
Paradise lost?

Restoring urban river Radobolja.



How can the lived experience and discern of an urban river
both benefit from and deal with the change in the post
traumatic landscape?

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Msc Landscape Architecture, Tu Delft, June 2019

Abstract

This project is about the urban river Radobolja a tributary of Neretva located in the city of Mostar in Bosnia and Herzegovina. The Radobolja river is a river with a rich history value for the city. There was a rich flora and fauna, but during the last century through urban sprawl and war, Radobolja was neglected and is now heavy polluted. The river lost its identity and is cut in several sections with all a different character. Ecologists, fisherman and civilians are all worried about the river. The fish are gone and the river turned into a no-go area. The city of Mostar used to be in touch with nature, but seems to have lost this connection. Rivers and their landscape provide space for a wide range of natural, economic and social benefits. The Radobolja is a typical urban river, with all the problems and possibilities. It will be used as a case study for an urban river restoration plan to uplift the connection with nature and make the river a go to place instead of a place to avoid. Because of its scale (only 5km long and entirely laying in the city), this restoration can have a big impact on the surrounding neighbourhoods and the rest of the city of Mostar.

The design use the lived experience of the river as a guidance to discover the already contained beauty of the river. This restoration plan with involves cleaning the river and adds aesthetic value to the river. This is done by implementing a path along the river which connects the three design locations. These design locations are connected with the three nature principle. One closely connected to the wilderness, one to the rich orchard history of Mostar and one paying honours to the once popular Ruza square.



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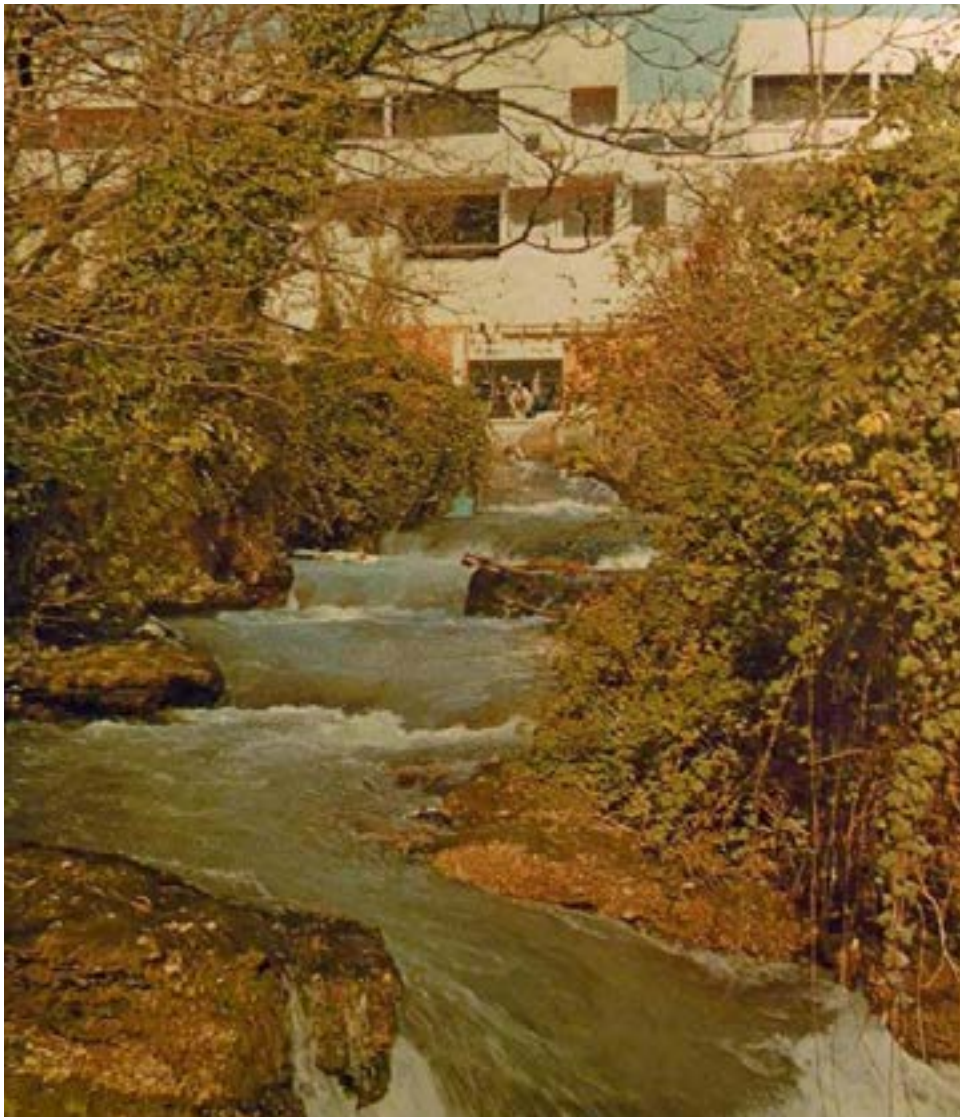
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Fascination

My fascination with the Radobolja river started after the start of the analysis phase of Mostar. The Neretva river is the most important river for the city and in a way everything is connected with this river. Although this river lays in a deep canyon and flows below the city with less connectivity from the city of Mostar itself. When we started doing a president study, I got to look into the Hotel Ruza. Ruza is an old Bauhaus hotel that was destroyed during the war and is not rebuild. When I looked for pictures of the hotel, I found this picture (picture 1). There was a river going through the Hotel Ruza. In a way I thought this was a nice design, but I also thought you need to put a lot of effort into allowing the river to go through the hotel. So I dived into the river and its meaning in the city. I found out that the river was the second river of Mostar. Its name is Radobolja and it is going through the concrete jungle of eight different neighbourhoods in Mostar. When visiting the site, I saw how small this Radobolja had become. It was a small stream going through a concrete canal in the city. Where the old Hotel Ruza stood was only a sad image of the river, in a unorganised mess of concrete. After a visit to the archives, I saw what a powerful river Radobolja used to be. Where most of the stories in Mostar are about the war, the story of Radobolja is different. The Radobolja river did not much change by the war, but changed through the urban sprawl and (the lack of) governmental decisions. Why is it that such a nice place is neglected and destroyed over time?



Picture 1: Hotel Ruza (1946.-1991. – CIDOM, n.d.)

Problem statement

The Radobolja river is the second if not first most important river of Mostar. It is the most important source of drinking water in the city. Running through the different neighbourhoods of Mostar, it was a connector and meeting point for the different neighbourhoods. There was a rich flora and fauna, but during the last century through urban sprawl and war, Radobolja was neglected and is now heavy polluted. The river lost its identity and is cut in several sections with all a different character. Ecologists, fisherman and civilians are all worried about the river. The fish are gone and the river turned into a no-go area. The city of Mostar used to be in touch with nature, but seems to have lost this connection. Rivers and their landscape provide space for a wide range of natural, economic and social benefits. The Radobolja is a typical urban river, with all the problems and possibilities. It will be used as a case study for an urban river restoration plan to uplift the connection with nature and make the river a go to place instead of a place to avoid. Because of its scale, this restoration can have a big impact on the surrounding neighbourhoods and the rest of the city of Mostar.



Picture 2: Hotel Marriot

Research question

The river Radobolja is polluted, neglected and channelised in most of the town. Besides the neglected space, there are several areas along the river that give a specific feeling, smell or have a nice atmosphere. I am going to use this lived experience of the river to deal with change in the post traumatic landscape of Mostar. So the main research question is: How can the lived experience and discern of an urban river both benefit from and deal with the change in the post traumatic landscape?

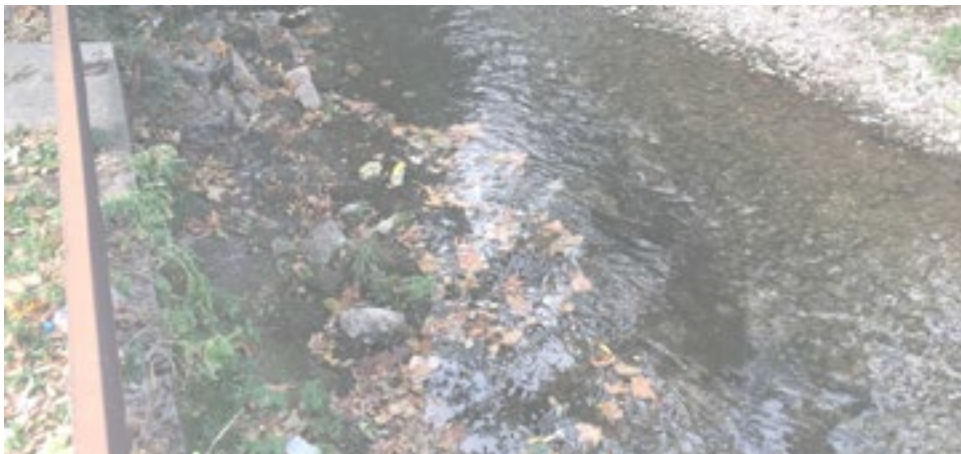
In order to answer my main question I need to do research on what a river can offer in the post traumatic landscape and how it can help solving the problems of the trauma in the Radobolja area. How can a river deal with and benefit from the post traumatic landscape?

What qualities are already retained in the Radobolja river area? To address this question, the focus will be on three components: the ecological quality, the social quality and the experiential layer. How can a landscape architectural intervention improve the river quality and river ecology? On the social level how can it improve the social structure in the neighbourhoods surrounding the Radobolja? What are the benefits social and ecological from cleaning/restoring an urban river?

I want to explore how to show and identify the lived experience of the river and its spatial experiential qualities. And how to capture this in sketches, photos and other mediums. What are the experiential spatial qualities of the Radobolja River area? and How to capture the lived experience of the place?



How can the lived experience and discern of an urban river both benefit from and deal with the change in the post traumatic landscape ?



Picture 3: First meandering point Radobolja

Research strategy

I would like to use the five epistemes as a framework of values and thoughts. These are the ones that drive how we see, understand and designate landscape. When analysing conditions in which we are going to intervene, and when we design for a particular urban or territorial setting, we always start from a set of values.¹ Some epistemes are always present and others remain in the background. Every design intervention or analysis is somehow related to these epistemes. Showing what these epistemes are about can further explain the choices made during the design process. I will use the five epistemes that have been around in landscape architecture for a long time:

- Morphology (the study of form and structure)
- Semiotics (the analysis of the nature and relationships of signs)
- Ecology (the science of interrelationship of organisms and their environments)
- Praxeology (The study of human actions and conduct)
- Phenomenology (the philosophical study of phenomena)

These five can be used almost exclusively, but mostly there will be a combination of several.

Looking through the five epistemes, I start with a historical and current analysis of the site. The focus is on the Radobolja River in its current situation and look into the old means and urban practices of the river. Combined with the literature research to unravel the need for urban river restoration, these will form the basics for the following scenario creation method.

1: Braae, (2018), *Notes on Epistemes*.
(Unpublished), 6

I create three scenarios of the Radobolja region, all focussing on a different aspect of the river. The ecological scenario focusses on the Radobolja as a green/blue corridor through the city, how to connect the different green areas together and how to restore the more natural flow of the river. The social scenario is about the urban practices of the river. How can we use the river and how was it used before? It will look into the possible recreational, social cohesion and educational significance of the river and what role it can play for a better social structure of the city? The rational scenario looks into the infrastructure of the river, the connections with the city and where they can and should be improved.

By using three different scenarios, you focus only on the elements that are related with the ecology, social or rational themes. The scenarios are used to give early insight on the site and eventually give design input. Thus the method of scenarios was employed to uncover the full potential of the river for integration and to base design ideas on the synergies and conflicts between the three scenarios. The scenarios were built and confronted across temporal and spatial scales, in order to reveal cross scalar interdependencies.²

2: Forgaci, C. (2018). *Integrated Urban River Corridors: Spatial design for social-ecological resilience in Bucharest and beyond* A+BE | Architecture and the Built Environment DOI: 10.7480/abe.2018.31, 212



Besides the three scenarios, there is deeper analysis on the phenomenology episteme. The other epistememes will also play a role or are intertwined with this lens. The scenarios show a slightly utopian future and they can become disconnected from the actual situation. Therefore I added the analysis through the lens of the episteme of phenomenology, to have extra focus on the study of phenomena of the perceived experience and discern of the river. It shows a framework of what we perceive and experience when being along the Radolbolja river. It identifies the potential of several spots along the river, together with their embedded experienced value. After overlaying the three scenarios, we search for conflicts and synergies between the three themes. These three scenarios together with the input from the experiential research and the historic analysis, form the base of an integrated urban development plan for the river area. This plan consists of three gardens with a connecting experiential route along the river. Each of the design locations has a strong connection with a specific historic layer in the landscape. This is why I drew the connection with the theory of the three natures. Each of the gardens reflects on one of the three different principles of nature (wilderness, agriculture and the garden).

Theorie

The five epistemes

Phenomonology

Other epistemes

Why restore rivers?

Why restore from a social point of view?

Physical well being & Mental well being
Recreation & social cohesion
Aesthetic, Cultural, Educational

Why restore from a ecological point of view?

River Edges
Waterstorage
Corridors and Steppingstones
Universal Agricultural landscape

Three natures principle



The five epistemes of the landscape

I use the five epistemes as a framework of values and thoughts. These are the ones that drive how we see, understand and designate landscape. *When analyzing conditions in which we are going to intervene and when we design for a particular urban or territorial setting, we always start from a set off values.*³ Some epistemes are always present and others remain in the background. Every design intervention or analysis done is somehow related to these epistemes. Showing what these epistemes are about, can further explain the choices made during the design process. I will use the five epistemes that have been around in landscape architecture for a long time.



Picture 4: Treeline

Phenomonology

phe·nom·enol·ogy: noun

the philosophical study of phenomena, as distinguished from ontology, the study of being; specif., such a study of perceptual experience in its purely subjective aspect ⁴

The episteme of Phenomenology has played a crucial role in landscape design and land art before it was labeled Phenomenology. It considers the lived experience of the place. It is closely connected to the aesthetics in the 18th century like the beautiful, the sublime and the picturesque with are all focused on the emotions that the 'place' may reveal at the spectator. Looking back in time ancient Chinese gardens where already designed with the purpose of preparing one's mind for the next sequence and such they mirror, create, prepare and stimulate the visitor's mind and emotions.⁵ The beautiful, the sublime and the picturesque are closely connected by landscape paintings form the 17th century like Claude Lorrain's Rome Sunset. These paintings helped showing the ideals of nature's appearance a shape and acted as starting point before being transferred in the landscape itself.

4: Webster's New World College Dictionary. (2019, January 23). from <https://www.yourdictionary.com/about/websters-new-world-college-dictionary.html>



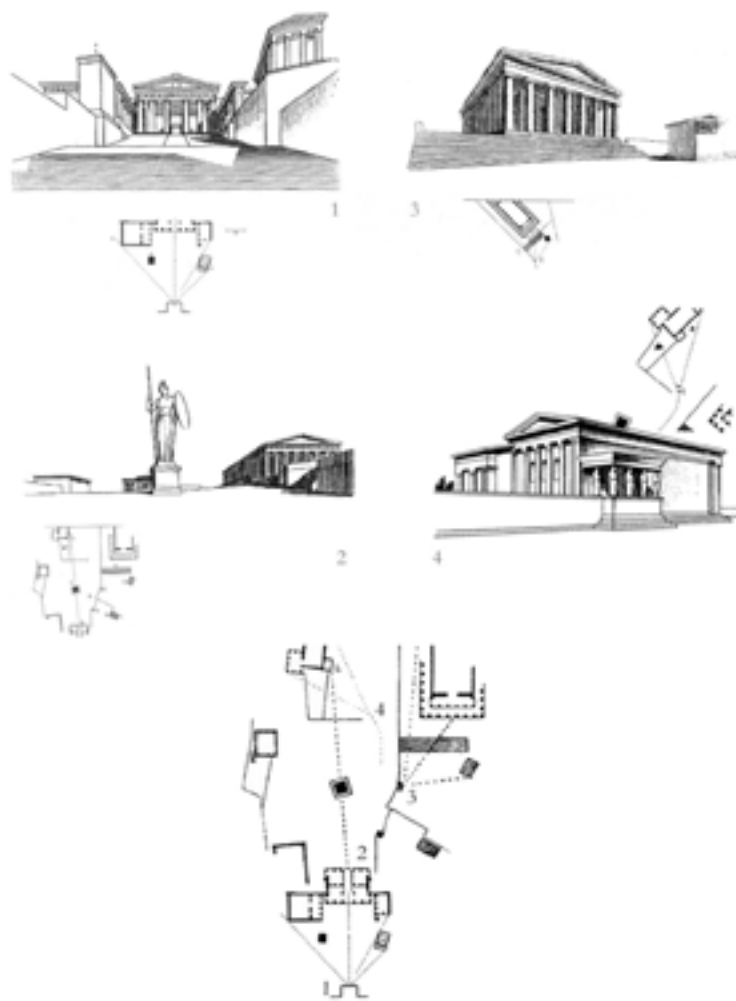
Picture 5: Claude Lorrain's Rome Sunset (Rome Sunset - Claude Lorrain - Canvas Artwork, n.d.)

For my research I want to use the lived experience of the Radobolja river. I want to use the beauty of the river to give guidance to the visitors and trigger the curiosity. Also do I want to improve the lived experience of the river where this experience is lacking. To show this experimental layer I use drawing techniques like Auguste Choisy did in his study about the the Acropolis in Athens. This way of drawing gives good insight on how to experience the building, instead of the more often used morpho-technological plans and side views.

The other good example is Gordon Cullen and his book *Townscape*.⁶ He is using a series of drawings on a route to capture the experience of the walk. Combined with a diagrammed drawing of his route, it gives good insight of the experiential value of the walk. Also Kevin Lynch's use of his so called 'mental maps' is a way of how I want to explore the Radobolja river. The book 'A view from the road'⁷ is a good example of a collection of those mental maps.

6: Cullen, Gordon. *The Concise Townscape*. London: Architectural Press, 1966.

7: Appleyard, Donald, Lynch, Kevin, and Myer, John R. *The View from the Road*, Cambridge (Mass), MIT Press, 1965.



Picture 6: Study about the the Acropolis (Tumblr, n.d.)

Morphology

Morphology means the study of the evolution of forms and structures within the urban landscape.

This lens is used to find presedent studies for parks that really focussed on the geomorphology and showing the evolution of the place.

Semiotics

Semiology deals with the symbols and their correspondence in our minds. The symbols have always been important and help to constitute the culture in several ways.

The semiotic lense is the link between your already existing knowlege about symbols and patterns you see on site.

Looking for patterns and understanding the way Yugoslavia developed their neighbourhoods, and see what their perception on green is.

Praxiology

Praxiology studies show synergies and points of conflicts in urban areas. It makes us see these problems and also the ways to handle it. For the river landscape I look into literature and case studies to see what the benefits and needs are for a river restore project on the social level.

Ecology

Landscape ecology is the science of studying and improving relationships between ecological processes in the environment and particular ecosystems.⁸

I use this lense for the theorie of river cleaning strategies, parks and other solutions that deal with the enviroment and ecosystems connected to Radobolja.



Picture 7: Epistemes

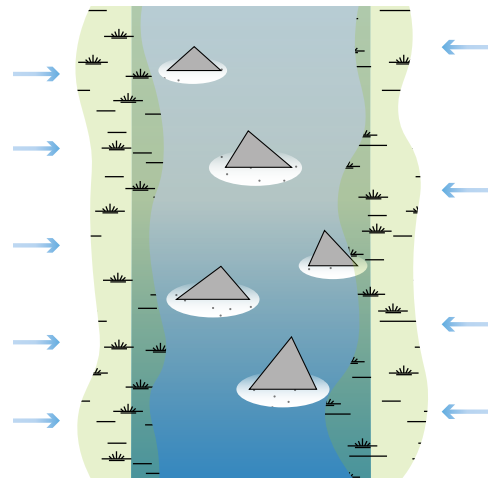
Why restore rivers?

Rivers and their landscape provide space for a wide range of natural, economic and social benefits. Sadly through channelisation, culverting, damming, urbanisation, pollution and intensive agriculture the urban river landscape is in oppression. The degradation of rivers led to an extensive loss of habitats and have a big pressure on the remaining flora and fauna. Next to that the water quality, climate change adaptance and ability to deal with floods are off balanced. Restoring the river and their connected landscape can deliver a big impact on the water quality, biodiversity and reductions in flood risks and pollution. River restoration works in different scales. Different scales deals with different issues like morphology, hydrology, biology and social-ecology.

four different scales:

- Catchement area scale (Big)
- Floodplain (City)
- River segment scale (Neighbourhood)
- In stream enhancement (Street)

In the following paragraphs I will explain the reasons and benefits to restore the river on a social and ecological level.



Picture 8: Different scales of river restoration

Why restore from a social point of view?

Rivers always have been an important part of our environment. We used to be dependent on the river for food, shelter and basic survival. Through urbanisation people became disconnected to their landscape and also their rivers. Traditional river activities have been lost and urban development made rivers more chenalized and disconnected from their natural form and flow. People are unaware of the historic importance these rivers had in the development of their city. Restoring these rivers can restore the relation of the people and the river. In urban enviroments the river can offer a place away from the everyday city live.



Picture 9: People walking along the Radobolja

Physical well being & Mental well being

River restorations in public parks have proven to increase usage of the river park areas for longer periods and an increased number of activities, such as sports and games played in the park. Research shows that regular physical activity helps reduce the risk of developing diseases and improves overall quality of life.³ In a world where sport and going outside is more important than ever, because of general health issues and the internet. A green quality space nearby can provide a place for adults and children to freely enjoy nature. Post project research has highlighted renewed appreciation for, and interaction with the natural environment. Particularly where parks were previously regarded as unsafe due to antisocial behaviour. Often the river was too steep, deep and unsuitable for children to paddle in.³ In the concrete city areas of Mostar, where the open green parks are limited, [this is a river parks](#) can be the green lungs of Mostar.

Society has recognised the benefits of the environment on mental health for centuries. More recently there is evidence that contact with nature and living things makes people feel good and positively enhances their mental well-being while contributing to stress reduction.³ Exercising in general is good, but doing it in nature, called 'green exercise', has even more benefits. It turns out that exercising in the presence of nature can have health benefits beyond getting your blood pumping. Studies show that exercising in natural environments can have positive effects on self-esteem and improve your mood. The effect is especially noticed in people with mental illnesses like depression and anxiety.⁴

3: *Social benefits of river restoration - Healthy rivers provide us with a quality environment.* (n.d.). from <http://www.ecrr.org/RiverRestoration/Socialbenefitsofriverrestoration/tabid/2612/Default.aspx>

4: *What is green exercise and should you be doing it?* (2019, January 29). from <https://www.health.qld.gov.au/news-alerts/news/green-exercise-outdoors-nature-physical-mental-health>



Picture 10: People working out along the Radobolja

Recreation & social cohesion

Urban rivers can provide more activities than only the experience of nature. They can be a place to hang out, have lunch, to fish or just a nice walk to work. They can also make people care more about their close environment. River restoration schemes can facilitate recreation and learning. In Merthyr Tydfil, Wales, children restored fish to the stretch of the river and as a result were found to care more about their environment, take up a new outdoor activity and feel happier.⁵ As a president's study, I looked into the example of the Cheonggyecheon river in Seoul. This river turned into a small forgotten stream buried under concrete and a highway in the dense city centre of Seoul. In 2003 the mayor proposed a big renovation of the river area, including removal of the highway. Since it opened it had over 10 million visitors. The stream's renovation reintroduced nature into the city and promoted a more inviting urban design. It now attracts an average of 64,000 visitors daily. Of those, 1,408 are foreign tourists who contribute up to 2.1 billion won (\$1.9 million USD) in visitor spending to the Seoul economy.⁶

The Radobolja river flows through several different neighbourhoods. Restoring the river can benefit the social cohesion in these neighbourhoods and make more people care about the river and its environment. Restoring a river between two estates can enable two separated communities to mix and interact. Voluntary groups cantered on protecting their river corridor bring communities together in positive action to look after their local area fostering a community spirit, pride in the environment and a sense of belonging.⁵ In a way this is already the case in Mostar, there are several different parties caring about the Radobolja. If the river is restored and less fragmented through the neighbourhoods, these parties have one common element to care about and actually can help each other out.

⁵: *Social benefits of river restoration - Healthy rivers provide us with a quality environment.* (n.d.). from <http://www.ecrr.org/RiverRestoration/Socialbenefitsofriverrestoration/tabid/2612/Default.aspx>

⁶: *Cheonggyecheon Stream Restoration Project.* (2018, July 16). from <https://www.landscapeperformance.org/case-study-briefs/cheonggyecheon-stream-restoration>



Picture 11: Cheonggyecheon river transformation (Cheonggyecheon: A Transformation From Roadways Into Walkways, 2017)

Aesthetic, Cultural, Educational

Bank erosion, deposition of sediments and diverse flow patterns and velocities are vital for forming and regenerating the riverbed. These processes assure a diversity of habitats: deeper waters, sandbars for hatching and enclosed spaces for protection. Thus the natural dynamics also influence the aesthetic experience.⁷ River restoration can improve the aesthetics of the environment, like the Aire river did in Switzerland. People wish to experience wildness, yet feel safe in urban areas. Post restoration improvements in social behaviour, such as reduced graffiti and littering, further improve aesthetics and foster a sense of pride in the local environment.⁸

Rivers have always been a part of our culture with human settlements located adjacent to rivers for transport, fishing, farming and recreation. Restoring our cultural links to rivers is a long term goal and an important part of all drivers raised above.⁸

River restoration can change the view of people on the river. If the means of the restoration are clearly visible, the river can have a big teaching potential. People can learn from it and they see the impact the intervention has on the landscape. Studies have shown schoolchildren learning about wildlife and natural habitats from their site visits, were motivated to do something differently in their everyday life to help the environment.⁸

7: BOEK LANDSCHAP #4

8: *Social benefits of river restoration - Healthy rivers provide us with a quality environment.* (n.d.). from <http://www.echr.org/RiverRestoration/Socialbenefitsofriverrestoration/tabid/2612/Default.aspx>

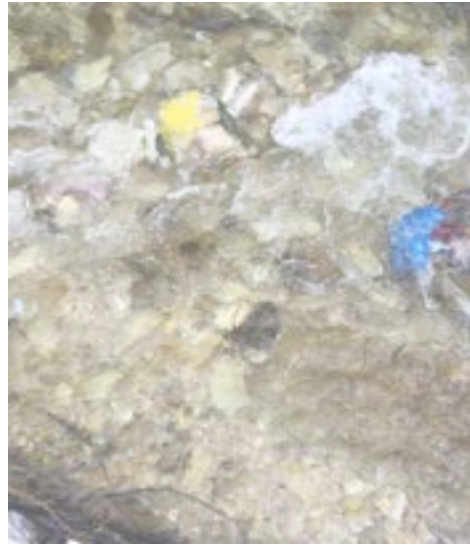


Picture 12: River Aire transformation (Renaturation of the River Aire, Geneva « Landscape Architecture Platform | Landezine, n.d.)

Why restore from a ecology point of view?

The main problems for ecology continuity are the canalised parts of Radobolja, the big roads crossing the riverlandscape and the universe agricultural landscape. For the fish and animal migration along the river, it is important to have a continues river corridor. This translates into a continues stream-corridor with different big habitats and a connection between the different habitats. Nowadays the river has a low flow because of big water use for irrigation. The fish are gone because of the big amounts of liquid polution in the river. For the ecological analysis of the Radobolja I look into theory about the 'Landscape ecology principles', from the same named book from Dramstan, Olsen & Forman. I will research how to improve the ecological quality of the river area, and what the best mean is for the cleaning process of the river.

The Radobolja is only five kilometres long and flowing entirely through the city of Mostar. This means that all the trouble of the river is caused inside of the city boundries. Because of this, the river has a big potential of being cleaned and restored. And every effort the city put in achieving this will benefit the city directly.



Picture 13: Sewers and garbage in the Radobolja

River Edges

Rethinking the ecological edge. There are a lot of concrete river edges in the Radobolja river. A poet from Mostar once said: 'On concrete nothing except men can live'.⁹ These new concrete river walls will speed up the water and there will not grow any vegetation on it. When you remove the concrete river edge, the river will go slower and the waterlevel will be higher. The river can drop their sediments to create a natural river edge in which vegetation can start to grow. By using the right vegetation, for example phytoremediation plants, the river can also be cleaned by these ecological edges. On places where a more solid river edge is needed, I propose to replace the concrete with the older river walls which are build with big stone boulders, taken from the old river bed. By using this old method a more eco friendly river wall is created, where vegetation can grow in the cracks of the walls.

The canalized parts need to be transformed into a more natural boundry for the river. There are roughly four types of edges along the Radobolja.

- The natural Rock river edge
This edge is scarsely vegetated
- The manmade Rock river edge
In the cracks of this river edge nature grows
It finds its way to the soil between the cracks of the riverwalls
- The manmade Concrete river edge
On this river edge nothing grows, only the parts where the concrete broke open or is rotting vegetation finds a way to grow
- The Green River edge
This river edge is overgrown with plants and grasses that can withstand being under water for a longer amount of time



Picture 14: Different river edges of the radobolja

Waterstorage

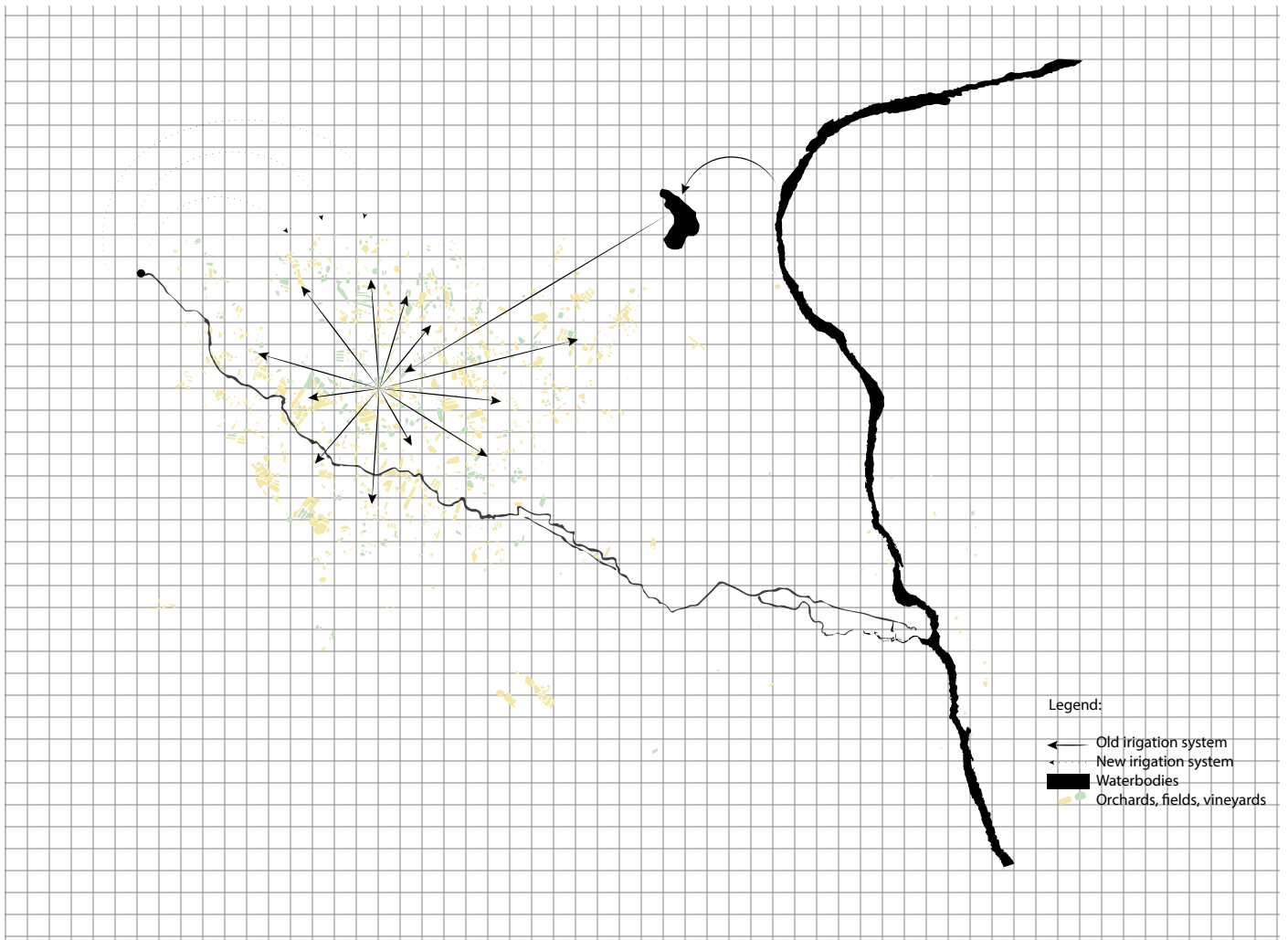
The weather in Mostar is very extreme, the winters are very cold and the summers can be really hot. Besides that there is a big issue concerning rainwater, when it rains. Because of the karst landscape and the big amount of concrete in the city, the water has not enough space to infiltrate in the ground.

Plans were made to construct an underground water basin to enrich the Radobolja's power in summer. During the creation of this basin, a problem occurred and after this event the power of the river was never the same as before. Also swimming and fishing in the river is never been the same after this event. There is also a big water theft from the source of the Radobolja river. The water is pumped from near the source for the irrigation of the fields, orchards and vineyards in the valley and on the hillside.

In a conversation with the A. Crosato we talked about how to stimulate the flow of the Radobolja.¹⁰ To stimulate and restore the flow, I want to use the Hydrodam as waterstorage for the irrigation plan of Mostar. This to distress the source of the Radobolja so the river has more capacity. There is enough water, in high flows the river brings more water than is requested for Hydropower. So then they open the gates and let the water go. I want to propose a new reservoir in the direction of the fields of Mostar, which the Neretva can feed. Based on general considerations, there can be an open air canal or pipe to the new irrigation reservoir. A closer solution is the use of the already existing lake located in north Mostar. This is an old quarry already filled with water from the Neretva. A study must be done to find out what the possible changes would be to the sediment and waterflow of the Neretva. How much water we have and how much to store. However, there is no data available at the moment and I assumed this is possible.

The second option is to store water from the Radobolja. You never need to irrigate when there is enough water in the river. The main concern is that you need the irrigation water from the river ⁴²when the river also need the water. So to make a water storage which can fill up when there is an overflow of water from the Radobolja, and which can be used for irrigation in dry times.

10: (A. Crosato, personal communication, February 28, 2019).



Picture 15: Irrigation plan radobolja

Corridors and Steppingstones

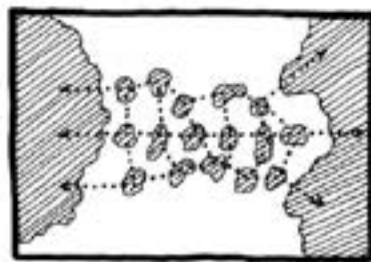
Places are like large 'organisms', the products of natural forms and processes at work. Places are uniquely different and each possesses an intrinsic potential for change.¹¹ Landscape connectivity is a key element for river restorations. Different dynamic processes disrupt this continuity of a continues river corridor. Fragmentation is one of the main problems along the Radobolja river. Roads are a big cause for the fragmentation of the lower Radobolja.

The connection of Radobolja to the bigger nature areas surrounding Mostar is important for the transportation of flora and fauna, from the bigger system to the smaller habitats. The proposed steppingstone structure makes the gap from the big nature of Mostar to the smaller Radobolja river corridor, which makes crossing easier for plants and animals.

The perpendicular structure of the Radobolja river area. A ladder pattern is good for the aquatic food chain as it traps sediments during high waters and capture organic soil inside these sediments.

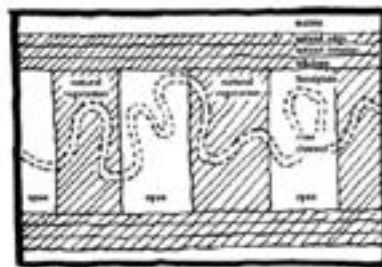
The boundries between neighbourhoods and green areas are mostly following the administrative boundries. To improve the ecological quality, the nature should not follow this administrative boundries.

A continues streamcorridor is very important for maintainance of the aquatic condition. To improve the aquatic fauna of the Radobolja the major gaps in its streamcorridor need to be closed.



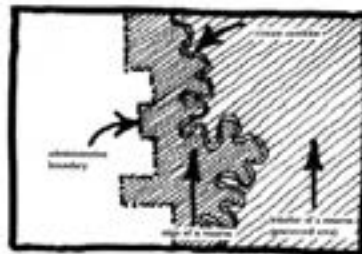
C7. Cluster of stepping stones

The optimal spatial arrangement of a cluster of stepping stones between large patches provides alternate or meandered routes, while maintaining an overall linearly oriented array between the large patches.



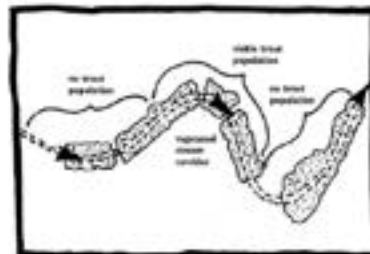
C12. Corridor width for a river

To maintain natural processes, a ca. 5th- to 10th-order river corridor maintains an upland interior on both sides, as a conduit for upland interior species and species displaced by lateral channel migration. In addition, maintaining at least a "hobby pattern" of large patches crossing the floodplain provides a hydrologic sponge, traps sediment during floods, and provides soil organic matter for the aquatic food chain, logs for fish habitat, and habitats for rare floodplain species.



C13. Administrative and natural ecological boundary

Where the administrative or political boundary of a protected area does not coincide with a natural ecological boundary, the area between the boundaries often becomes distinctive, and may act as a buffer zone, reducing the influence of the surroundings on the interior of the protected area.



C13. Connectivity of a stream corridor

Width and length of a vegetated stream corridor interact or combine to determine stream processes. However, a continuous stream corridor, without major gaps, is essential to maintain aquatic conditions such as cool water temperature and high oxygen content. Without these, plus other physiological conditions, viable populations of certain fish species, such as trout, will not be maintained.

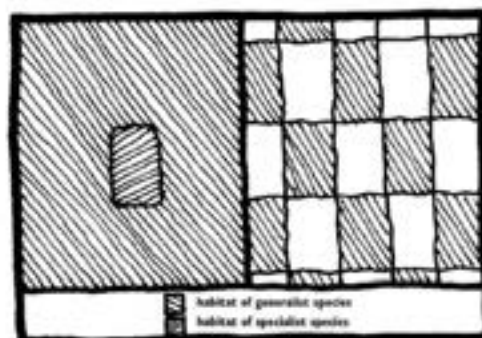
Picture 16: Landscape principles (Dramstad, W. E., Olson, J. D., & Forman, R. T. T. (1996)

Universal Agricultural landscape

There are several big agricultural areas around the Radobolja. Mainly being vineyard, orchards and fields, they don't have a diverse variety in plant species which results in a less diverse habitat. Adding a group of different species inside the field can increase the ecological value of the area. Adding paths through the field can also act as corridors for smaller vegetation and animals.

M12. Specialists and generalists

Specialist species are more likely to be negatively affected by fine-scale fragmentation than are generalist species of similar size.



Picture 17: Landscape principles (Dramstad, W. E., Olson, J. D., & Forman, R. T. T. (1996)

Diverse plant populations, created through mixing species and varieties (or cultivars) of the same species, can withstand insects, disease and environmental problems better than a single type of plant can.¹²



Picture 18: Orchards of Mostar

Three Natures principle

The three parks along the Radobolja river will all have a different theme connected to the landscape. This representation of nature as how it used to be is linked to the three natures. Envisioning nature is commonly used in urban parks like Museumpark in Rotterdam and Central park, New York. The first vision on the three natures is from roman philosopher Cicero. He discusses two forms of nature; the wilderness - the realm of the gods untouched by human hands, and the field - the meadows and ploughed fields, orchards, terraces and rural settlements made by man. The third vision: the garden was added later in the Renaissance and is a combination of both the wilderness and the field.

To give a good image of these three natures, I used the modern updated version of the 18th century frontispiece to 'Curiositez de la Nature et de l'Art', designed by Joost Emmerik and painted by Iwan Smit. Showing the current relation between wild nature, the cultural landscape and the garden. (Emmerik, n.d.). On the foreground we see the garden, followed by the fields and in the back the wild nature.

The three visions on nature formed the base for my three gardens along the river. What connection the three locations have with the three natures theme, I will elaborate at a later time.



Picture 19: Modern interpretation of *Curiositez de la Nature et de l'Art* (Emmerik, J. & Smit, I. (2018))



Analysis

History of Mostar

History of Radobolja

Ottoman times

Austro-hungarian times

Yugoslavic times

Bosnia and Hertzegovina times

Green valley of Mostar

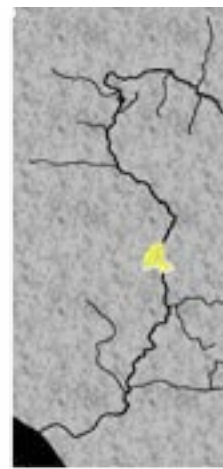
Experiental analysis

Experiental walks

Experiental categorisation



History of Mostar



Picture 20: Bosnia and Hertzegovina, Mostar, Neretva

History of Radobolja

Radobolja is a river flowing through the city of Mostar and ends inside the Neretva river. It is five kilometres long and its spring is located below the Mikuljača hills. The river is/was an important resource for the city and helped its development over the years. The first time the name Mostar is mentioned is in a document from around 1474, gotten this name from the bridgekeepers (the Mostari). The wooden bridge was later rebuilt in stone and is now called Stari Most. A 28 meters long and 20 meters wide bridge was a wonder of its own time. The story goes that the bridge was so big, they didn't believe the architect actually could do it. So he built a smaller bridge over the smaller river Radobolja to show that he could do it.

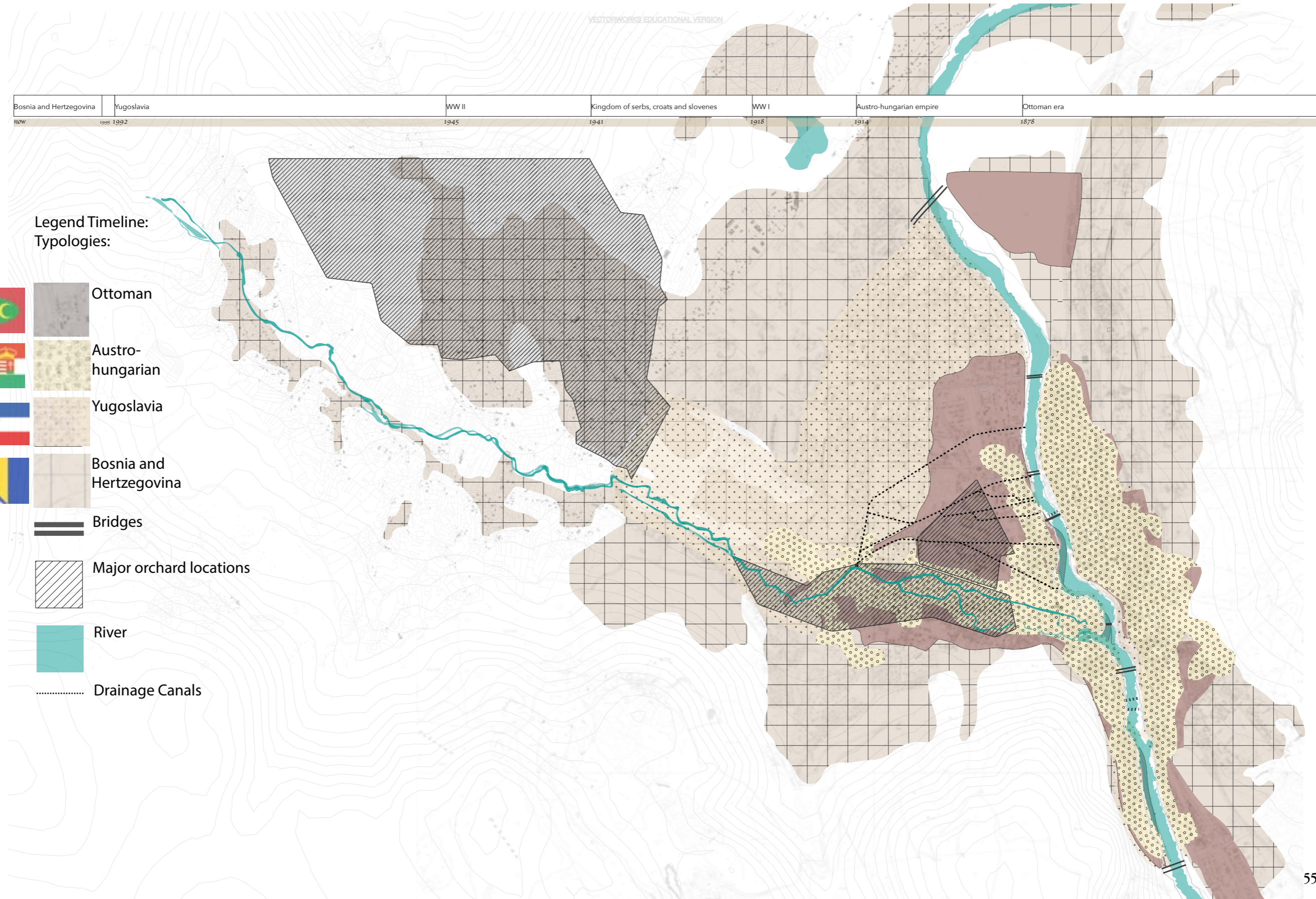


Picture 21: The bridge over the Radobolja

Bosnia and Herzegovina	Yugoslavia	WW II	Kingdom of serbs, croats and slovenes	WW I	Austro-hungarian empire	Ottoman era
now	1995 1992	1945	1941	1918	1914	1878

Legend Timeline:
Typologies:

-  Ottoman
-  Austro-hungarian
-  Yugoslavia
-  Bosnia and Herzegovina
-  Bridges
-  Major orchard locations
-  River
-  Drainage Canals



Ottoman times

The city of Mostar developed along Neretva and Radobolja. Because of the fast flow and steep cliffs of Neretva, it was a much harder task to get water from there inside the city. Here the importance of the smaller brother of Neretva comes in. The five kilometres long Radobolja was the main source for the irrigation plan for the city. By Ottoman rule the city was introduced by a very efficient irrigation system, by pumping water from Radobolja towards the fields more northwest. They even transported water from the west bank to the east bank the city. The water point at the right is located nearby Karadoz Bey Mosque and is the water point where water from Radobolja was collected for the people on the east bank. Because of the use of Radobolja for irrigation and drinking water it was a viable resource for the growth of the city. The river was also an important drive for the many watermills and the source behind the flowering orchards and gardens of Mostar.

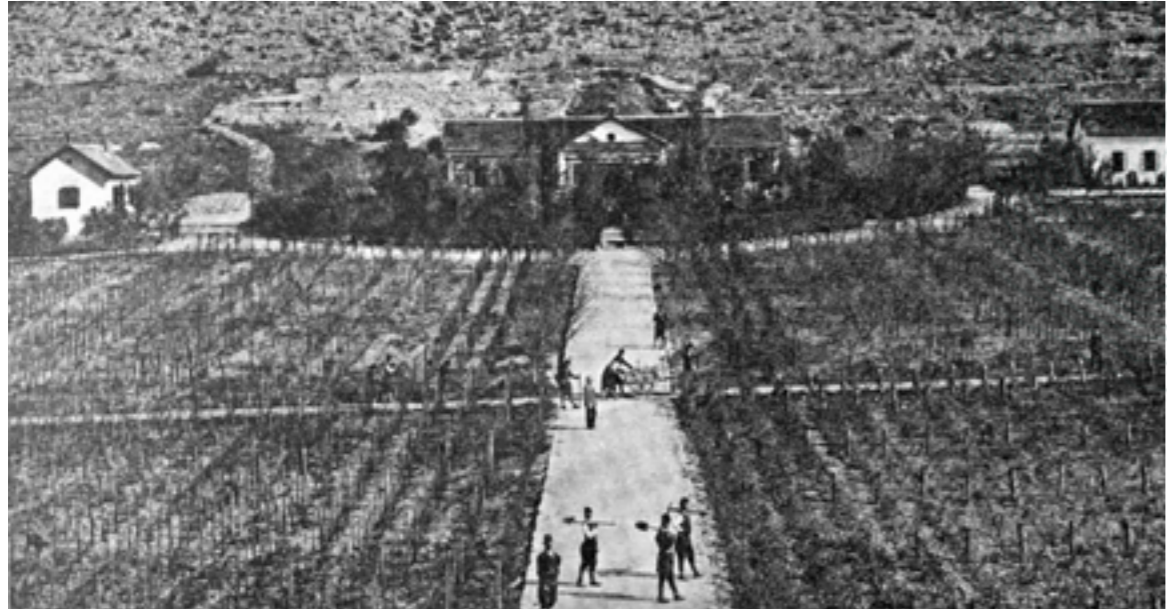
The orchards were positioned along the Radobolja river edge and the many canals that emerged from it. The orchards consisted mainly of pomegranates and figs, although other fruits were also cultivated.

Picture 23: Ottoman state
(Own image and (1946-1991. – CIDOM, n.d.)



OTTOMAN STATE

- WATER SYSTEM
- AGRICULTURE FIELDS
- URBAN AREA
- MEADOW



Austro-hungarian times

In the decade to come Mostar was under Austro-hungarian rule. The importance of christianity makes its appearance in the city skyline, churches being build near the Radobolja mixing the landscape. Now we have minarets, poplars and churchtowers covering the horizon. The mixing of the two believes also makes room for one of the biggest and most important meeting spots along the river: Balincovac, one of the most get-together spots along the Radobolja for muslims and christians. Untill today, this is still a meeting spot for both of the ethnic groups.

Picture 24: Austro Hungarian administration
(Own image and (1946.-1991. – CIDOM, n.d.)

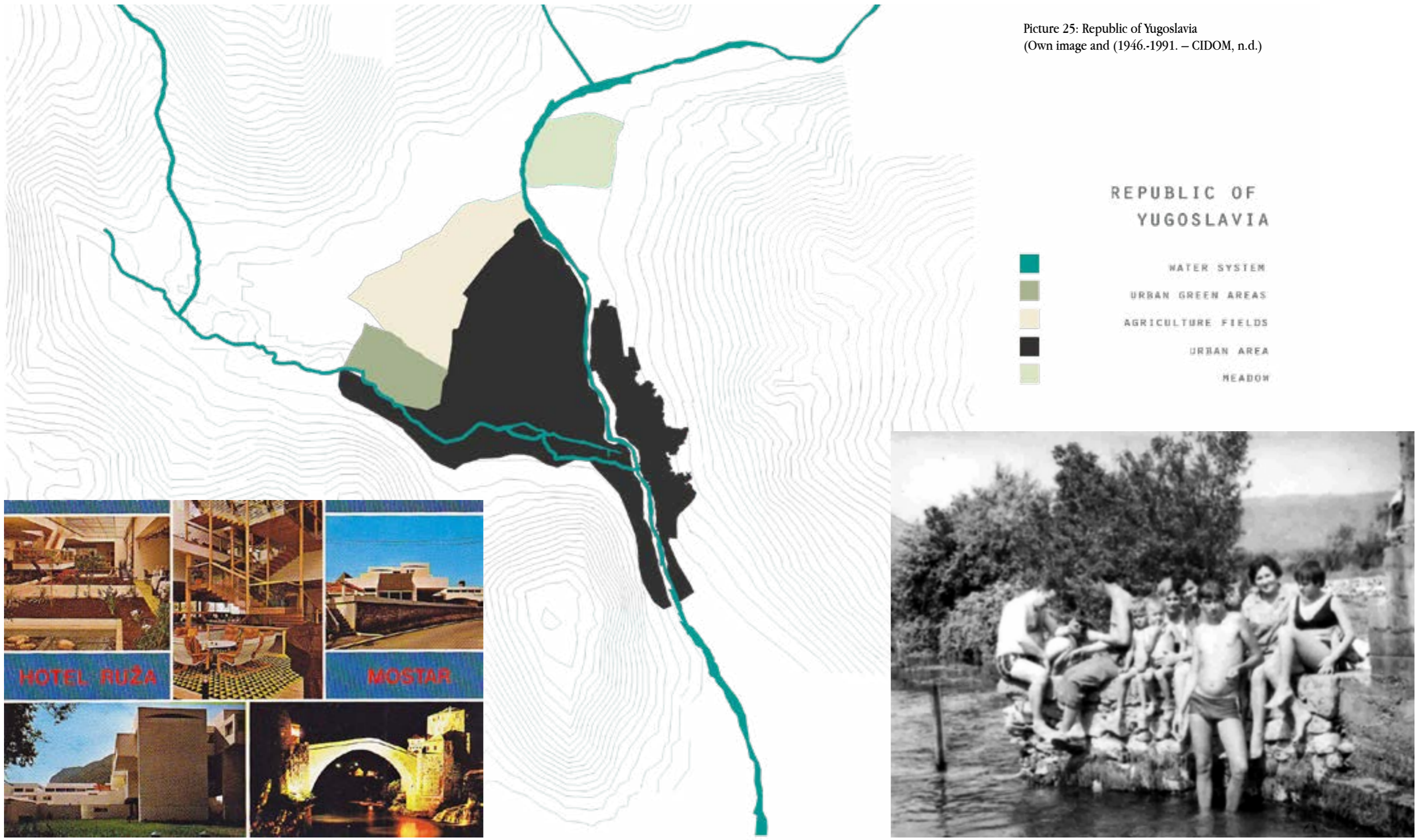


Yugoslavic times

In this time Mostar expanded rapidly, ignoring the once so green banks of the river. But people were still using the river. They used it to wash their clothes, get their drinking water from the Radobolja and there was a lot of swimming in the river. Children use to learn how to swim here before they where allowed to swim in the bigger Neretva.

Also this wasthe time of the modernist architecture great impressive buildings emerged in the city. They played a big role in the identity the city of mostar wanted to show to the outside world like you can see on the postcard on the next image. Sadly this new image did not last long because of a lot was destroyed during or after the war.

Picture 25: Republic of Yugoslavia
(Own image and (1946.-1991. – CIDOM, n.d.)



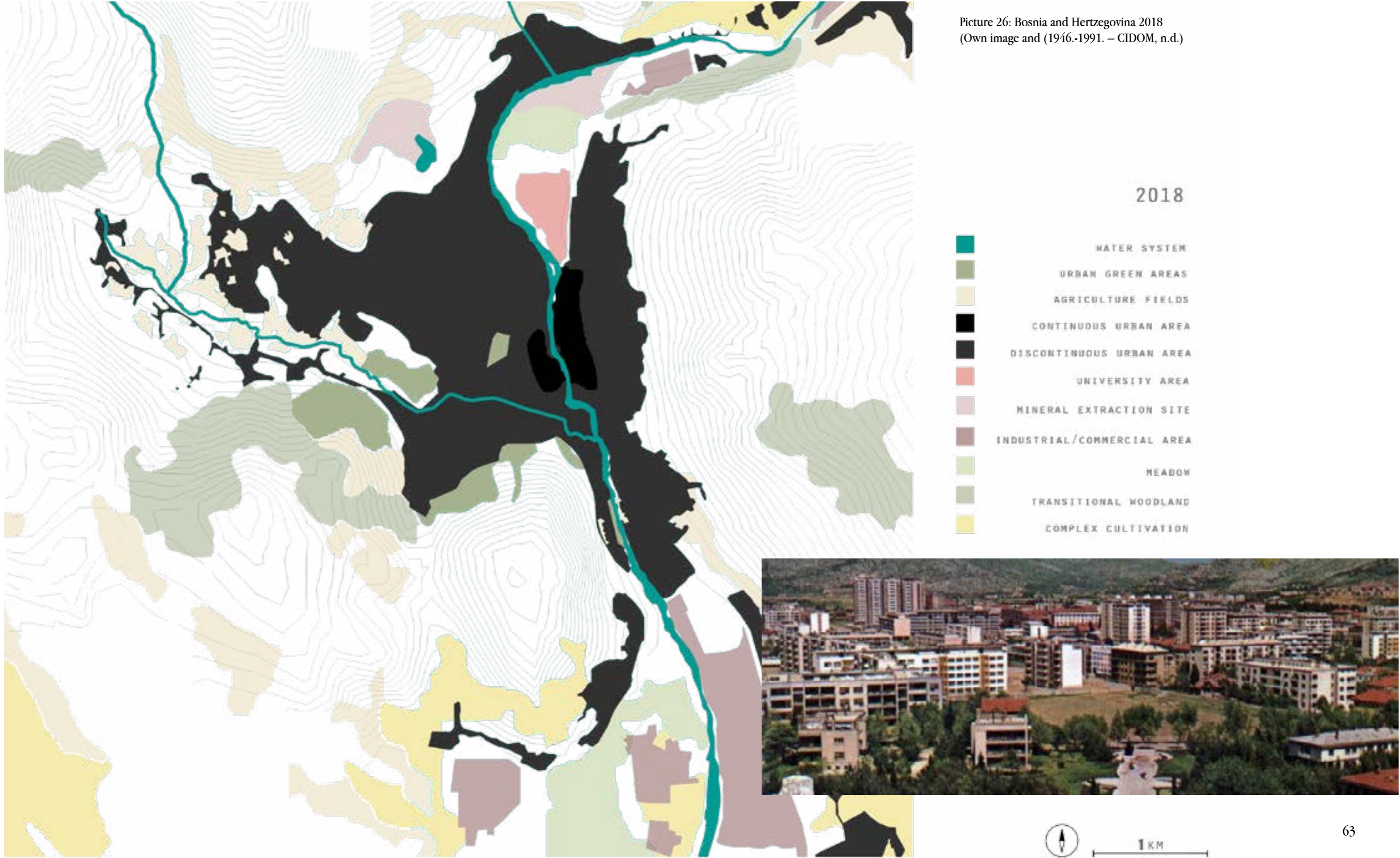
Bosnia and Herzegovina times

The tameness of the Radobolja and its surrounding areas from these descriptions today is difficult to recognize. This, once a natural reservation of Mostar was irreparably ruined. There is one absolutely safe way to destroy the soul of a city, a way which however do not lack supporters: they are incapable of urbanists, wild construction, lack of feeling and understanding for the area in which he lives, the inability of the oligarchs in the social domain and Sadly, the lack of knowledge of all the imperatives of culture. Radobolja and its surroundings are the obvious example.^x

In the modern times through fast expansion of the city the connection with its rivers is lost. The tameness of the Radobolja and its surrounding areas today is difficult to recognize, This, once a natural reservation of Mostar was ruined. Wild constructions, lack of feeling and understanding of the area together with the lack of knowledge made the once called entertainment garden of Mostar unrecognisable.

x: Most 122-123 (33-34) - casopis za obrazovanje, nauku i kulturu-Mostar-BiH-Salko Saric. (n.d.). from <http://www.most.ba/03334/087.htm>

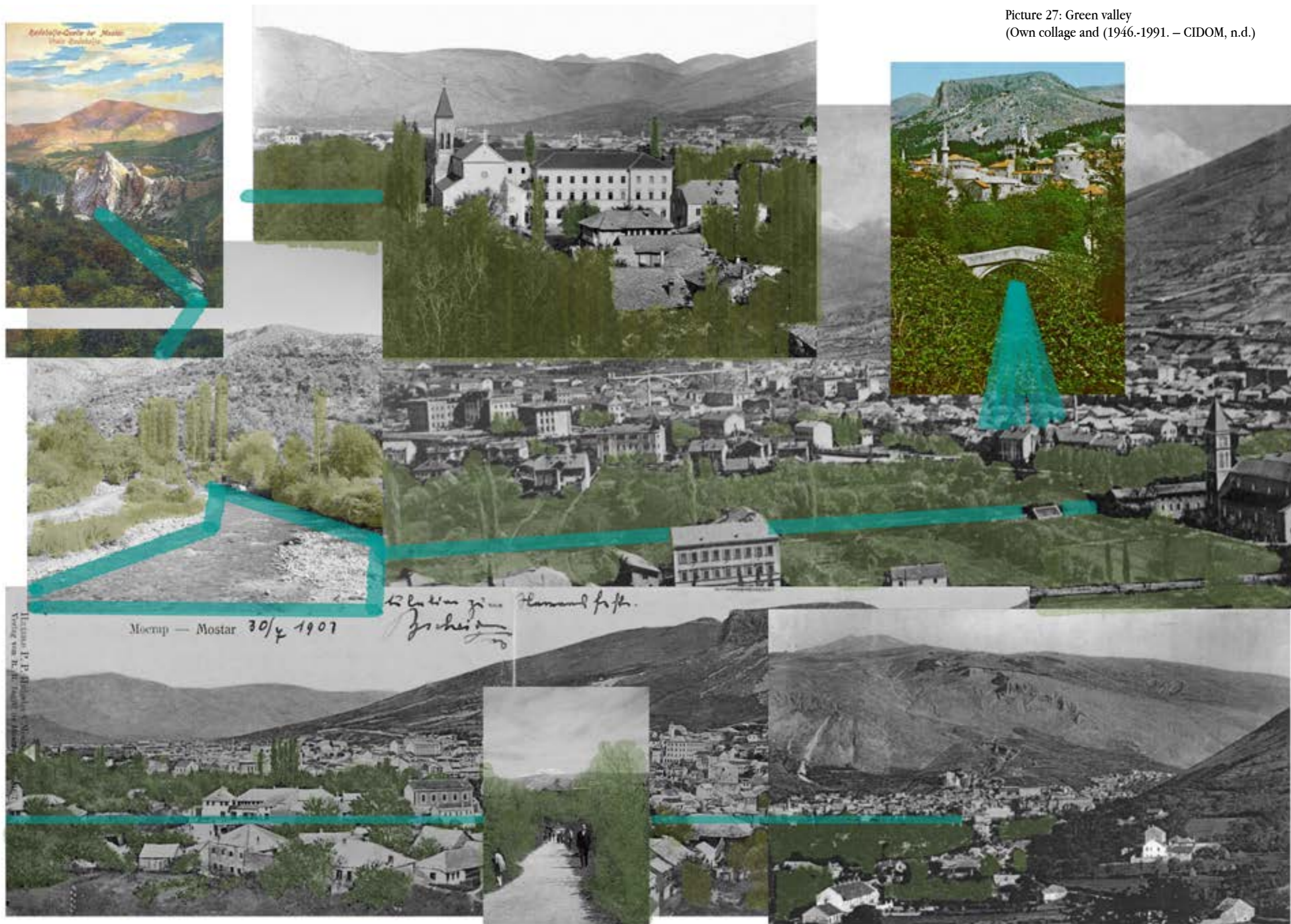
Picture 26: Bosnia and Herzegovina 2018
(Own image and (1946.-1991. – CIDOM, n.d.)



Green valley of Mostar

The Valley of Radobolja have always been called the entertainment garden Mostar. This fertile valley with rich trees for its diverse loveliness fully deserves this name, the man feels a double joy as this growing tourist and it flourishes because it is on both sides it is surrounded by high hills on whose gray, a desert stone manages to a bit of greenery. Through this Valley need to take a walk in the spring, when he is asleep, and the almonds bokor Stumpy smokvinim branches, disregarding the leaves, are starting to izrastati small fruits, while other trees timidly yet retains its buds to flourish. Or some other underlying condition later on, when it is already starting to dress at early green and fiery blossoms pomegranates they start shooting, while from the thick Bush of the hour here, the hour there is heard a song of a Nightingale-memory on such a walk has really a similar force, so strong and good, as the memory of the time when the There were very young and in love ... " (translated by Dr. Branko Šantić)

The green valley inside the urban part of the city is mostly lost but the more upstream you come the greener it becomes. The use of filtering plants in and around the river can restore this green valley of Mostar feeling in a modern way.



Picture 27: Green valley
 (Own collage and (1946.-1991. – CIDOM, n.d.)

Historie P. P. B. Mostar
 Verlag von M. H. Mostar

Moerup — Mostar 30/4 1907

Relation zu
 Fischer

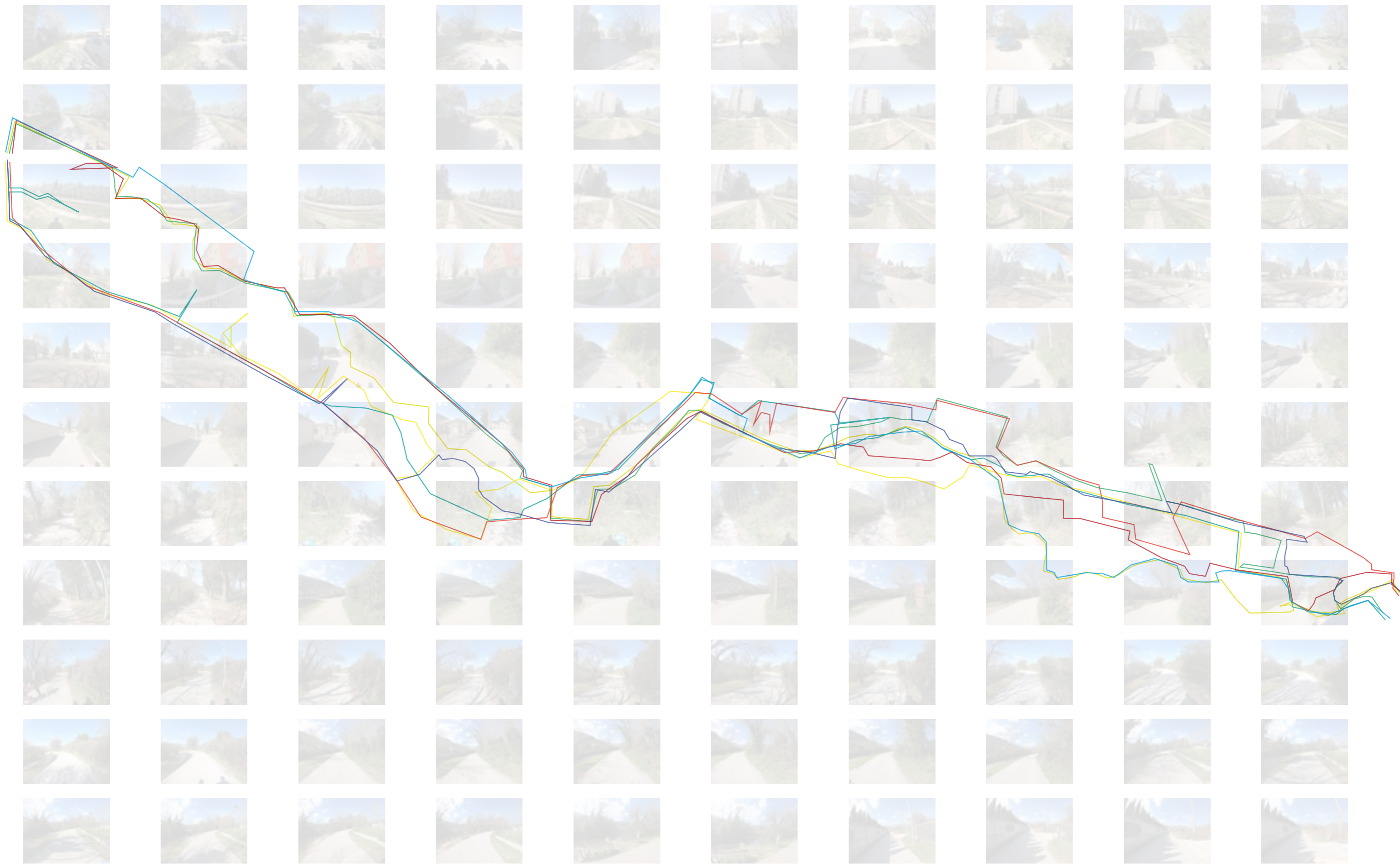
Experiential analysis

I visited Mostar two times and tried to capture the spirit of the river and the city during my visits. The first time I visited Mostar, I tried to understand the city better and have a general understanding of the river. The second time was more organised, as I knew better what information I needed and places I needed to visit. I tried to capture the lived experience by walking the Radobolja several times. For every walk I had a different focus. Everyday I took notes and kept a river diary with me.

Walks:

- Focussed on the ecology
- Focussed on the sociology
- Focussed on the rational
- Focussed on the experiential value of the river.
- Focussed on filming the experience

The main goal of this analysis was to capture the spirit of the place. Using my personal phenomenology lens to capture the beauty and experience of Radobolja. The stills you see at the right are stills from my the movie footage I took while walking along the river. The coloured lines show the various routes I took to analyse the different aspects of the river.

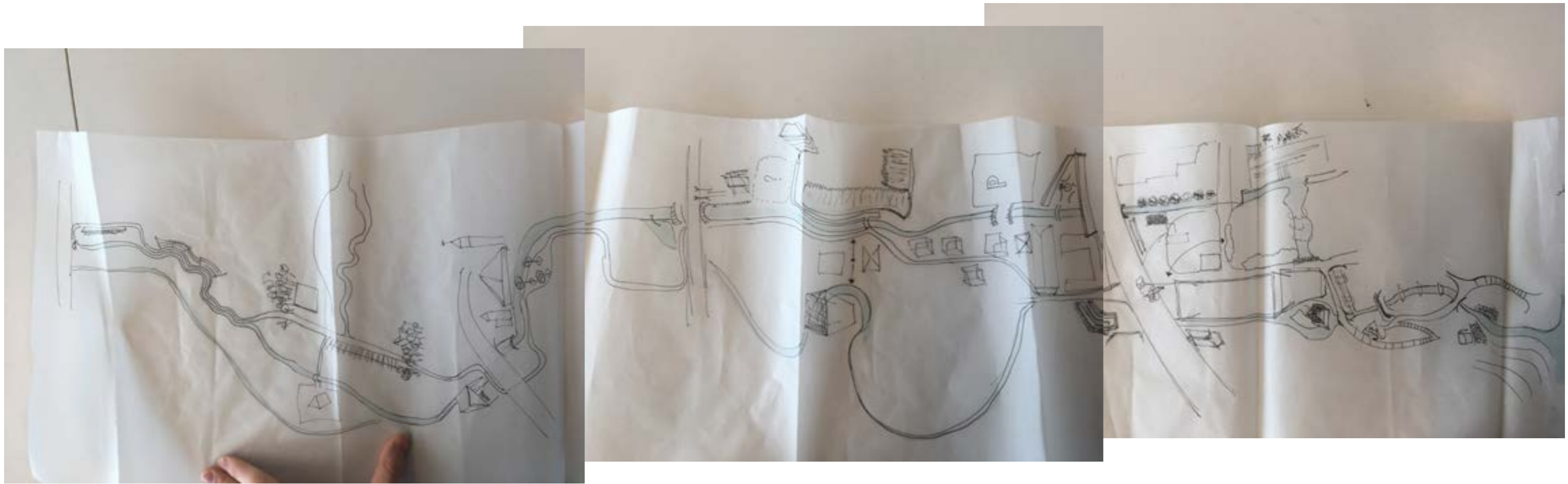


Picture 28: River walks

Experiential Walk

To understand the surroundings of the Radobolja river I walked from where it ends, toward the spring of the river. By drawing from memory and not using maps or making photos, I found elements that helped giving direction by blocking views, showing views and landmarks wich give you a sense of where you are.

The map from memory as shown at the right is also used to get grip on the elements that define the Radobolja river, they could be of importance in giving guidance to the visitors of the river area.



Picture 28: Mental map Radobolja

Experiential Walk

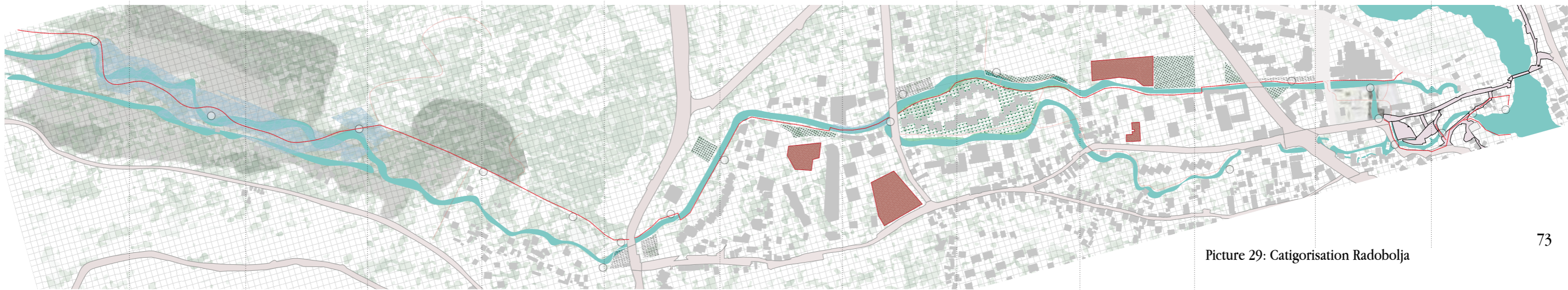
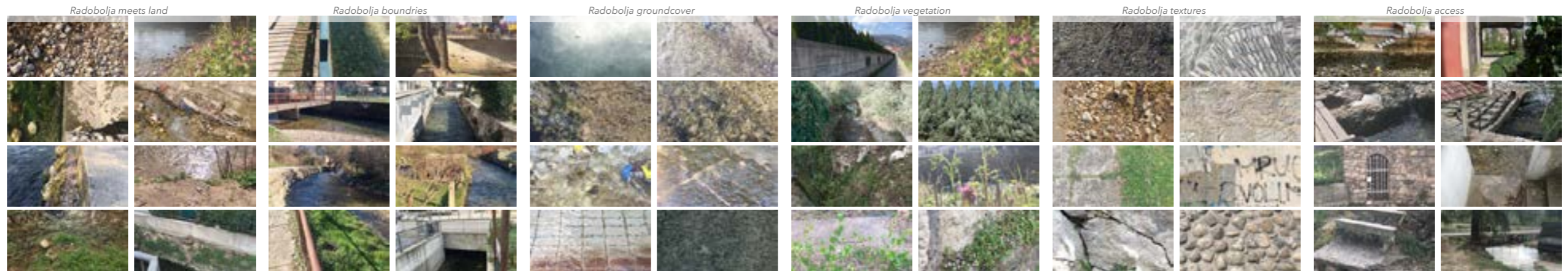
I took a lot of photos while doing my walks along the river. From the photos I took while walking along the Radobolja, I made compositional sections to show how the stereotypical section looks like on different parts of the river. You can see that the landscape becomes more rural the more upstream you get.



Picture 29: Section collages

Experiential catogorisation

The five kilometre stretch of the Radobolja river is ever changing through the different neighbourhoods. Different themes were analysed during the walks. They are categorized into several themes to show the difference in for example river edge or vegetation. The different textures of the pavement are the inspiration for the patterned tiles introduced for the Radobolja walk.



Picture 29: Catigorisation Radobolja



Design

Three design elements

Scenario's
Ecological
Social
Rational
Conclusion

Experiential walk
Changing path
Patterened tiles
Cleaned river
Experiences along the river

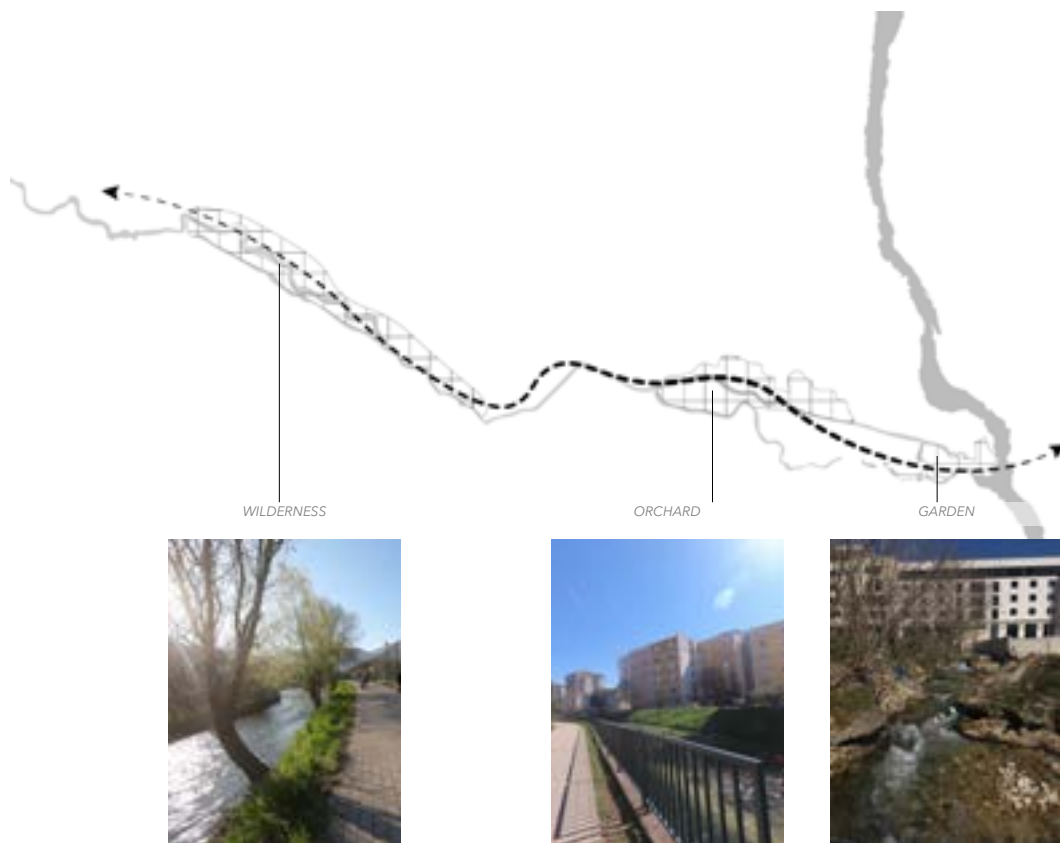
Three nature gardens
Wilderness park
Orchard park
Ruza Square



Three design elements

The research I did resulted in three design elements. The scenario creation method identified the three major design sites. The historic analysis together with the three nature principle was the basic for the meaning and themes for the three design sites and the experiential analysis is the mean for the connecting route along the Radobolja through these three design sites.

In the final design the social, ecology, functional, lived experience and history come together.



Picture 30: Three design elements

Ecological scenario

The ecological scenario looks into the possibilities of creating a more biodiverse ecological river corridor. The theory on how and why to restore rivers is used to create this scenario. For example, there is more room for the river to behave more naturally. The river edges are being transformed into more ecological friendly river edges. The monoculture fields and orchards are being transformed to make them more biodiverse and a connection to the bigger landscape. And the already existing green structures are being connected.

Ecological scenario

Social Scenario

The social scenario is showing the potential of the places along the Radobolja river on the social scale. I used the theory on why to restore urban rivers to come up with this scenario. It shows for example new recreation places along the river. The areas where cannot be build to have room for the river to flow and give space for river recreation. There are new routes to connect hotspots related to the river. This all to improve the social structure between the different neighbourhoods where the Radobolja is flowing through.

Social scenario

Rational Scenario

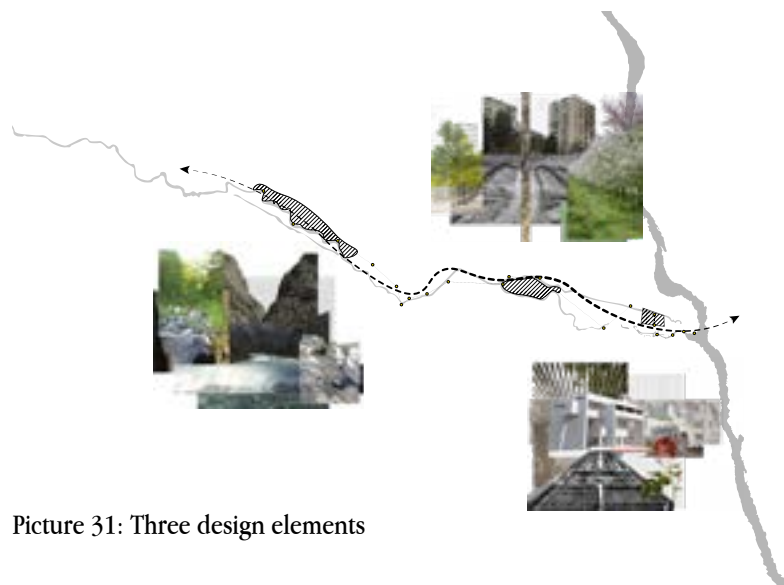
The rational scenario shows the functional river.

The collectors under the bridges for the floating garbage in the river. The improved pedestrian network along the Radobolja.

The reason the Rational scenario is not that innovative as the other two comes with the context of Mostar. The city of Mostar is a city with a low average wage, and high end interventions will possibly never be implemented in the city. Therefore this scenario acts more as functional guideline for the design. To see what can be done within the restrictions of the functional river.

Rational scenario

Scenario conclusion



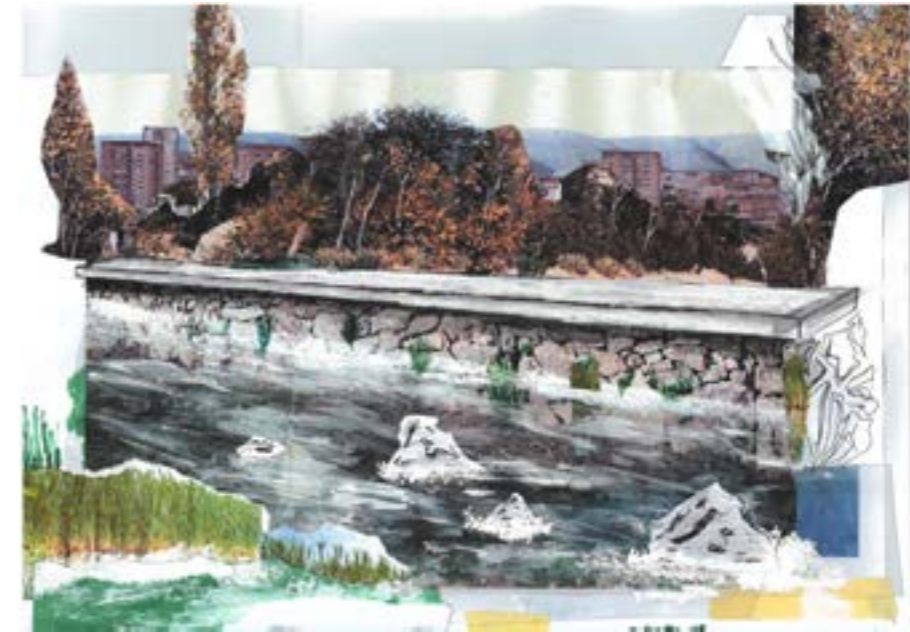
Picture 31: Three design elements



Picture 32: Masterplan Radobola

Experiential walk

The experiential riverwalks shape a lived experience of the river Radobolja. I identified 20 experience nodes along the river. These nodes are the experiential points that will lead you along the river Radobolja. The radobolja walk will pass these points and let the visitor experience the different qualities of the river. The nodes differ from places with beautiful shadow play to architecture that influence the way you perceive the space. Places where you feel in touch with the river because of the sound and places which frame the river in an idyllic way.



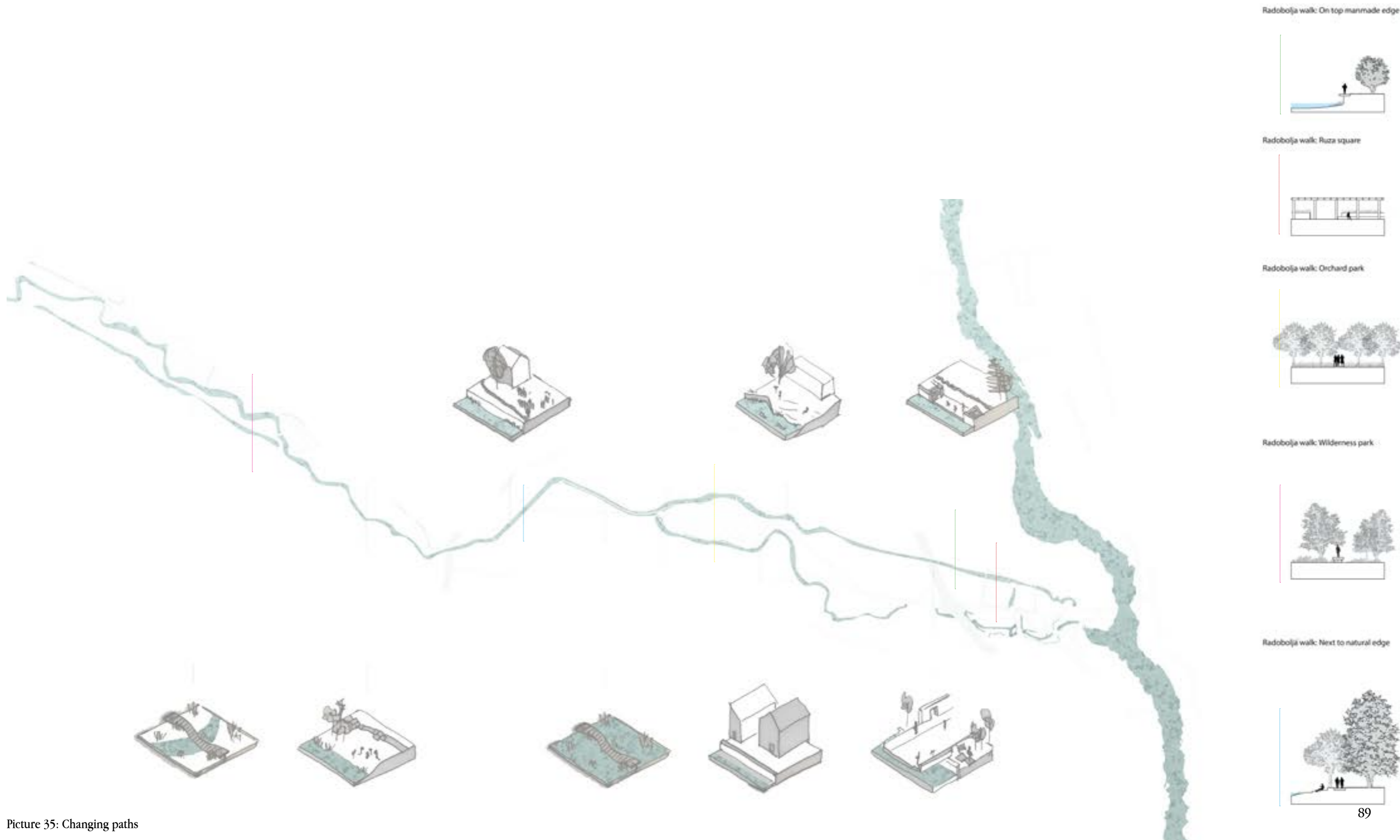
Picture 33: Collage riverwalk



Picture 34: Experience Nodes riverwalk

Experiential walk changing path

The experiential walk is adapting on the landscape typology. It is intergrated in the exiting street pattern where possible and intruducing new roads where prefered. The walk follows the Radobolja stream but sometimes takes a detour because the urban tissue doesnt allow the path to follow the river in some places.

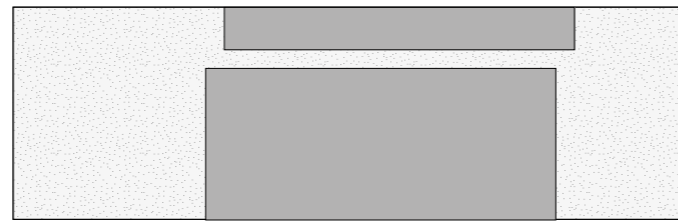
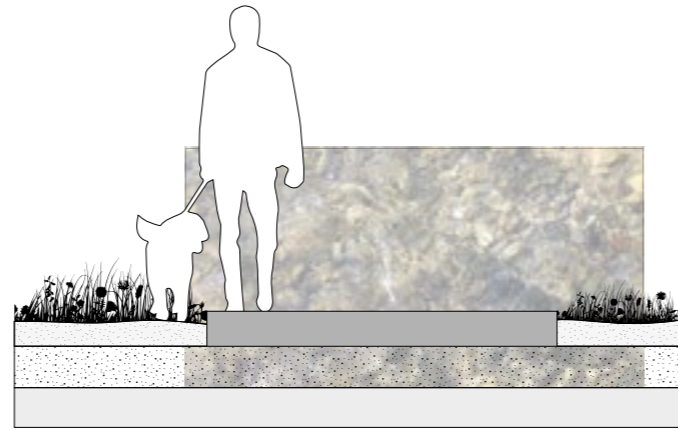


Picture 35: Changing paths

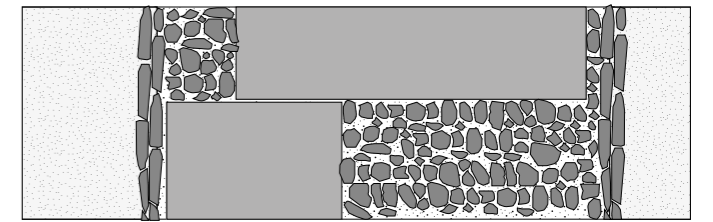
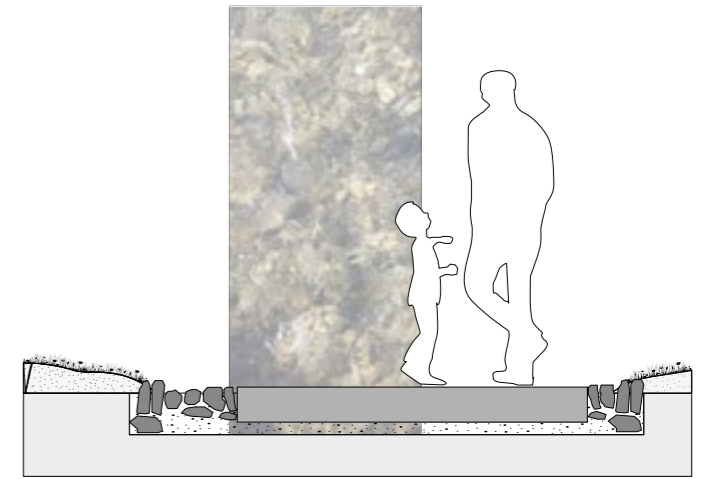
Experiential walk patterned tiles

As seen in the analysis the neighbourhoods along the Radobolja have a wide variety of patterns of the pavement. I want to use the diversity of the different patterns as the guiding pattern of the walk. There are six different patterns chosen to be imprinted on concrete tiles varying from 1/2m by 1/2m 1m by 1m, 2m by 2m. They will be implemented in the existing landscape and form the guiding element of the Radobolja walk.

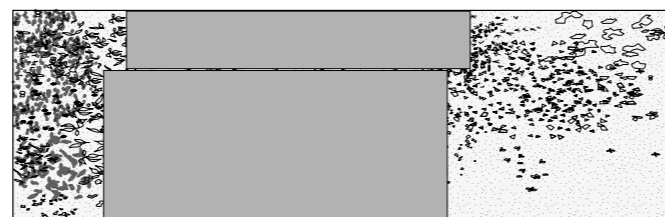
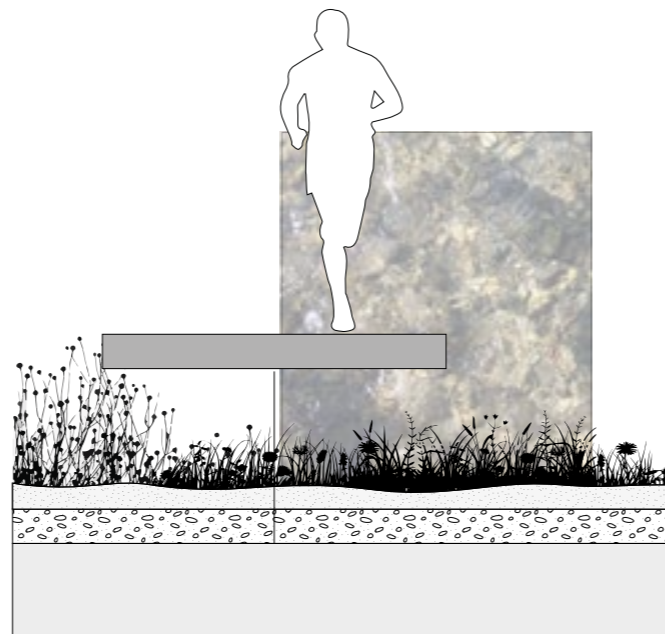




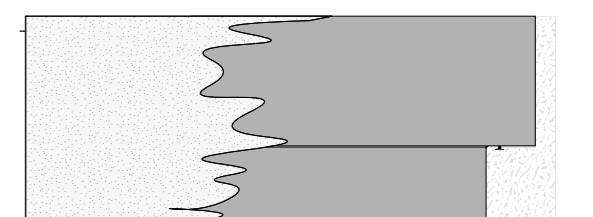
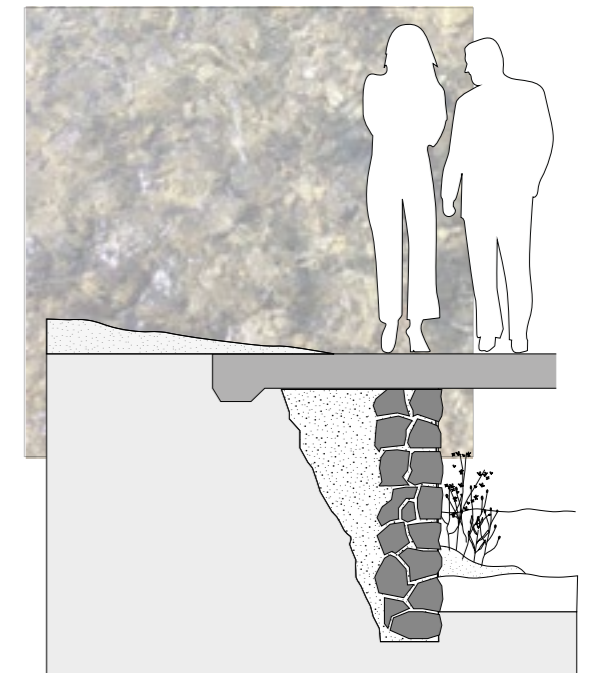
Radobolja hoda (Radobolja walk)
Impresions + Detail



Radobolja hoda (Radobolja walk)
Impresions



Radobolja hoda (Radobolja walk)
Impresions + Detail



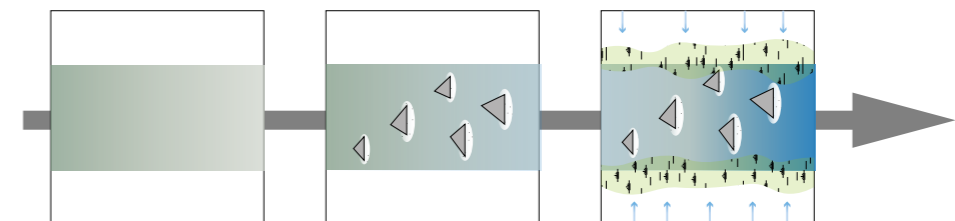
Radobolja hoda (Radobolja walk)
Impresions

Experiential walk the restored river

The cleaning process of the river contains of two important processes. The oxidation process is introduced to get more air inside the river and clean it through this process. The edges of the river will be planted with phytoremediation plants. These will filter a other big amount of the river as well of the acces rainwater from the higher parts wich are flowing into the Radobolja.

The rocks and plants are also providing shelter for several fish species and therefore are a ecological boost for the river as well. So if the river gets cleaner also space and shelter is provided for aquatic life that can return because of that.

Together with filtrating potential of these processes they also add aesthetic value to the river. They make the river edges flower in spring. The rocks slow the water down so around the sediments drop wich provide a good breeding ground for the flora and the fauna of the river.





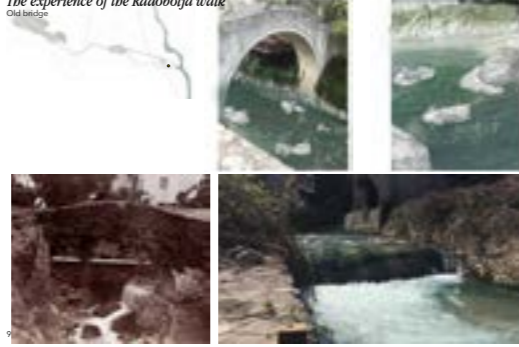
Experiential walk experiences along the river.

The impressions on the next page show experience of the riverwalk. They highlight the different interventions allong the river. In the Apendic the images are put in a bigger scale.

The experience of the Radobolja walk
Meeting Nature



The experience of the Radobolja walk
Old bridge



The experience of the Radobolja walk
Rasa square



The experience of the Radobolja walk
Pisaenje Kipica



The experience of the Radobolja walk
Under the shadow of the Church



The experience of the Radobolja walk
The smell of fruit



The experience of the Radobolja walk
2nd atm



The experience of the Radobolja walk
Orchard



The experience of the Radobolja walk
Orchard



The experience of the Radobolja walk
Orchard



The experience of the Radobolja walk
Radobolja restaurant



The experience of the Radobolja walk
Inside the river



The experience of the Radobolja walk
Inside the river



The experience of the Radobolja walk
Around the corner



The experience of the Radobolja walk
New active places



The experience of the Radobolja walk
New active places



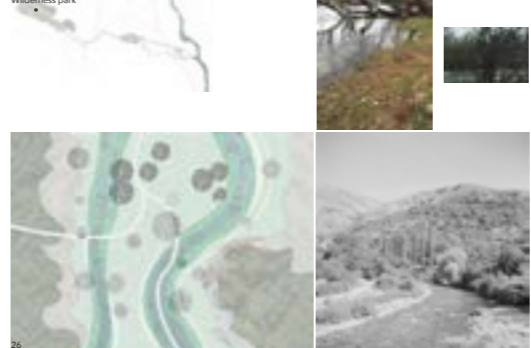
The experience of the Radobolja walk
Into the wild



The experience of the Radobolja walk
Into the wild



The experience of the Radobolja walk
Wilderness park



The experience of the Radobolja walk
Wilderness park



Three nature gardens

The three gardens located along the Radobolj river all have a close connection with the landscape and history of Mostar. They follow the principle of the three natures, the wilderness, the orchard and the garden. Each of them having a different character and feeling.

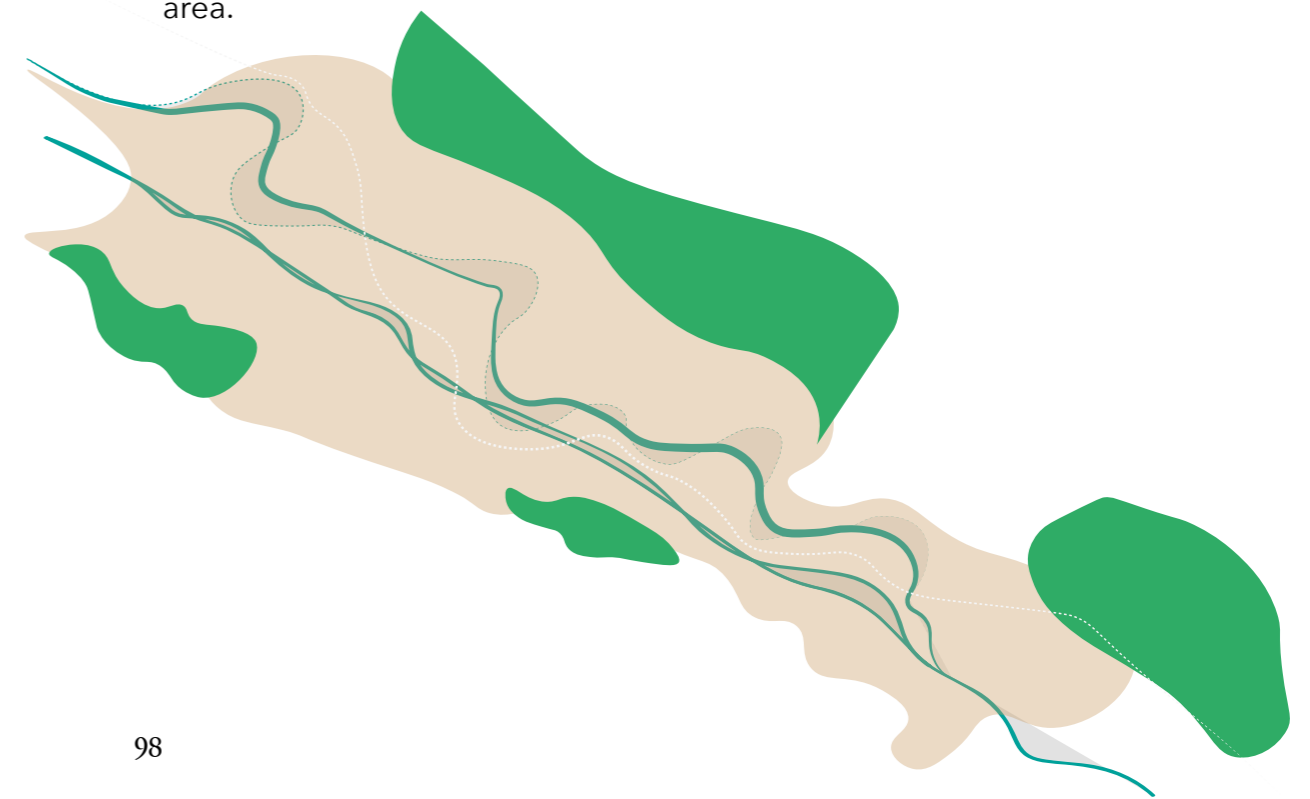
The first nature garden closely connected with the natural landscape of Mostar, the second nature garden located on the location where Mostar grew because of the production orchards around that place. And the third nature located in front of the Hotel Ruza a Hotel with a rich history for the locals of Mostar.

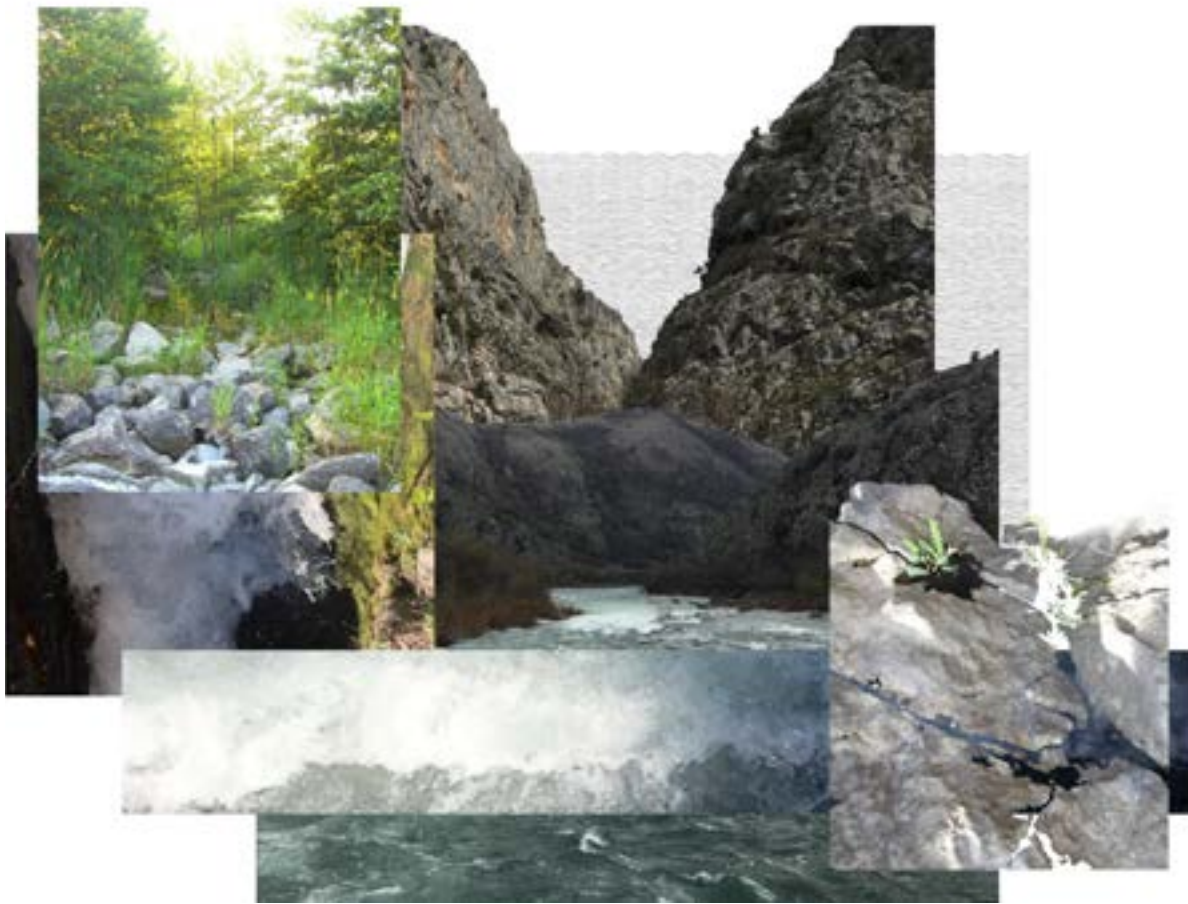


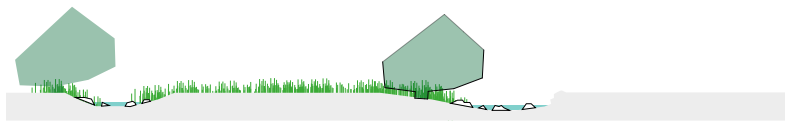
Wilderness park (first nature)

The first nature park will be a park where the natural landscape is the most visible. It is a interpretation of the bigger nature surrounding Mostar. In the collage you see the wild river which reminds of the river Radobolja how it used to be in the old days. The wild water-flow is needed for the oxidation process of the river so the river will have a lot of big rocks in the stream to let the water tumbling and add oxigen inside the river.

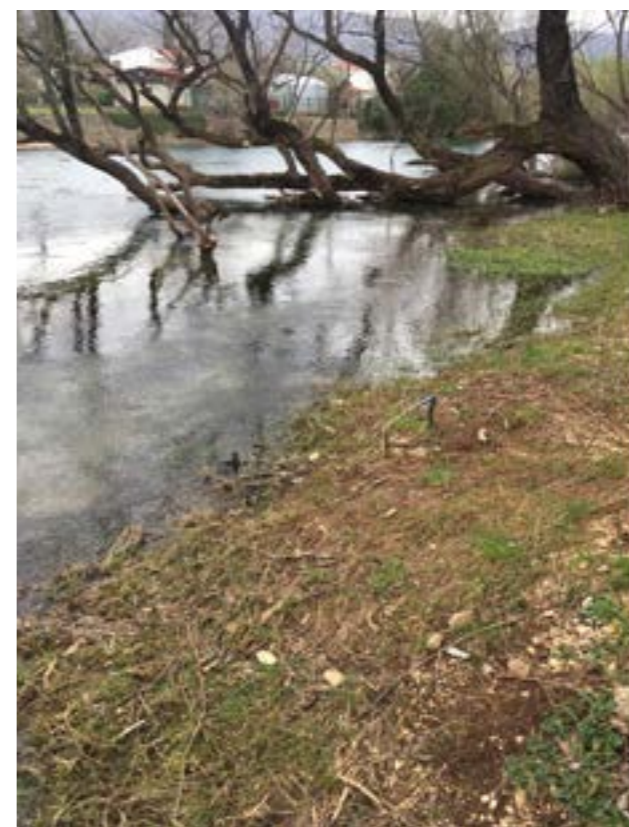
The path in this park is a boardwalk with the same pattern of the tiles introduces earlier. The boardwalk is introduced so the river can freely flow through the landscape and is not obstructed by manmade river edges. The land is given back to nature, so over the years the landscape changes from mainly fields to a rural forest area.









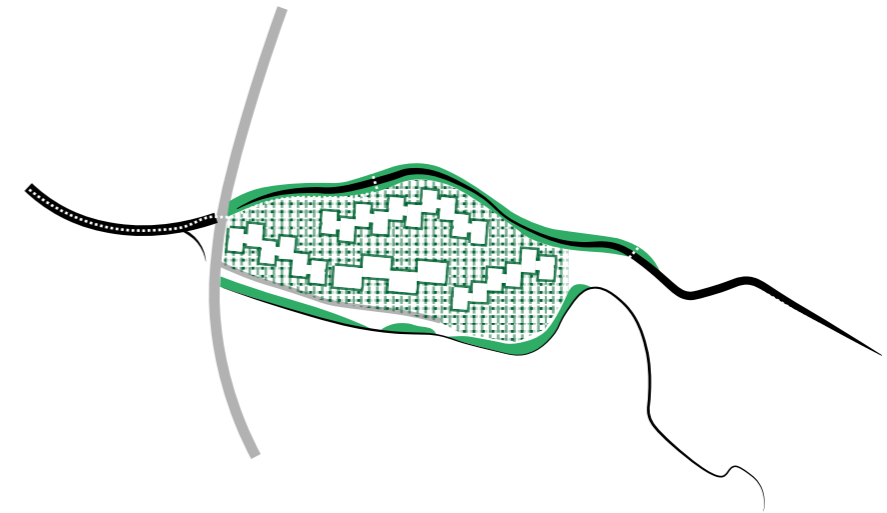




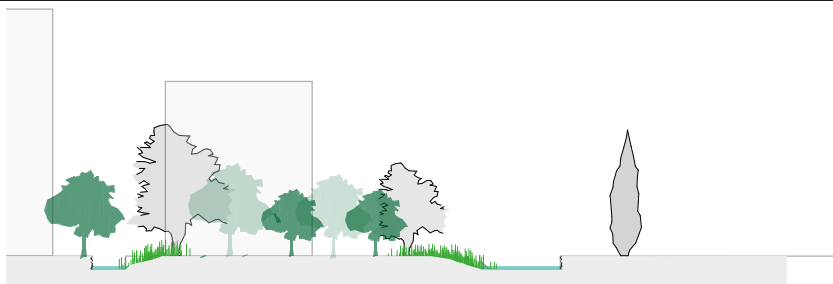
Orchard park (2nd nature)

The second park is located in a modern Yugoslavian neighbourhood. The neighbourhood is embraced by the Radobolja. This is the area which used to be the big production area during the Ottoman period. The Radobolja was the main irrigation source for the city of Mostar and on this location between the two arms of the river the orchard history of Mostar flourished. The design gives the impression that the building blocks are dropped inside the existing orchard.

The fruit trees capture the spirit of the old Radobolja valley, you can see the blossoms and pick the fruits while passing this garden. Located between the two river arms, a big road and several important public buildings, this garden is a connector between the surrounding neighbourhoods.











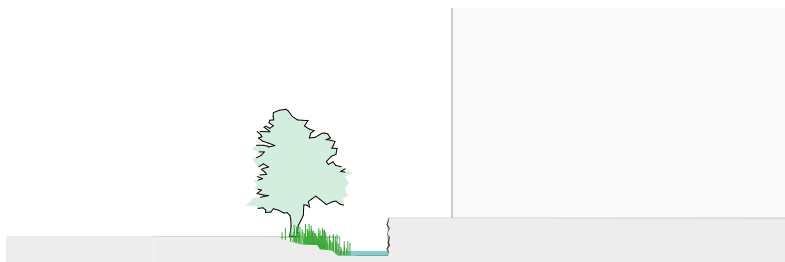


Ruza square (3rd nature)

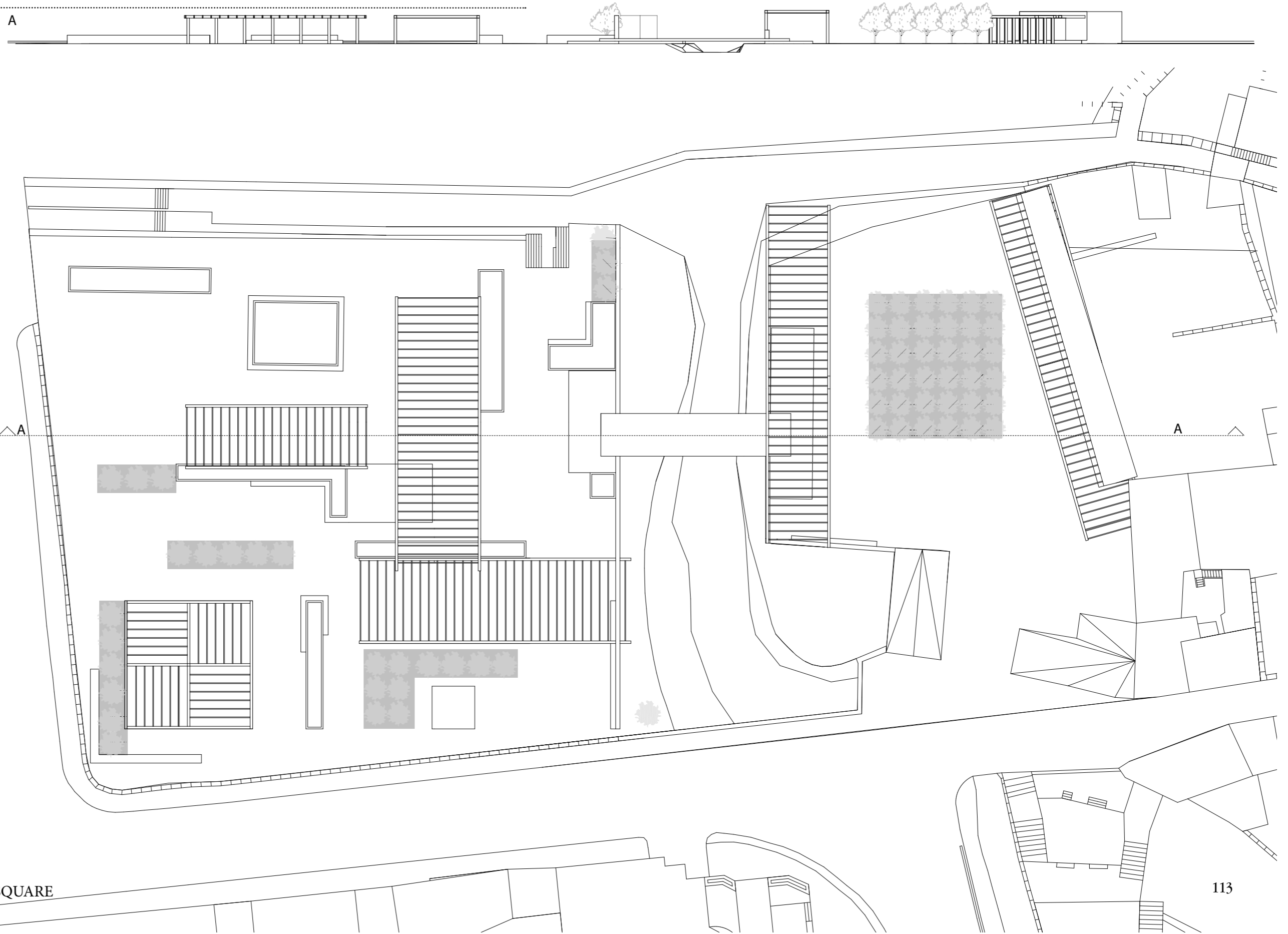
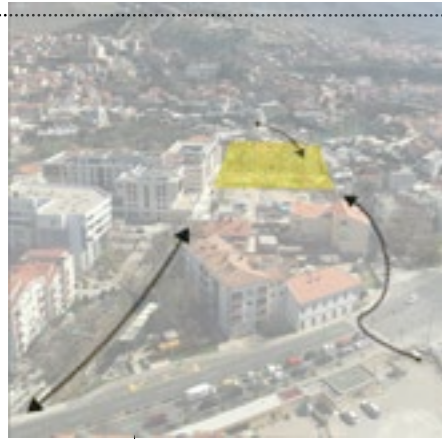
Hotel Ruza was a well known hangout spot for the people of Mostar. The Hotel was bombed during the war, and never rebuilt. The people from Mostar lost an important meeting spot in the centre. People described the indoor gardens as beautiful, and notice the shadowplay inside the foyer. I designed in front of the new Hotel a square that pays respects to the used to be Hotel Ruza. By using the elements that made this hotel so famous. There is a big use for pergolas that act as a modern interpretation of the build mass of the hotel as well contained the same shadowplay. I used planters like used inside the hotel. Where the river used to flow through the old Hotel Ruza, now the Radobolja flows through Ruza once again.





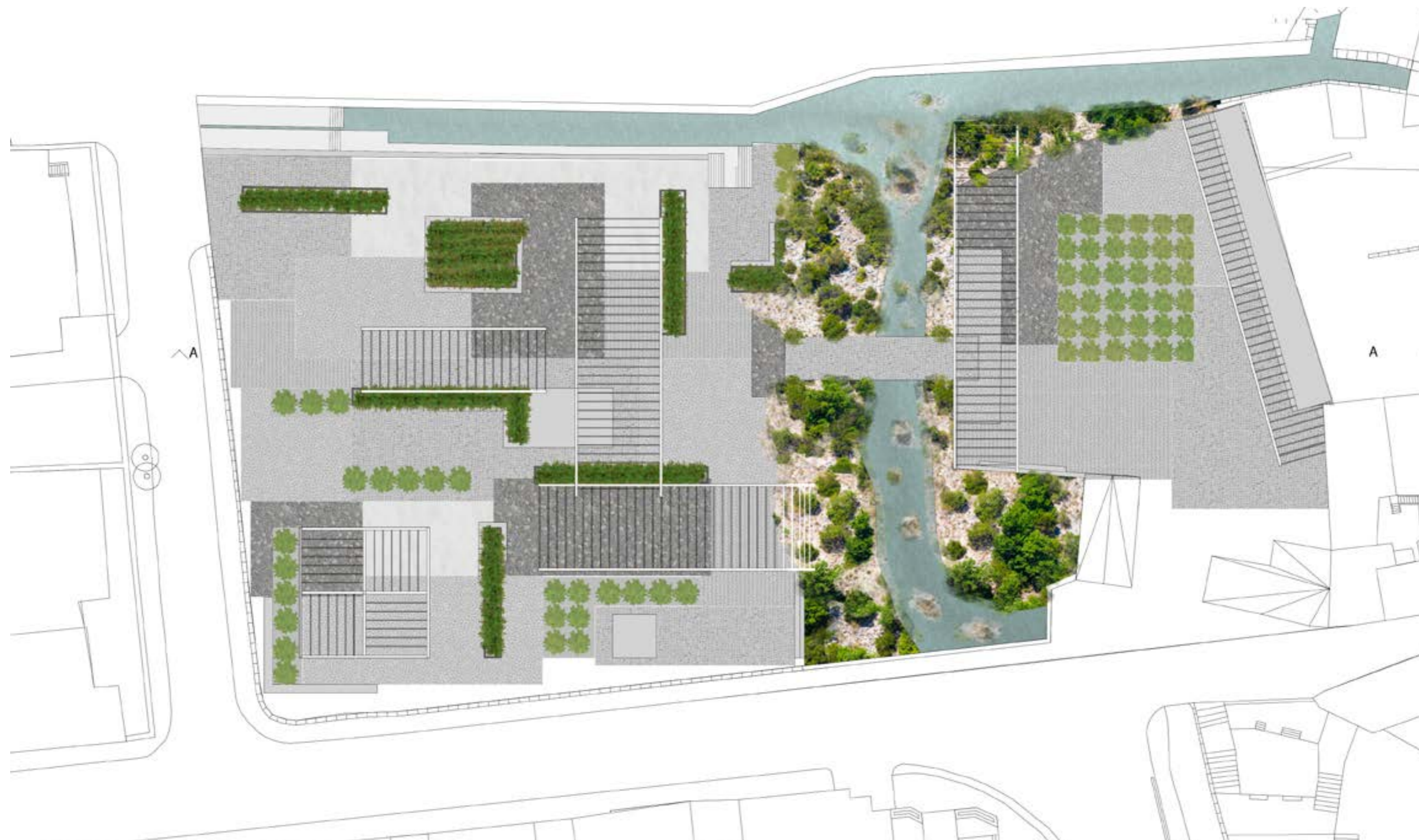


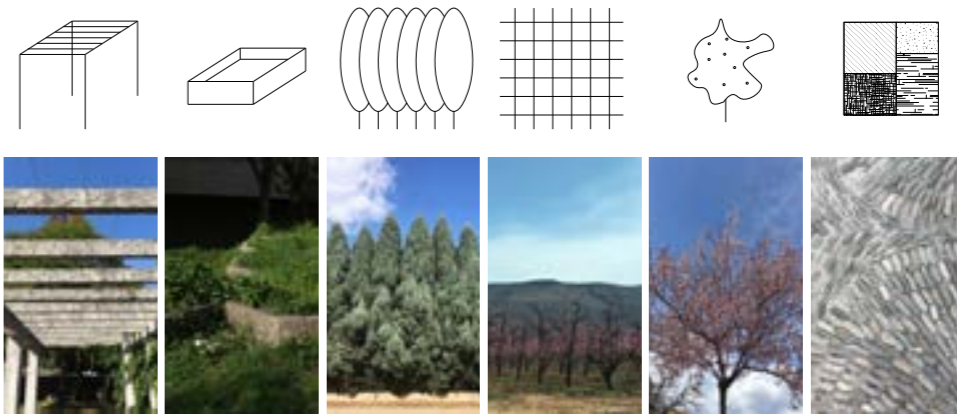
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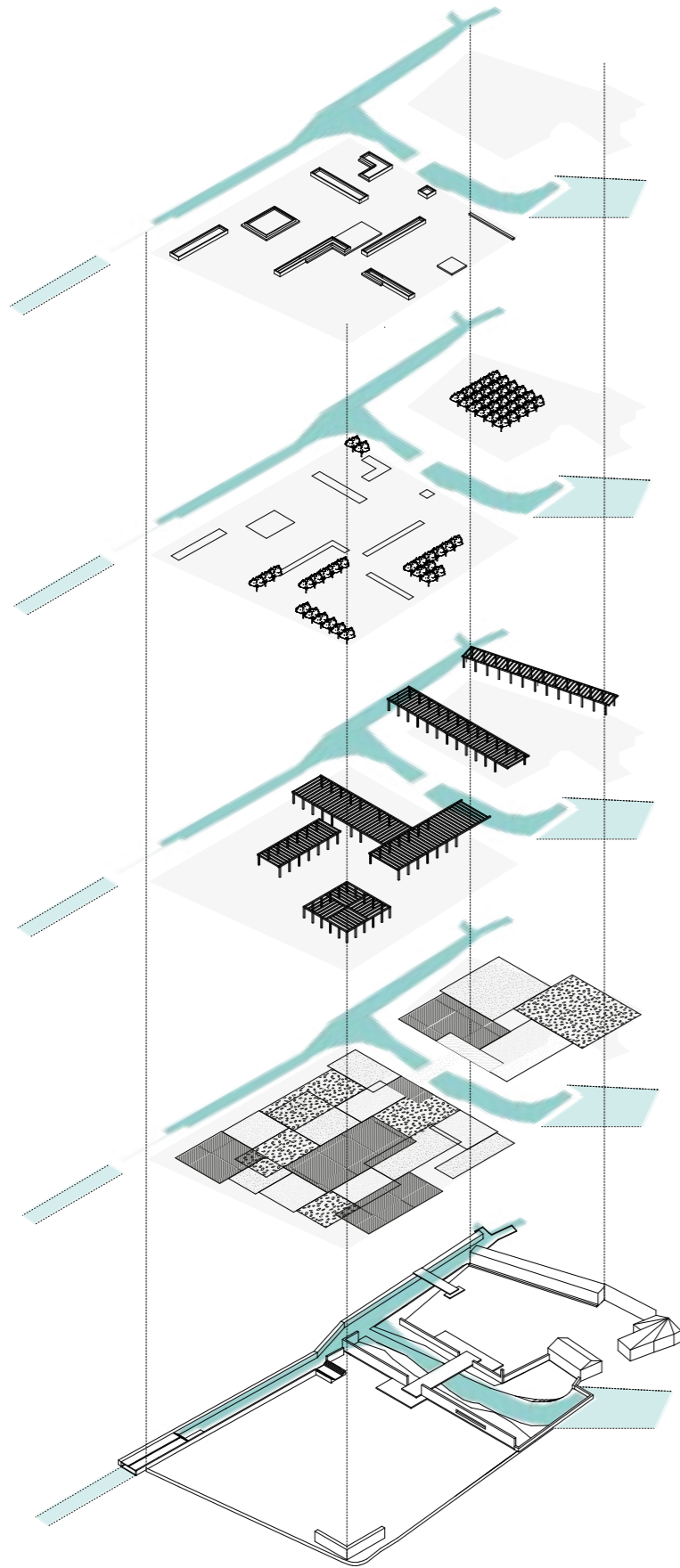


MASTERPLAN RUZA SQUARE
1:400

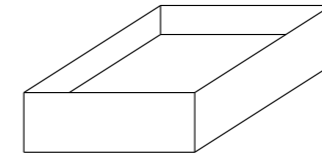




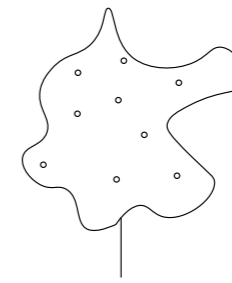
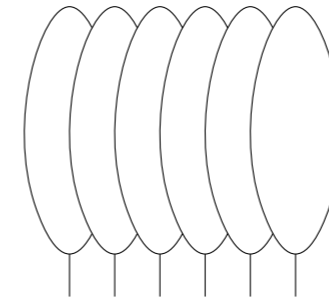
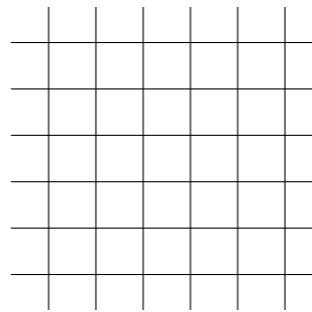




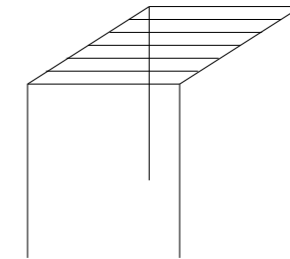
Planters



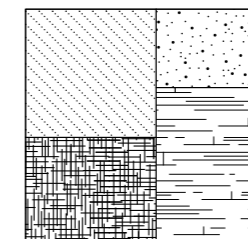
Planting



Pergolas



Groundcover



Existing site



Conclusion

In this concluding chapter i will try to answer the main research question and sub questions.

How can the lived experience and discern of an urban river both benefit from and deal with the change in the post traumatic landscape?

I see the whole city of Mostar as post traumatic landscape. The whole city is touched by the war, but there are places less influenced by it. Exactly this reasoning made me choose for the Radobolja as a design location. The Radobolja river is a river with a strong history in the city of Mostar. It contains elements from almost every era from the ottoman times, austro hungarian times, yugoslavian times and present day Mostar. The project deals with the post traumatic landscape by showing this bigger history of Mostar through the radobolja river. By using for example the rich orchard history and historic importance of hotel Ruza it highlights the glory moments of Mostar instead of showing and trying to fix the reminders of the war. By using these strong memories in a design intervention along a river with a stretch through almost the entire city it can have a impact that touches a big part of Mostar. Especially in a city where the traces and scars from the war are still very visible and where it is very hard to develop these scared parts. The restoration of the Radobolja can be used as an example and stimuli for the rest of the city.

I wanted to use the lived experience of the river because there was something about the river that had a certain beauty in it. I tried to find this beauty and use it as a tool to improve the quality of the river Radobolja. I analysed the different experiences you could encounter while following the river from where it feeds Neretva up to two kilometres upstream. I used the places with a strong experiential value as a guidance to discover the river.

How can a landscape architectural intervention improve the river quality and river ecology?

The river quality is improved by using phytoremediation plants together with an Oxidation process to filter away the liquid pollution of Radobolja. These are helping improve the river quality as well benefit the ecology of the river corridor. They provide shelter and space for fish species, and more fish inside the river will also attract other fauna,

How can it improve the social structure in the neighbourhoods surrounding the Radobolja?

Because of the long stretch of the river it crosses several neighbourhoods, by providing new functions along the river and introducing a pedestrian only route along the whole river the river can act as a connector of the different neighbourhoods. Also its opening the river up to the people, providing new places to go to or adding value to already existing locations along the river.

The project is giving a new image to the river Radobolja and the designed interventions could have a big impact on the area connected to this river. I personally really hope that somewhere in the near future somebody steps up and acknowledge the beauty of this once so important river and restore it in a way that the people from Mostar have a river to be proud on again.

Reflection

Reflection on Paradise lost: Restoring urban river Radobolja.
written by Niels van Hasselt

Introduction

I chose this Lab because of the time and memory aspect and the big unknown of the Yugoslavian war. I started with the intention to really dive deep into the war narrative of the city of Mostar and use this narrative for my research and design. After the first weeks I already shifted my view from the war narrative to the bigger historical picture of the city. I looked into the contained beauty of the city, the lost beauty of the city and the hidden beauty of the city. And came up with a project about the lived experience of the place, in my case a river the Radobolja. I aimed to find balance between my rather personal research about phenomenology and the layered history of Mostar. I Used methods I never used before, and created a new structural way of working.

1 Relation research and design

I always thought research was not my strongest point, but I discovered that really enjoy doing research but I am not the best in keeping everything organised. Mostly during the timespan of a project I find a very strong historical image, this fascination is the start of the research and is mostly found back in the final design. In this project the fascination was already there at the very beginning. I never thought that the fascination I found at the start of the project could become such an important element for my final design.

I used the lived experience of the place to discover the river area of Radobolja. The way you perceive the landscape is a powerful tool, but hard to sell because everything is based on your own experience. Therefore it is really important to clearly explain what this lived experience is for u. I struggled to find a way to show

and explain this lived experience.

I choose a scenario planning method as my research mean. The method builds on different scenario's (Ecological, Rational, and Social) along the River. After finishing the three scenarios I looked for synergies and conflicts between the different scenarios. It was hard to find the right scale for the scenarios. At first is used the 1:10.000 scale to have a good overall look over the entire river area. After my P2 I found that the scenarios where getting much more general after a specific point along the river. This was mainly because of lack of information, and also less things happening along the river more upstream.

I tried to shape the lived experience also into a scenario. But I found that the weight of the lived experience was not the same of the other three scenarios. I decided to use the lived experience in a other way than a scenario but more as a second criteria for my river renovation plan. I used the episteme of Phenomonology as the base for the lived experience and tried to rephrase the lived experience from a scenario to something else.

After the P2 I realised two things. I could make the scenario planning method work better if I would do a deeper research on a shorter segment of the river. And that I should go back to capture more from the lived experience of the Radobolja .This resulted in a more detailed and more elaborated master plan. By using the scenarios to narrow down the design locations and use the lived experience as the connection between those design locations.

As said before the hardest part was to go from research into the design phase. It took me a long time to finally understand that the scenarios I created before as a tool to analyse the river where in fact already designs on their own. Using the process of creating the scenarios as research and the actual outcome of the overlaying of the scenarios as input for the design helped me understand the power of the use of scenarios.

The discovery of the three nature principle was a big milestone in the design process. The three natures gave more body to the 3 to be designed parks and connected the historical analysis to the specific locations. After finding out the middle design location was deeply connected with the history of the orchards of Mostar the link with the second nature was there. The other two design locations where after a little digging also related to the other natures (the garden and the wilderness)

2 Connection Studio and Track

The intention of the research and design studio 'Neretva Recollections: materiality of war, flowing memories and living archive' is to explore urban and landscape transformations of the Neretva River, the river banks and the city of Mostar started in the wartime between 1992-1996, and to translate these explorations in a design intervention. (Graduation Manual, 2019)

From Neretva is tasty shifted my focus to the tributary of the river: the Radobolja.

By focussing on this river my project is maybe more connected to the city of Mostar than the Neretva but in a different way. I use this case study as an example for the city. The city has a long history of trauma and war and can be named a post traumatic landscape. But there are spots in the city that are more distanced from this war narrative. The Radobolja river ends in the middle of the old town of Mostar, it is flowing through almost the entire city. The river had a long history and is used and abused for many ages. The river is a flowing memories and the catchment area of the Radobolja can be seen as a living archive. This makes the river a good subject for this design studio. Where other locations have a strong war narrative the strength of the Radobolja is that it was a constant element in the Mostar ages from the beginning til now, so the war is only a small part of the long history of the river. The river was a good starting

point for an interesting landscape design case, the Radobolja river is an urban river with a big potential for the city.

The chosen design methodology has its strong and weak points. The method of scenario planning is really useful when you don't have a lot of data. By creating the three scenarios the input can be a bit dense, but if you overlay the three you somehow can always come up with a conclusion and find interesting stuff. I found that for a part of my river analysis the information was quite dense but I could draw conclusions after the scenario overlapping. I need to say that after taking a smaller part of the river for the scenario approach and diving deeper into each scenario the results were also more deeper and elaborated.

3. Approach/Data collection

Starting with a precedent study was the best kickoff of the research I could have. After being inspired by the story of Hotel Ruza and the river flowing through it I shifted my precedent study from the hotel towards the river that was flowing through its hall. This study really helped me by forcing you to figure out a small piece of the puzzle of Mostar.

The language barrier was a hard one for me. The fact that I am not that good with different languages was really hard at the beginning. The combination of the Bosnian language and the hard to access data was a tough task to dive in. We shared as much information as we could within the group. Luckily there were enough people that could help us translate during the research phase and after. On site visit it was hard not to be able to ask questions in general to people that were just around or passing by. Mainly the first days of the trip were tough.

The second trip was more organised. Because of the desk analysis and the many readings I did I had a clear idea what to achieve in the second trip to Mostar. During my desk analysis I send over 10

emails to several instances in Mostar. After not getting any emails returned I decided during my second trip to just go to the offices and almost every time I got in touch with someone who could help me.

The second trip was all about the river walks, I would go to the site two times a day. The conclusion would be a movie that captured the lived experience of the River. I had 10 days with was more than enough, but forgot to take into account unexpected events. So I missed 2 days of filming through heavy rain, and one day through an unexpected field trip with the university of Mostar. I caught up my schedule by walking more the other days, but this will influence the results a bit. Because you will not look at things the same when you have been there on the same day a few hours before. Especially when the lived experience is your main research theme.

4. Relation with the wider , professional , social framework

The entire lab is a way to understand the post traumatic landscape of Mostar better. My project is a case study on the eco-social structure of an urban river. Lots of the challenges alongside this river are an example for rivers worldwide. There are many urban rivers with pollution problems, water-flow problems and so on. Therefore this project is an other example of an urban river with its strengths and weaknesses. It was very interesting to figure out the meaning a river can have in a city.

The scenario method is a very useful tool to quickly get a grasp on the research site. I made different iterations of the scenarios but the fact that they where there already from the beginning give me a kickstart in understanding the landscape. I will definitely use this method later on in the field.

5. Ethnical dilemma

In my design I used the 3 natures principle to tell the story of the Radobolja and its historic importance for the people of Mostar and its city. I tried to have an evenly deep research on all the time periods Mostar has known. The hardest part for this research is that how further you dive back in time the more sparse the information is. And because most of the historical data is extracted from old letters, notes and stories you need to stay sceptical about the information you achieved. In my research I tried to tell a diverse story of the River Radobolja and include all its historic importances from all the different religions and ethnical backgrounds. The design of the three gardens is based on what I thought would be the best historical connection to the place, together with my lived experience of that place. Nevertheless I tried to tell the multi-layered story of the Radobolja river and its surroundings.

I found it really hard to conduct interviews. When I mentioned particular aspects of my plan I saw people shine. I found it hard to tell them that I was doing a graduation and that it was a fictional plan. After conducting more interviews I found out that because the city of Mostar is often used as a case study for several research purposes, if I mentioned that I was doing research that the people quickly thought that this is another plan to good to be true. So I went from being transparent to slightly less transparent when it comes to the background of the stories. In this way I could get the maximum out of my interviews.

6. Conclusion

I learned from my graduation to deal with data in native languages. How to do research in a country with a limited collection of data. That organising is the most important element of the entire graduation process, if you keep everything clear and organised it will save you a lot of work in the end. And to have a structured approach to save yourself from doing things that are not needed in the end.

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Vodenica

Staro mjesto moje! Pod sjenkama grana
Radobolja mrmolja, vere se i prska;
Mrke hridi streme visoko sa strana
Pune gustih zova, smokava i trska.
Sve je isto, staro... Samo, kao prije,
Ne čuje se hitri točak da udara;
Kô bol jedan što se u dnu duše krije,
Ostavljena ćuti vodenica stara...
Kroz vidnjaču malu, gdje u suhoj travi
Samo studen gušter polagano šušne,
Ne javlja se mlinar sa šalom na glavi,
Niti vidim one oči prostodušne.
Mnogo li sam puta ja ovdje, u hladu,
U večeri letne na odmoru bio,
I, dižući oči na mlinarku mladu,
Iz vedrice, žedan, hladne vode pio!
Bog zna gdje je sada?!... Radobolja mrmolja
Puna grmjelica, srebra, adidača...
I dok zlatno veče pada povrh grmlja,
Nakrivljena ćuti vodenica stara.

-Aleksa Šantić

Water mill

The old place. Under shadows branch
Radobolja mumbling, faith and sprays;
Chartreuse umber cliffs rise high on the sides of the
Full of lush tree, fig trees and reeds.
All the same, old ... Just as before,
I don't hear a swift wheel to attack;
Kô pain one which is at the bottom of the soul,
Left to hear the old water mill ...
Through a small vidnjaču, where in dry grass
Just chill lizard slowly šušne,
Not picking up Miller with a scarf on her head,
Nor do I see those eyes prostodušne.
A lot of times I'm here, in the shade,
The evening flight was on vacation,
And, raising his eyes to the young mlinarku,
From vedrice, thirsty, cold drinking water.
God knows where he is now?! ... Radobolja mumbling
Full grmjelica, silver, adidača ...
And while the Golden evening falling on top of the bushes,
Lopsided shut up old water mill.

-Aleksa Šantić

