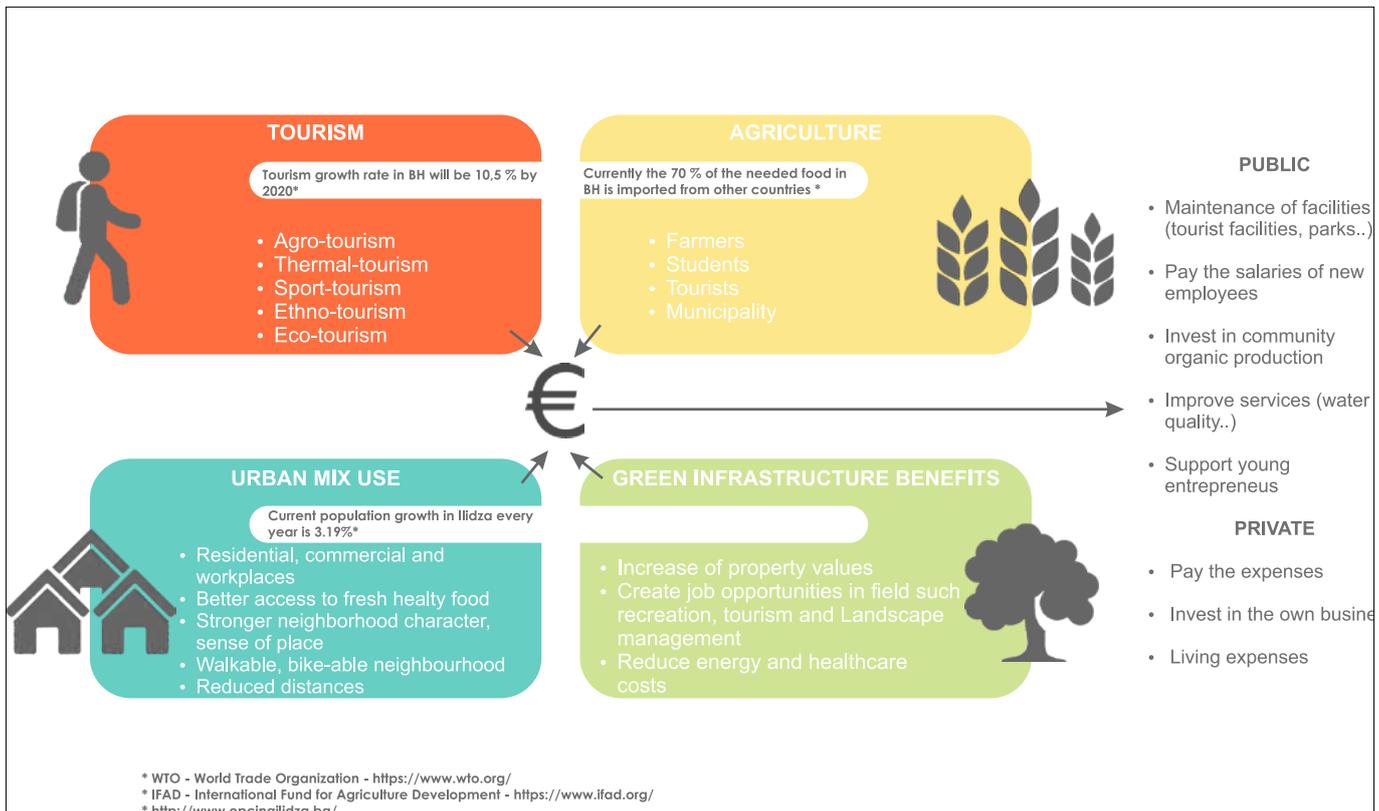
SHARED COMMUNITY SPACES



CENTER OF ILIDŽA



# GOVERNANCE AND FINANCE



# RE-USE AND CONNECT



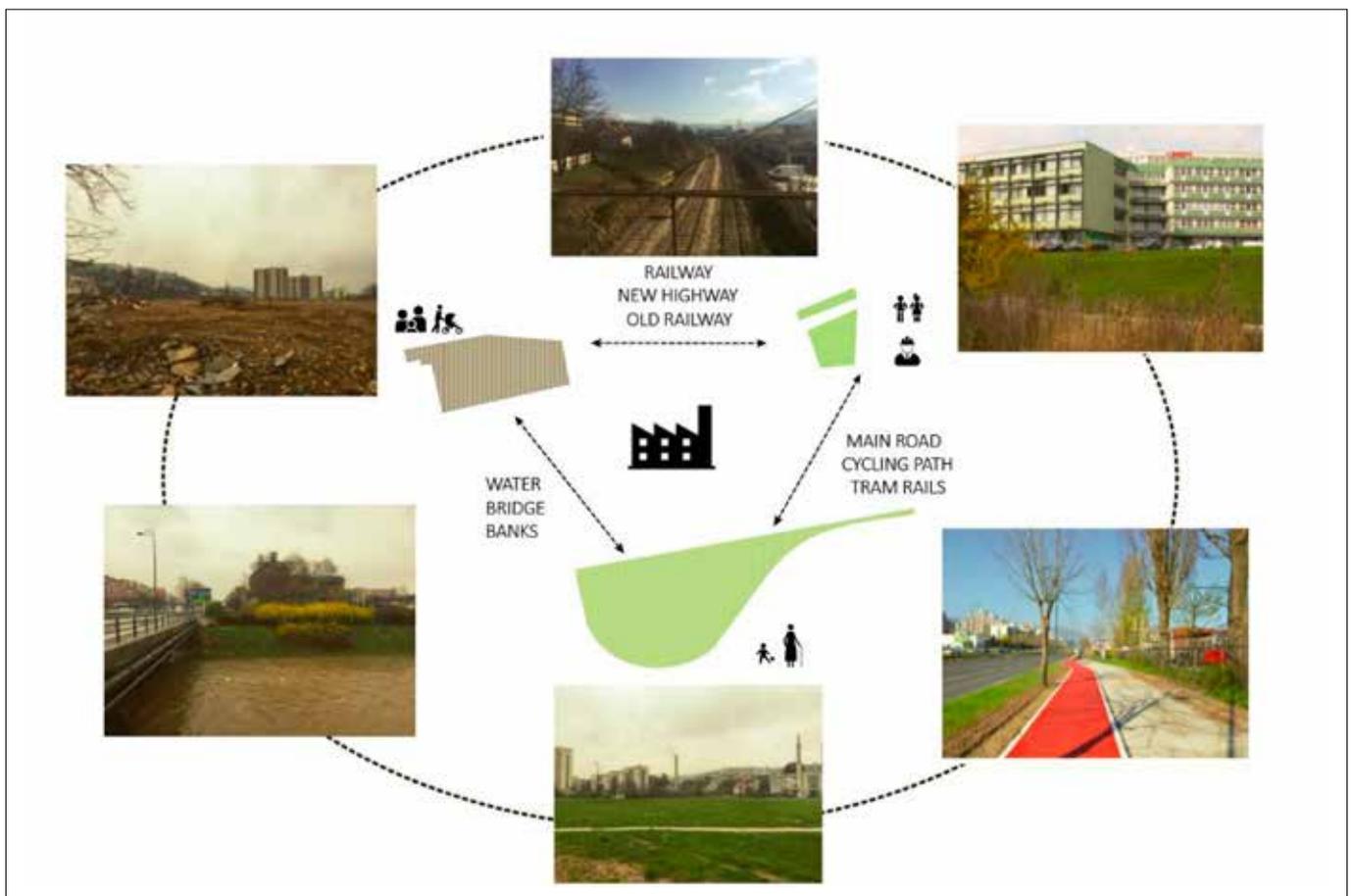
**Edvin Memić** (Bosnia and Herzegovina) University of Sarajevo; **Zuzanna Banas** (Poland) IMLA; **Dalila Omerbegović** (Bosnia and Herzegovina) International Burch University; **Farah Mougharbel** (Belgium) Université Libre de Bruxelles; **Roxane Chahidi** (Belgium) Université Libre de Bruxelles.

# REVIVE THE BROWNFIELDS

Since Sarajevo was an important industrial area of the Balkans postindustrial areas are still existing in Sarajevo Polje. The main idea of our concept is to reuse and connect the remaining brownfields and green spaces. Actions involve the restoring of functions of objects or adapting them to new activities. Due to the circular economy concept and the importance of green infrastructure the spaces need to be connected via green corridors in terms of improving connectivity within the region and at a larger scale within the city. This will also decrease the fragmentation of Sarajevo, by taking advantage of existing greenery and providing recreational functions. The overall goal is to improve the quality of life in the city.

In a wider context the project is focused on densification of industrial areas and mixing uses within them. We would like to preserve permeable areas by appointing hotspots with potential for densification and investment. Segregation of the city into zones, like "industrial zone" is not anymore a good idea. By mixing uses (residential, commercial, industrial etc.) in every zone and connecting this zones with each other we would like to achieve a higher level of sustainability. Connectivity must be improved not only in terms of traffic lines, but mostly by multifunctional human friendly corridors. At the detail scale we present an example of "Re-use and connect" concept implementation; between existing infrastructures we selected

brownfields and abandoned industries, where we proposed changes and new uses. In this background, the main intervention is a proposal for a new residential area on a huge brownfield. The entire complex is fluently changing function - it becomes a green park with open space facilities. We also improved the functionality of existing green spaces by creating attractive hotspots like amphitheater, public sport facilities, viewpoints and resting plazas. The entire area is connected by the network of pedestrian and car-free green corridors that guide the visitor between specific points. Each corridor is connected by a bicycle path.



The project is corresponding to social needs and thus adaptable to EU co-funding requirements. The local community - aware of benefits that come from the investment - should be interested in participating in the design process. Municipality representatives and experts need to insist on involving the community into a project. Only knowing the real needs of the users and the possibility of implementation, all the advantages, disadvantages, treats and benefits of the final outcome can be sustainable and satisfy both sides. A reasonable project

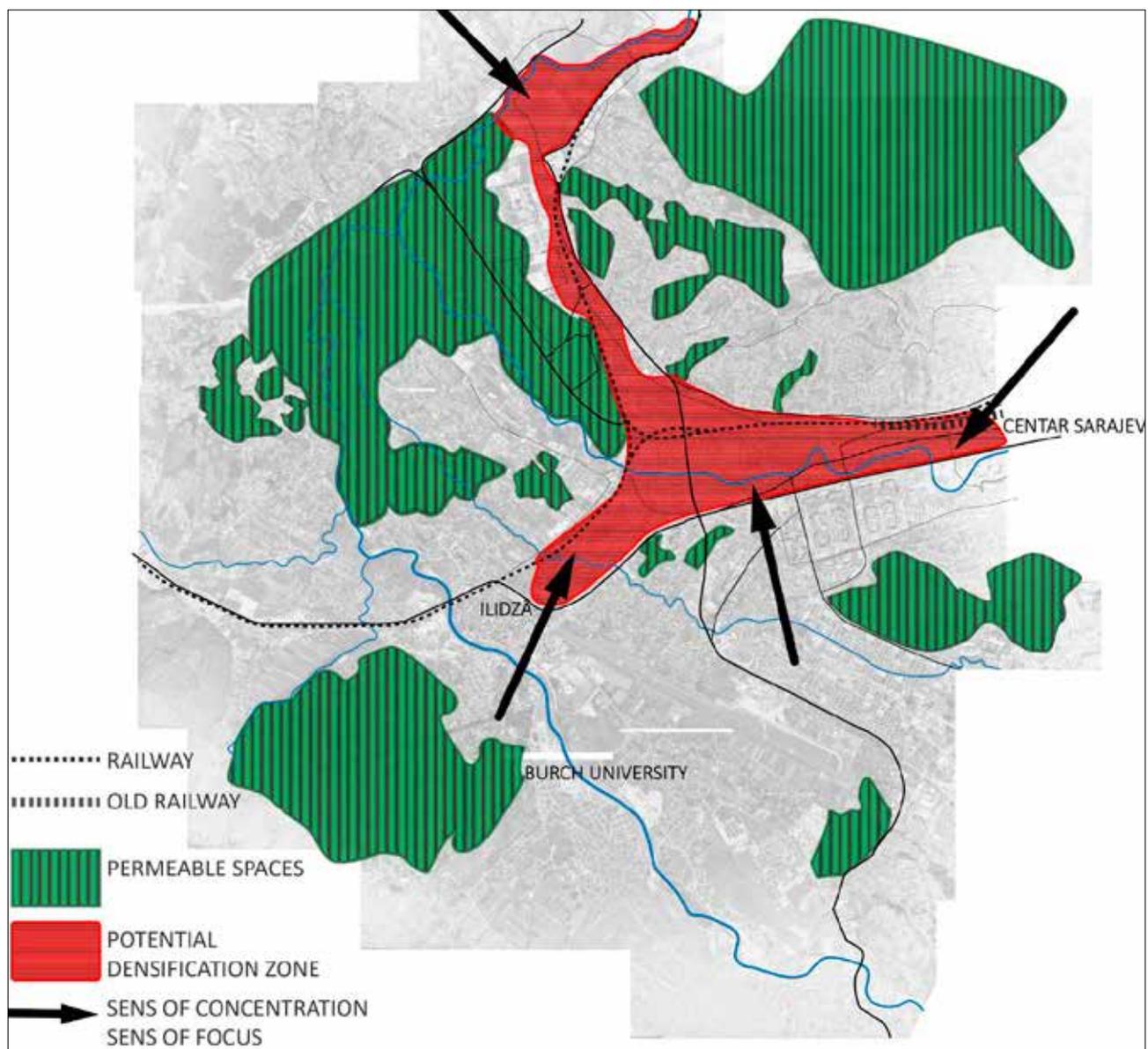
can attract not only the public sector, but also private investors.

Due to the benefits that come with the project we could predict economic success of the idea. Design highly influences sectors linked to each other, which means that by improvement of one, another also benefits. For example investment on real estate is connected to necessity of implementation facilities and ecological uses. They can become elements of green infrastructure.

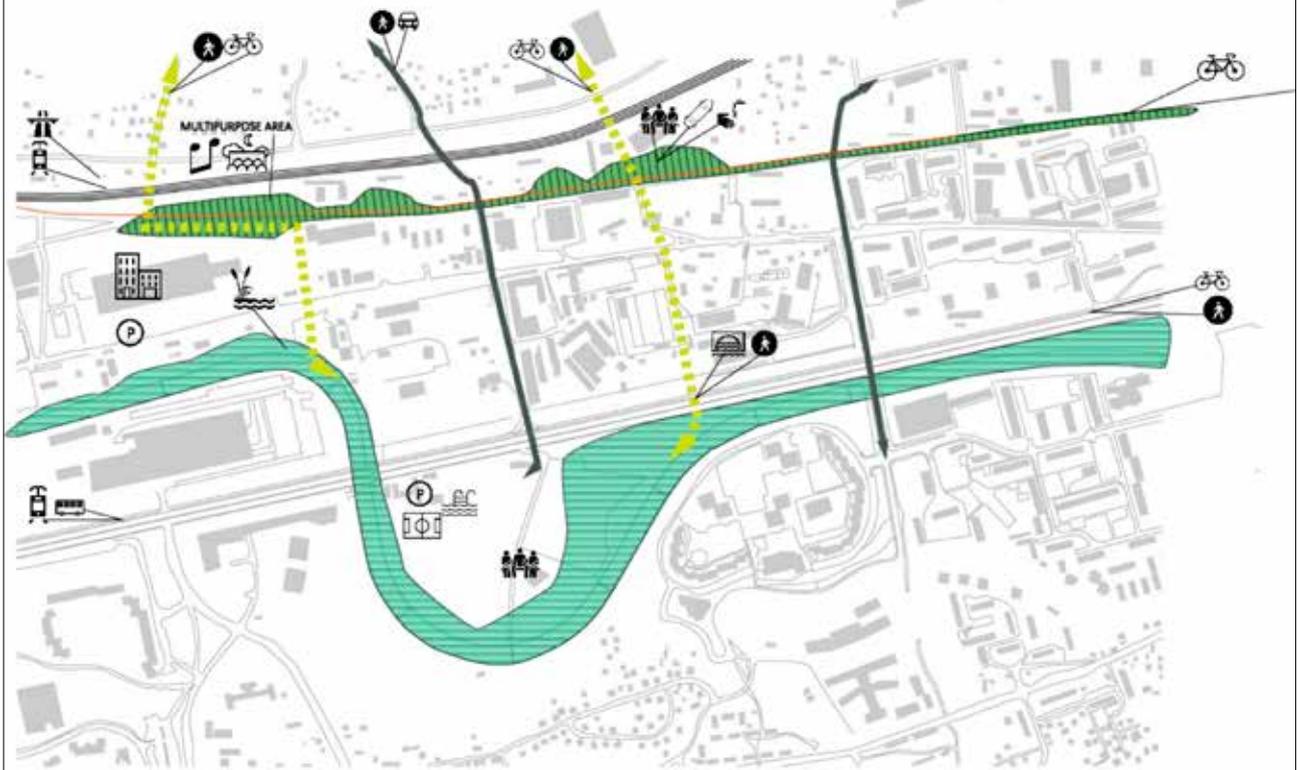
People like to live in a good environment. As the popularity

of the place is growing, better connections are necessary. A well connected and maintained area will attract tourists from the center.

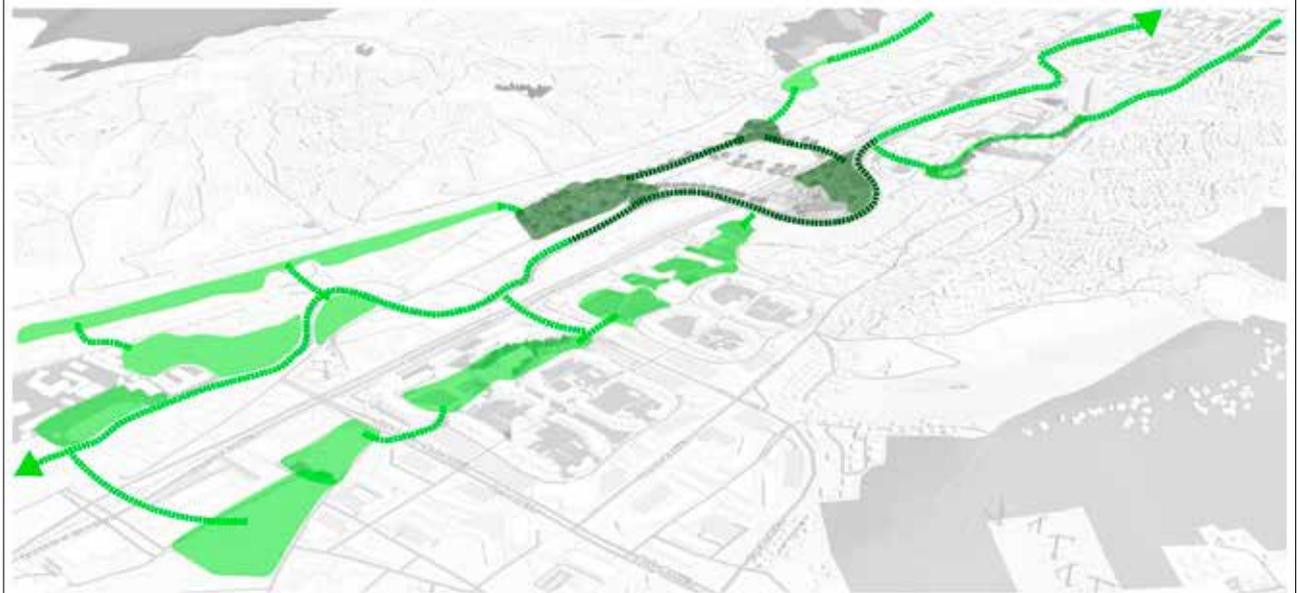
In terms of circular economy, the area represents many potentials - reusing buildings means giving new function to the brown field. Old industries give us a possibility of reusing materials and products. An additional advantage of the design is the possibility of extending the project to neighboring areas later on. A green network for Sarajevo would be a great opportunity for the city in terms of future planning.



# MASTER PLAN



# TIME LINE



GREEN NETWORK - DEVELOPMENT CONCEPT

2016

DEVELOPMENT OF GREEN SPACES (REORGANIZATION, REUSE)  
LOCAL SCALE

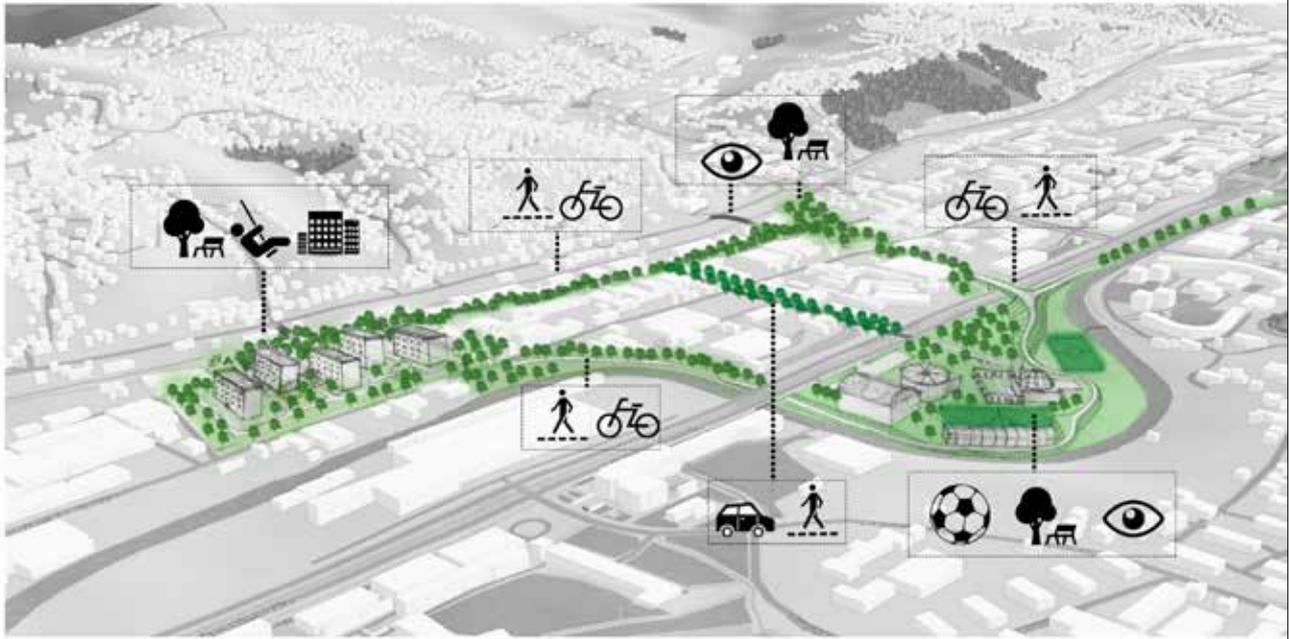
2021

DEVELOPMENT OF CONNECTIONS BETWEEN GREEN SPACES (MAINLY PEDESTRIAN, GREEN CORRIDORS)  
LOCAL SCALE

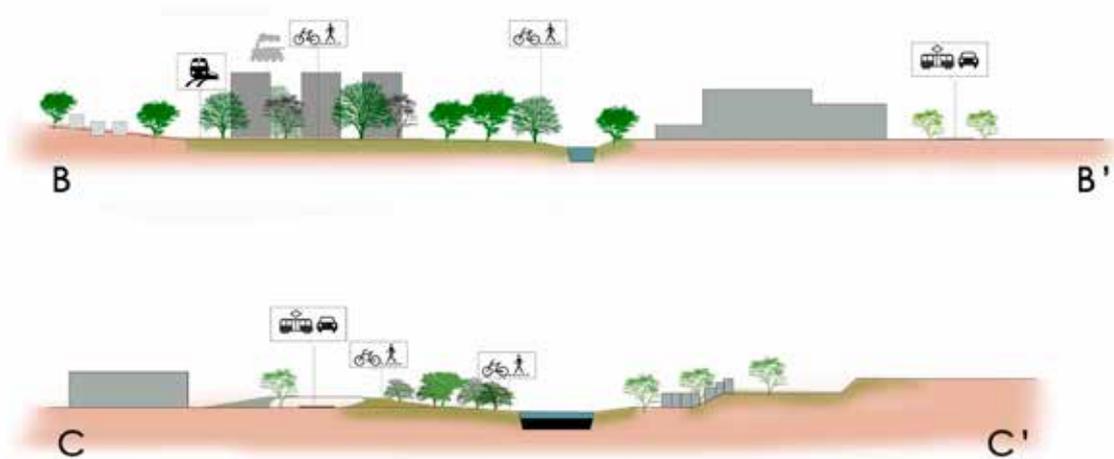
2026

>>> >>> >>>  
DEVELOPMENT OF GREEN NETWORK  
CITY SCALE

# BIRDBVIEW

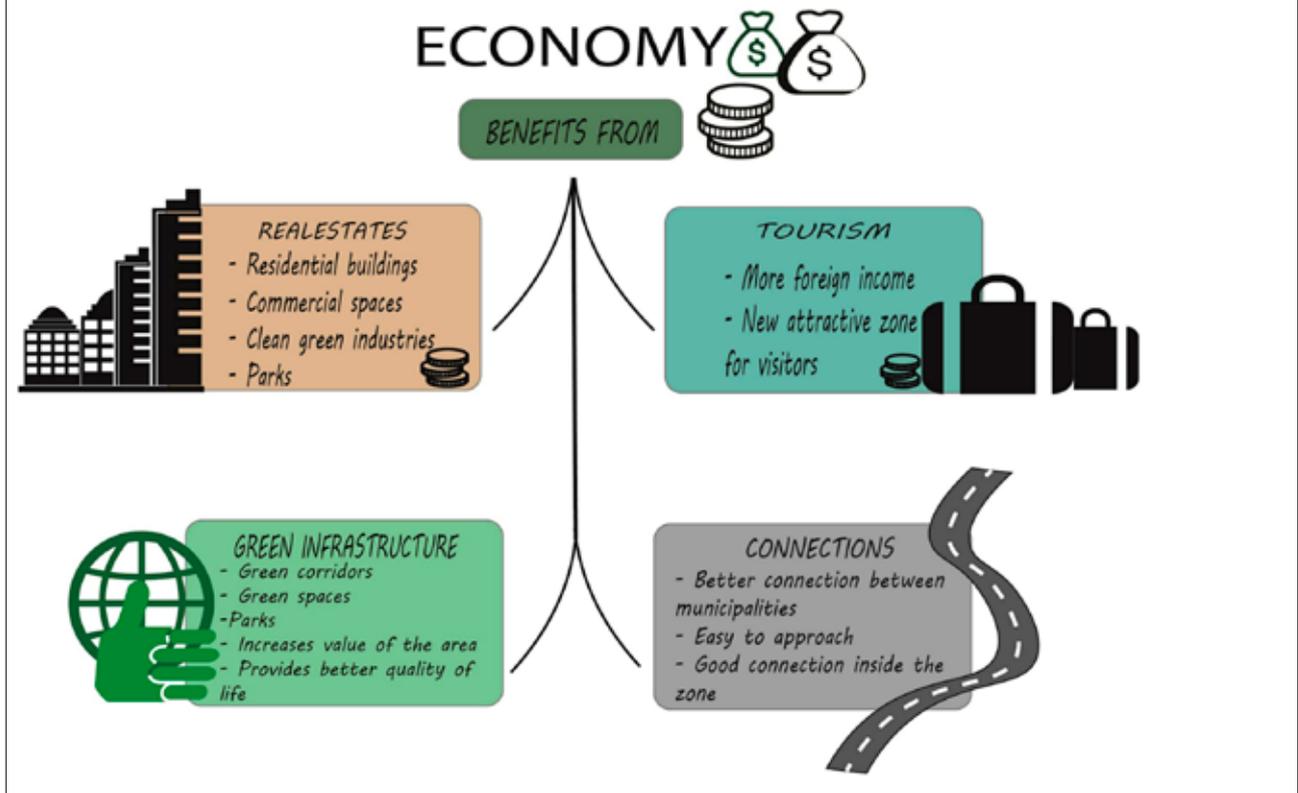


# SECTIONS - PROJECT

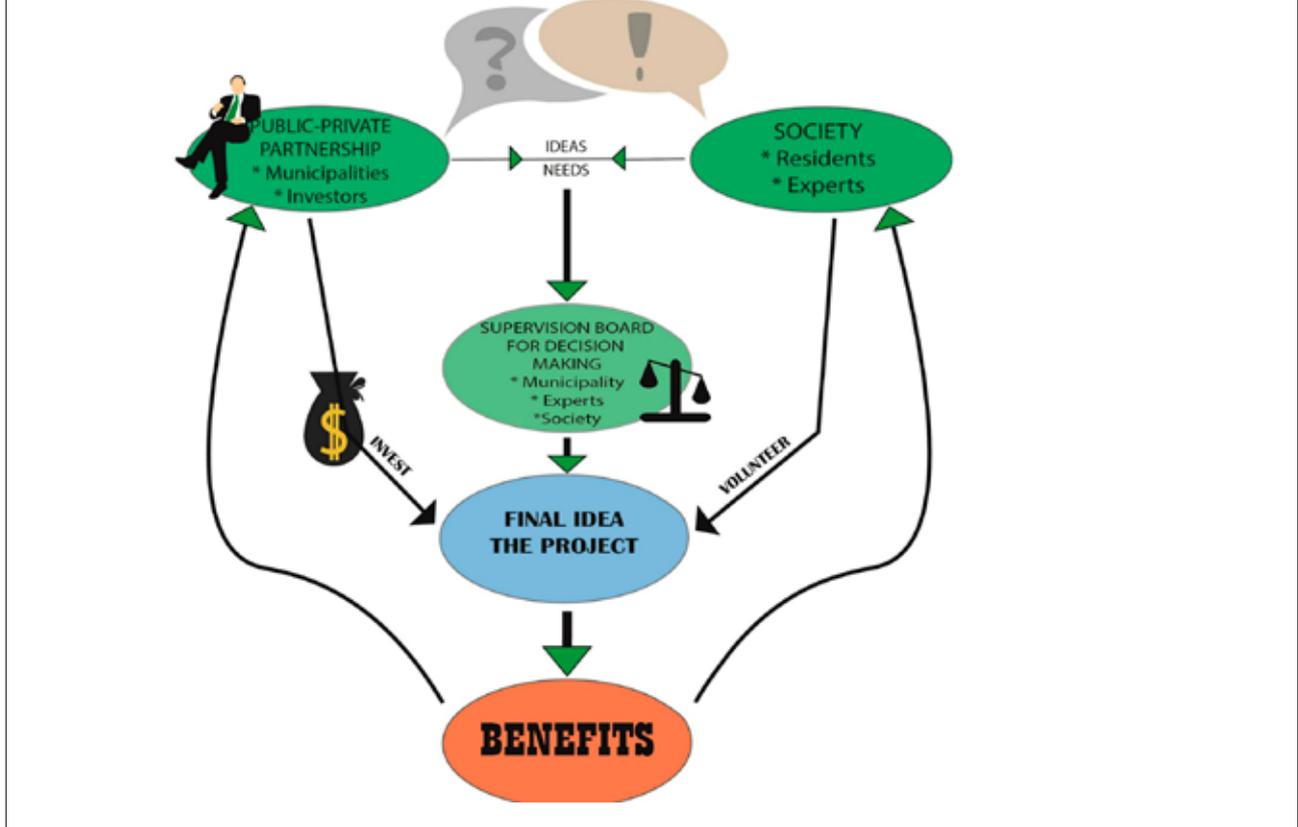


# GOVERNANCE AND FINANCE

## ECONOMY



## GOVERNANCE



# SHAPING THE IRREGULAR



Lasić Dina (Bosnia and Herzegovina) International Burch University; Shami Maroulla (Jordan) IMLA; Chiriac Oana (Romania) Université libre de Bruxelles; Al Monajed Ruba (Bosnia and Herzegovina/Syria) International Burch University; Jackson Irene (Venezuela) IMLA; Corazza Gianvito (Belgium) Université libre de Bruxelles.

# THE CONCEPT

While analyzing the patterns of Sarajevo Polje, it appeared that there is no clear distinction between urban, peri-urban and rural.

With the absence of strong legal constraints based on the application of well-developed zoning and land use planning, it is expected that sprawl will continue to expand on the expense of agricultural land. Very fertile soil will get lost forever.

This pattern of irregularity needs to be reshaped, hence the vision to create a network of settlements that are self-sufficient in terms of food production. These settlements are bound by silvo-pastoral usage that will not only prevent the uncontrolled expansion of sprawl, but will also enhance the economic

conditions of the residents by taking advantage of the V5 highway connecting to Europe for exporting products.

A green belt as part of the area-wide green infrastructure network is anticipated to provide a wide set of ecosystem services which enhance the quality of life of the residents, while supporting the resilience of the environment. To decrease the dependence on cars, secondary roads are to be converted to one-way streets. The width of the street which was formerly occupied by the opposite car-lane will be used for wider sidewalks which incorporate planting schemes. Backyards of houses are to be considered collectively as a communal

space that is used for agricultural purposes. The traditional concept of mahala houses is revived by creating spatial rules that control the percentage of buildable land. Within residential plots, owners are allowed to build up only half of their land, 30% is dedicated to the communal agricultural strip, and the rest is left as open spaces that the residents can enjoy. A densification scheme is also worked out to guide the development of settlements in a sustainable and identity-protecting manner. An assessment of already-existing services in the selected settlement has shown the need for additional services which have to be provided in the future to increase autonomy.

## Interventions

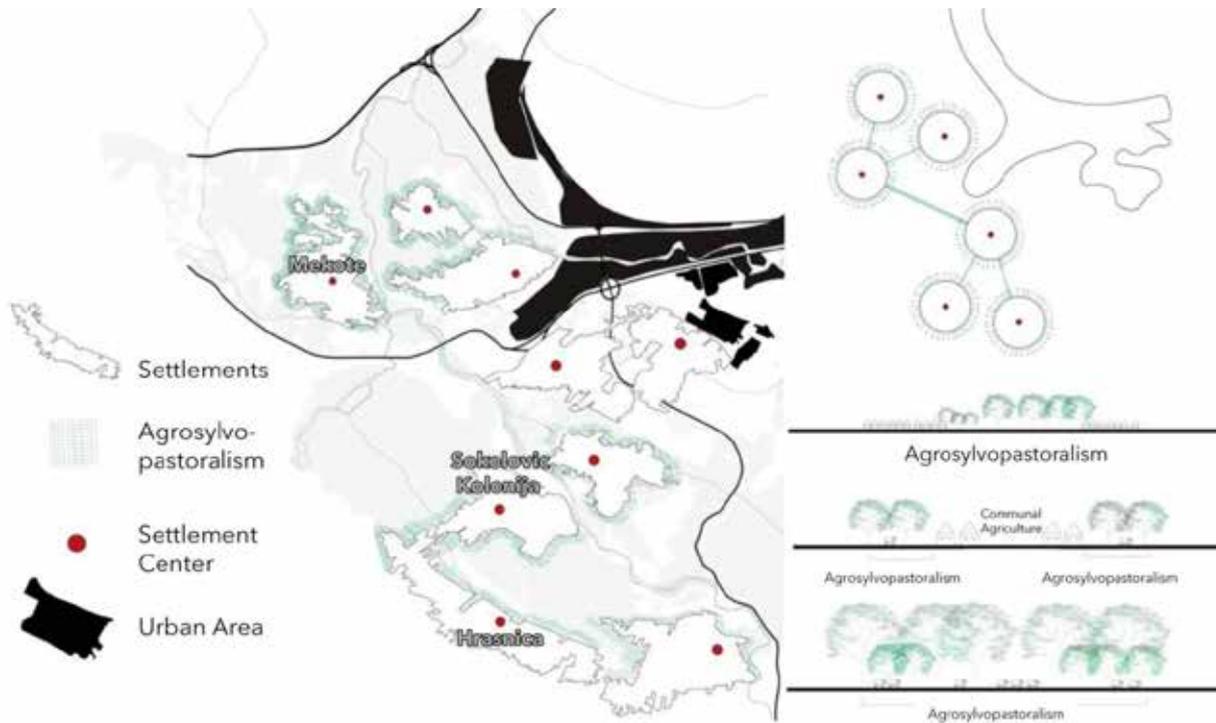


# TERRITORIAL VISION AND DETAILING

To generate income in a community-oriented manner, a socially responsible business model is envisioned for creating a brand of local products. These products are agriculturally based and will be exported to Europe using the V5 highway. Governance within the community is achieved by creating different

associations. One association will involve the expertise of farmers and is focused on the issues of the communal agricultural backyards. Another joins the shepherds of the area together to coordinate the production of goods that are sold as part of the local brand. A community center will be

constructed in each settlement to host these associations, while also serving as a hub of interaction for the community members. To reduce trash production, organic waste is to be collected separately and composted on communal land to produce natural fertilizer.



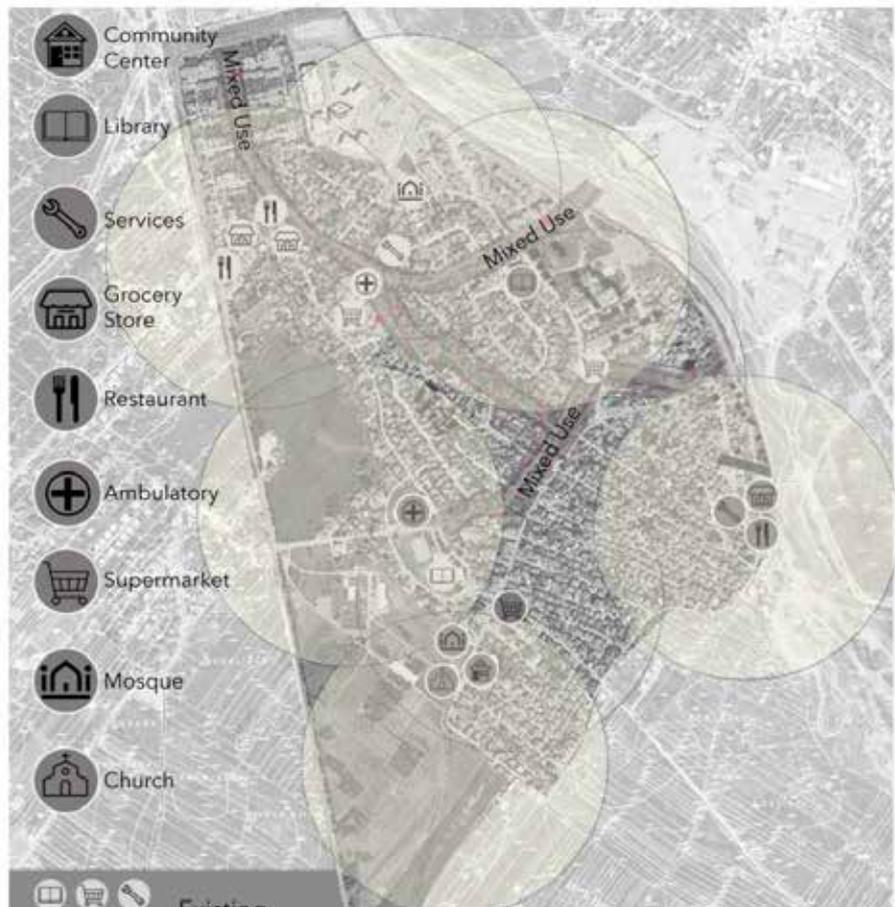
# Green Connections

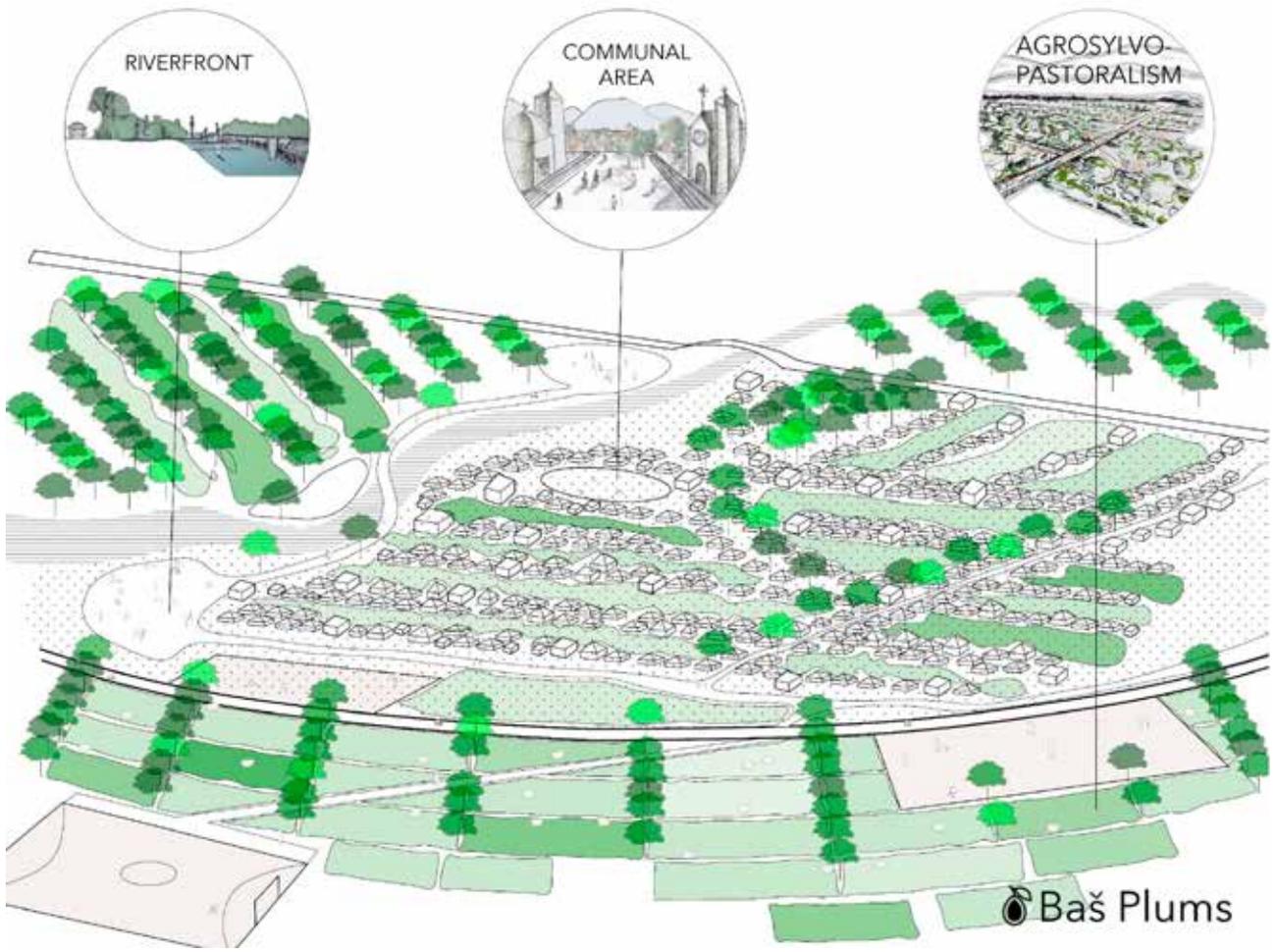


# Service Provision

 Additional Services to increase walkability and community interaction

**Mixed Use:**  
GF- Commercial  
Upper Floors- Residential



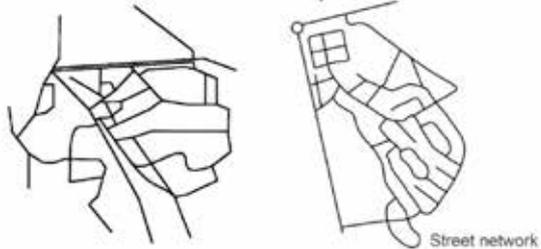


# Residential Potential



Mahala

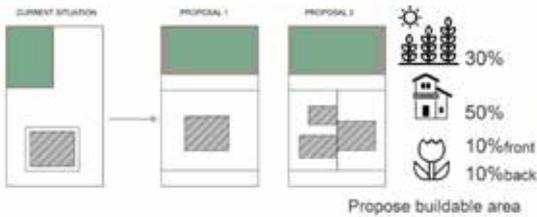
Proposal



Street network

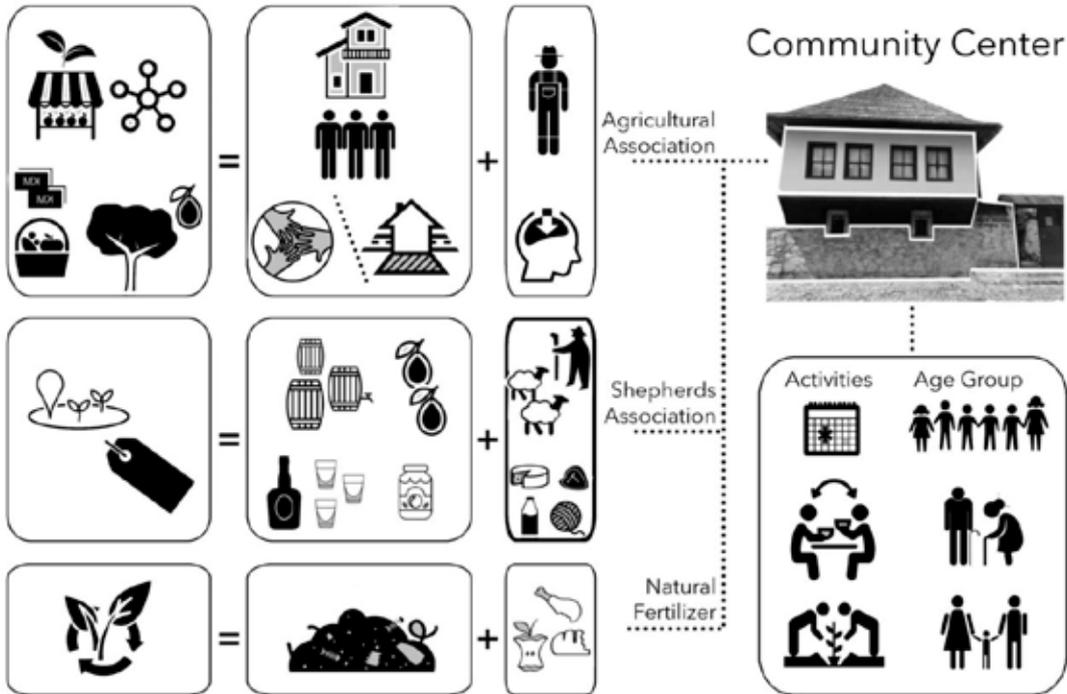


Buildable area

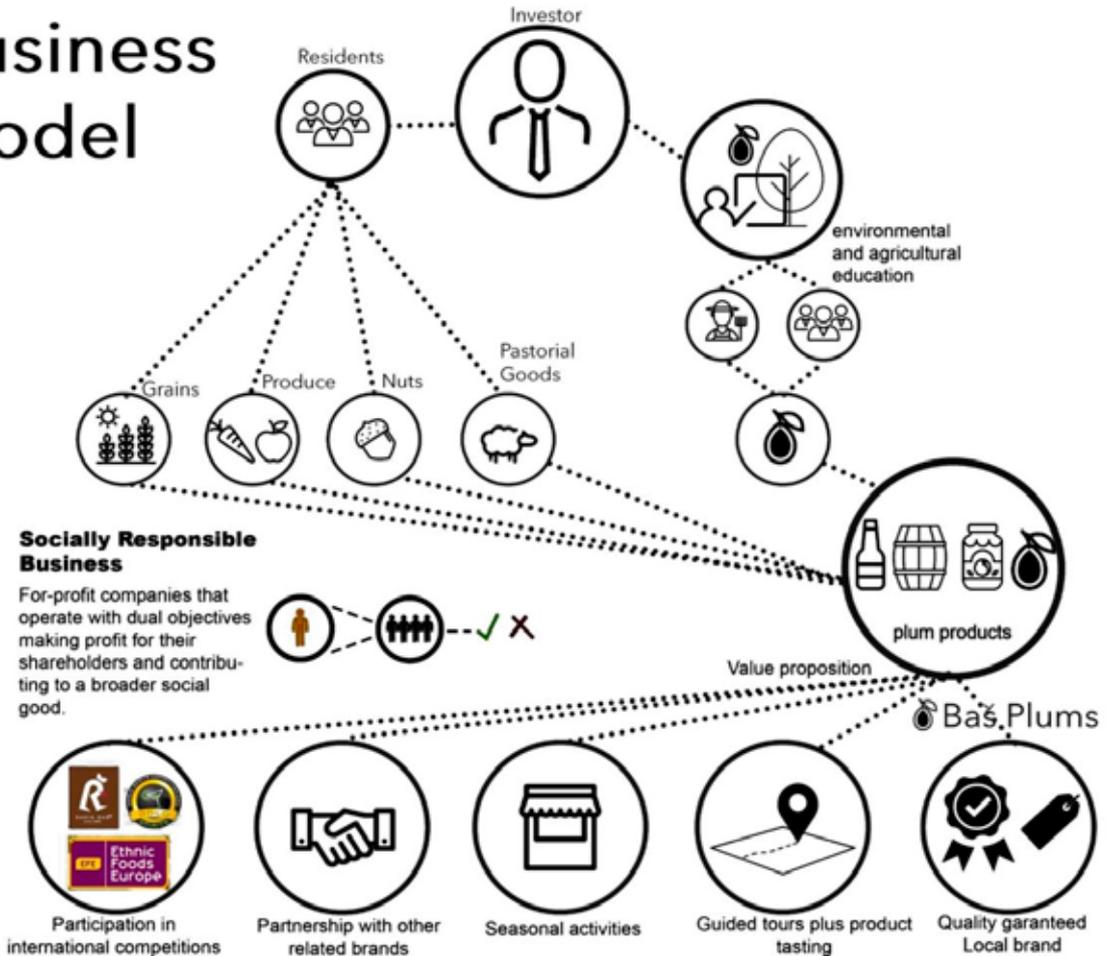


# GOVERNANCE AND FINANCE

## Governance Model



## Business Model



# THE BLUE AND THE GREEN POLJE



Juliette Leboulleux (Belgium) Université libre de Bruxelles; Dženana Čeliković (Bosnia and Herzegovina) International Burch University; Tabea Crecelius (Germany) IMLA; Emad Mamoua (Turkey) International Burch University.

# CONCEPT

Our vision for the Polje is strongly connected to its rivers: a working flood risk management that protects settlements which are within the defined settlement area to prevent or at least minimize future destructions through flooding events; the rivers and its surroundings as living and recreation space for people as well as for flora and fauna connected through green infrastructure; clean water for agriculture and water supply by means of sustainable urban drainage systems; agriculture

and livestock farming to ensure local food production and support self-sufficiency.

The detailing topics mainly deal with flood risk management in combination with water purification measures. In order to organize water in case of heavy rainfall and flood, retention spaces and basins along the rivers are installed.

These green areas can also serve as attractive green spaces in dry times and support biodiversity. The retention spaces are combined

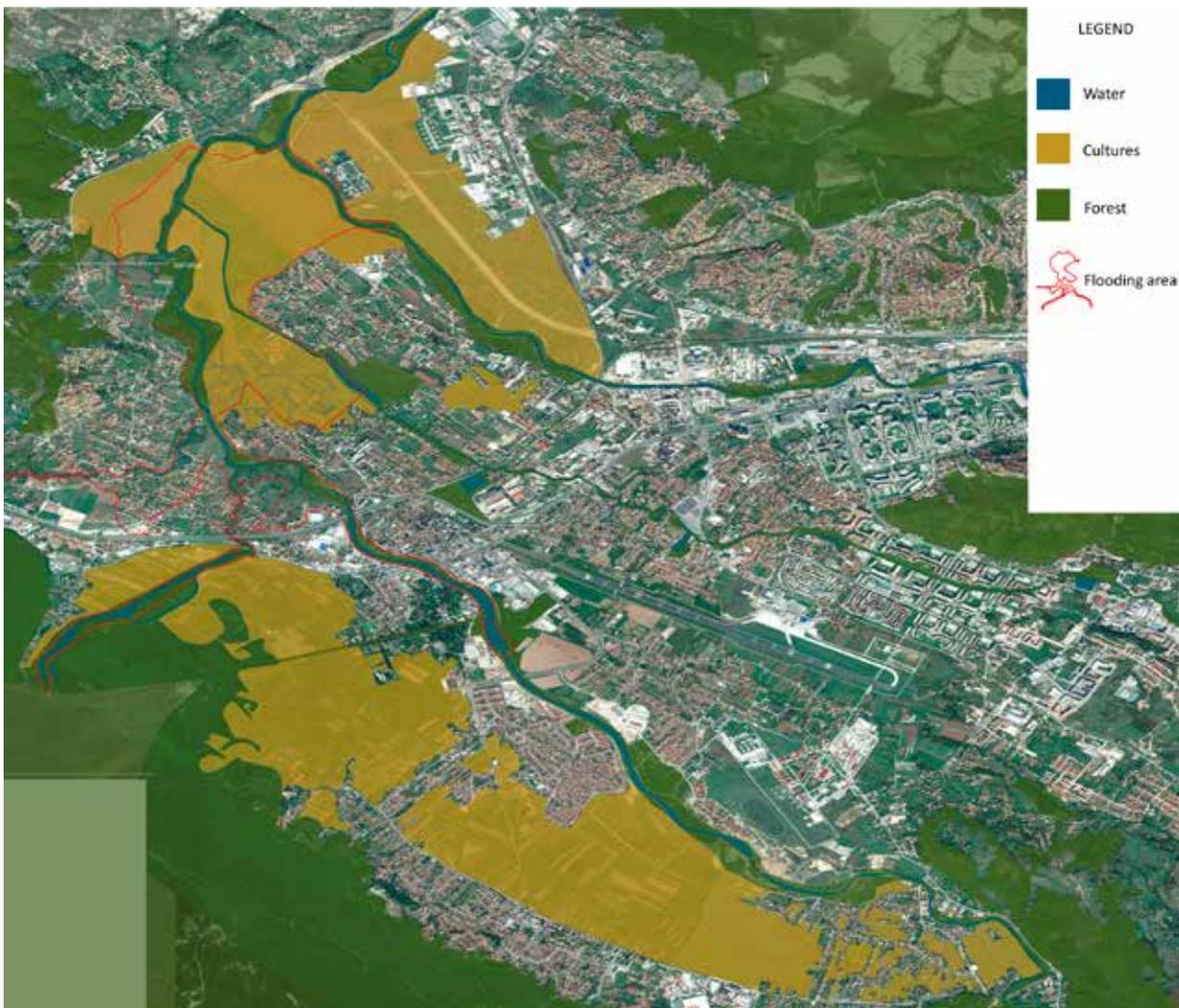
with sustainable urban drainage systems to clean the water from its biological contaminants. This decentral cleaning by means of suitable plants along the rivers serves the improvement of water quality. Another element are channels which traverse agricultural fields in the flood prone area of the Polje. These channels are connected to the ground water to pump water and irrigate in case of a drought and can be flooded in case of heavy rainfall and/or a flood. In order to improve the accessibility of the area community gardens and public green spaces are attached to retention spaces (see focus area). Through different elevations the public green spaces are protected in case of flooding. These multifunctional zones along the river have positive social, environmental and aesthetical impacts.



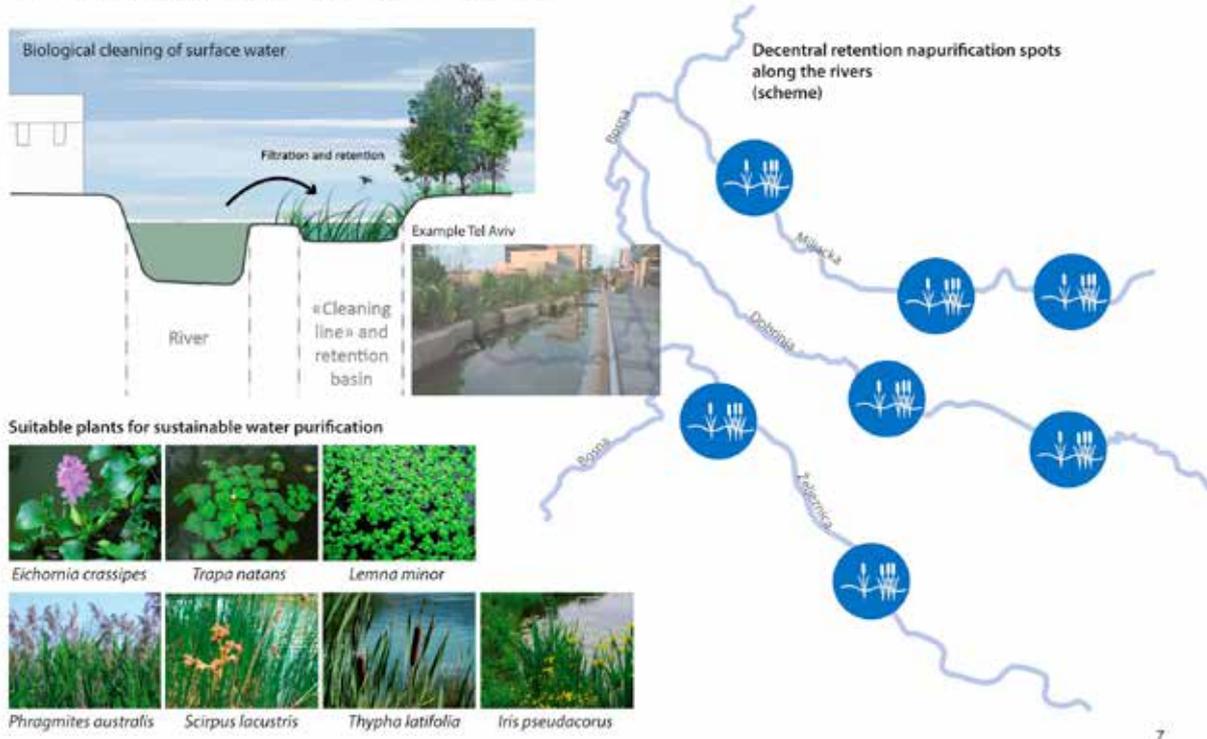
# GOVERNANCE AND FINANCING

The governance scheme shows that the Canton of Sarajevo is the decision maker in this participation process. The canton has to implement educational measures (university studies, programs for farmers, etc.) in order to raise the awareness for environmental concerns.

The finance scheme considers the financial support that Bosnia received after the flood of 2014 from the EU and the UNDP but also other parties that would invest money in order to achieve various benefits (e.g. flood risk management will prevent destruction) which serves the economic system of the Polje.

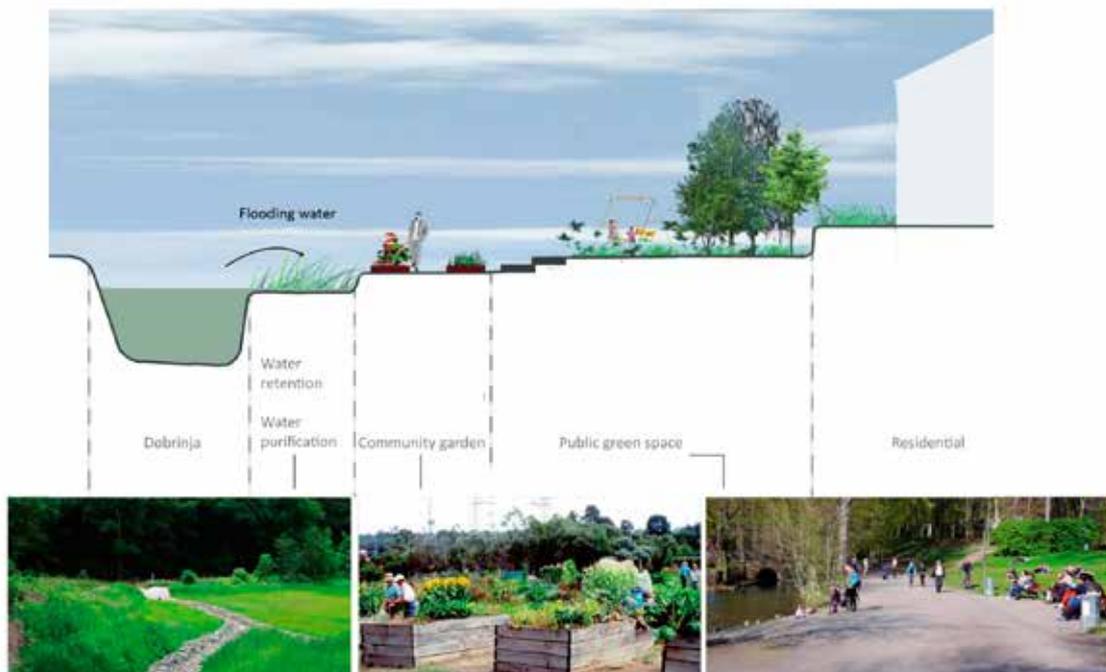


**WATER PURIFICATION**  
**SUSTAINABLE URBAN DRAINAGE SYSTEMS**



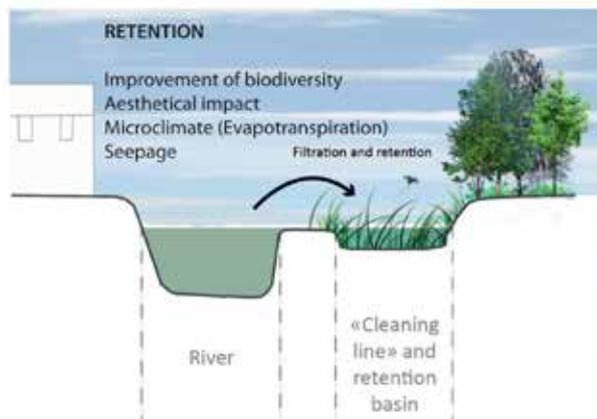
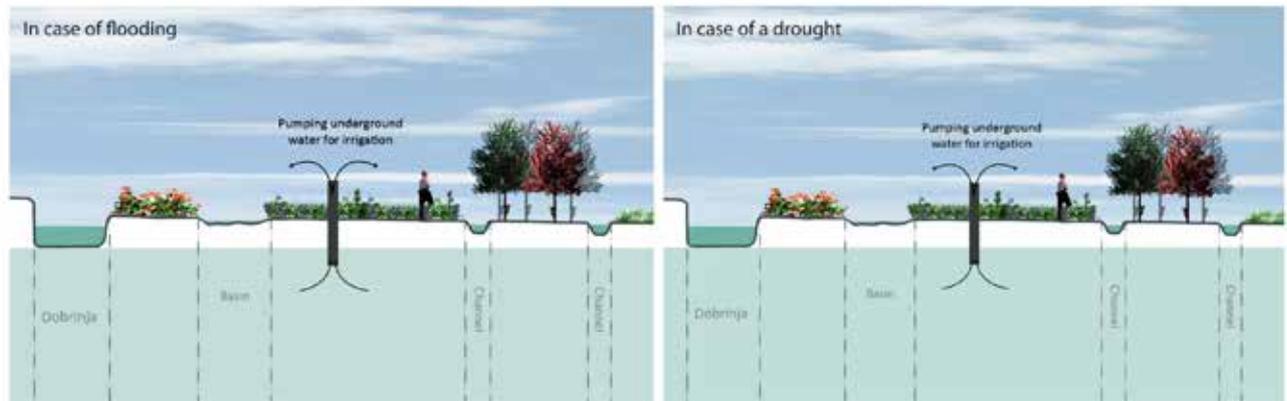
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**GREEN INFRASTRUCTURE MEETS BLUE INFRASTRUCTURE**  
**MULTIFUNCTIONAL ZONES | RECREATION | COMMUNITY GARDENS | RETENTION SPACE**



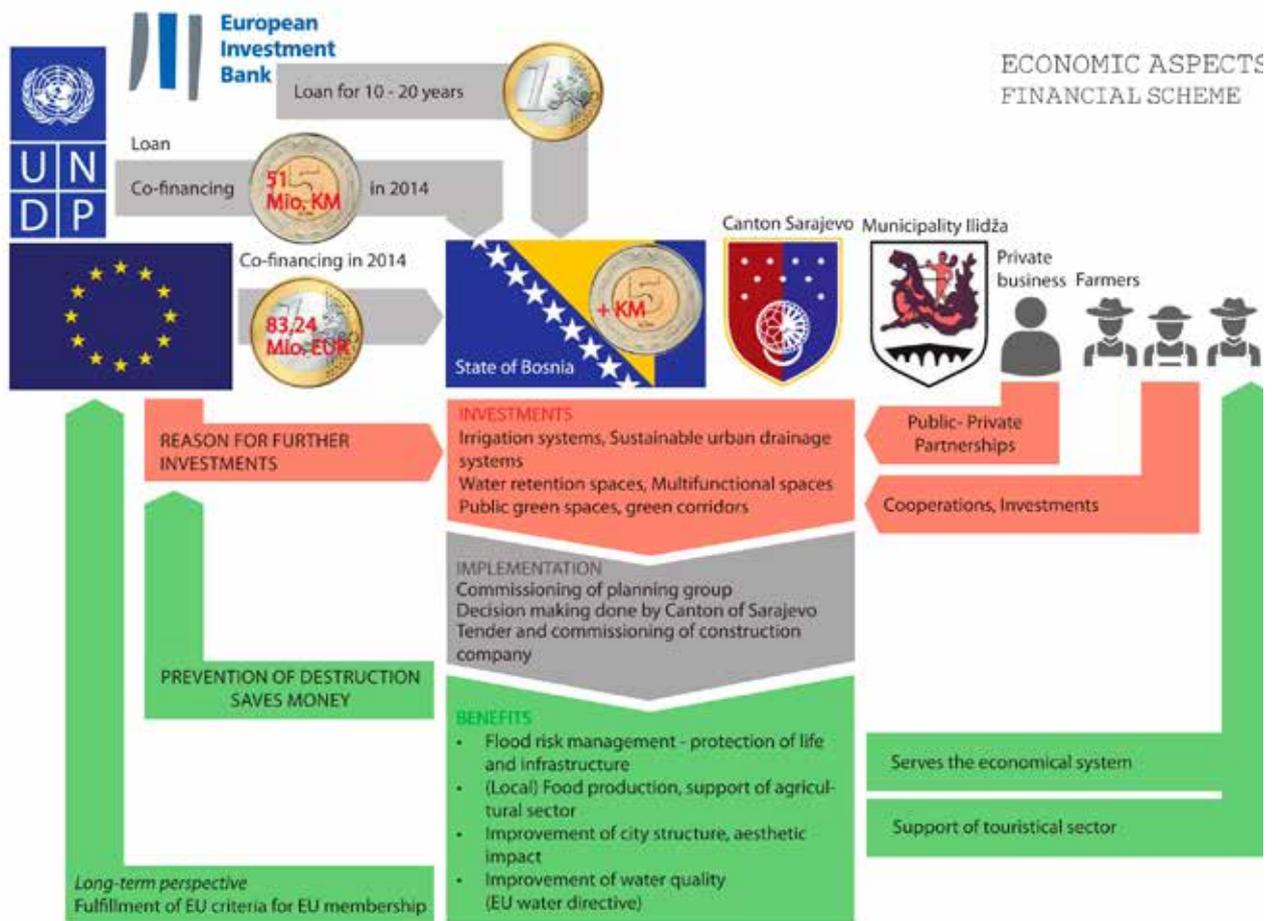
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# FLOOD RISK MANAGEMENT RETENTION | CHANNELS

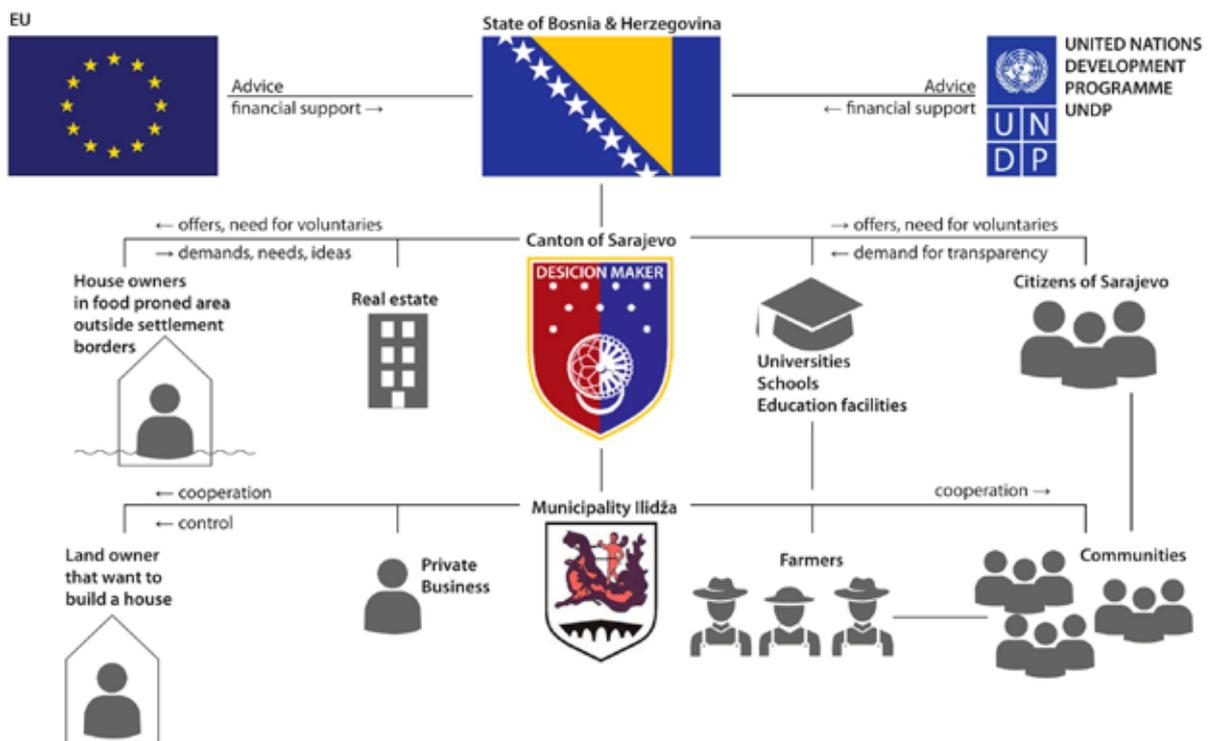


## FOCUS AREA





GOVERNANCE SCHEME | PARTIPATION PROCESS



# IMPRINT

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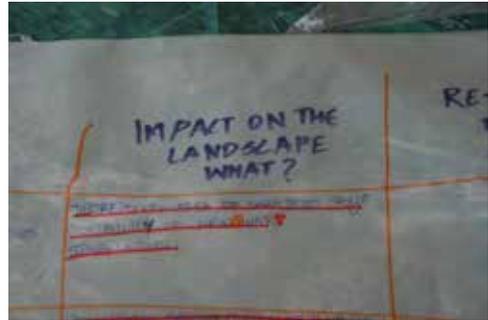
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