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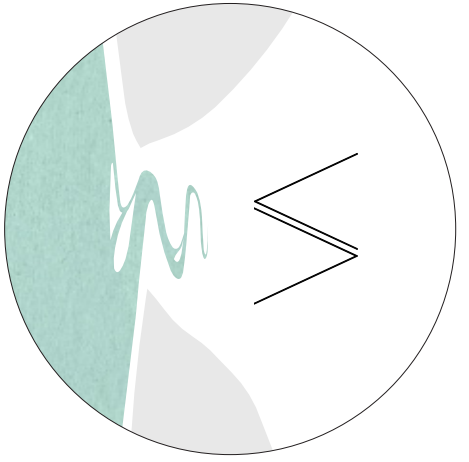

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Diplomarbeit

The Vjosa / Aoos River Region
Part one: Greece

ausgeführt zum Zwecke der Erlangung des akademischen
Grades eines Diplom-Ingenieurs unter der Leitung von

Univ.Prof. Dipl.-Ing. M.Arch. (AA Dist) Tina Gregoric Dekleva
E253/1, Abteilung für Gebäudelehre und Entwerfen

eingereicht an der Technischen Universität Wien
Fakultät für Architektur und Raumplanung von

Vlad Popa
0927762

Wien, Dezember 2019

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ABSTRACT

The Vjosa (Albanian) or Aoos (Greek) is Europe's last wild, free-flowing river. Apart from the first 10 km, it is completely undisturbed by dams and hydropower plants and can flow freely from its source to the mouth, forming an incredibly dynamic and impressive river system, that is without par in Europe. With plans for the edification of 2796 hydro power plants in the Balkan Peninsula, 38 of which are located on the Vjosa and its tributaries, this natural heritage is in imminent danger.

This diploma is aimed at offering an alternative to the use of the river purely as a source of energy. Based on a thorough analysis of the river region and its potentials we propose a regional strategy that offers specific impulses for a sustainable development of the region.

As a result, six architectonic interventions spread out across the entire region and embedded in a newly conceived Vjosa/Aoos hiking trail, highlight its unique natural beauty as well as local features of the region.

Die Vjosa (albanisch) oder der Aoos (griechisch) wird als der letzte Wildfluss Europas bezeichnet. Fast gänzlich ungestört von Dämmen und Wasserkraftwerken kann er von Quelle bis Mündung frei fließen und bildet somit zusammen mit den Zuflüssen ein unglaublich dynamisches und beeindruckendes Flussystem, das in dieser Form in Europa einzigartig ist. Dieses Naturerbe ist mittlerweile durch den Bau von 2796 Wasserkraftwerken in der gesamten Balkanregion akut bedroht, 38 davon sollen in den nächsten Jahren an der Vjosa entstehen.

Ziel der Arbeit ist es, ein Alternative zu der geplanten Nutzung des Flusses als reinen Energielieferanten darzustellen. Basierend auf einer umfassenden Analyse der Flussregion und deren Potentialen, entsteht eine regionale Strategie, anhand derer gezielte Impulse für eine nachhaltige Entiwcklung gesetzt werden können.

Sechs konkrete architektonische Enwtürfe, eingebettet in einen neu konzipierten Vjosa/Aoos Wanderweg, sollen sowohl das einzigartige Naturerlebnis als auch kulturelle und lokale Besonderheiten in den Vordergrund rücken.

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PREFACE

The aim for our thesis was to develop a project from a thorough regional analysis with a strong local influence. We wanted it to be bottom-up, grown from discussions, influenced and steered by the people who will use it. It should become a project that connects to real places, real people and real stories.

Having decided the general direction of the project, we had to find a region that we would work on. Our starting point was the idea of finding an area that we could relate to through our cultures, passions and individual background. Vlad remembered an area which he often visited in his youth located in the eastern-most part of Romania, the Danube delta, where the Danube enters the Black Sea; a vast natural park, mostly untouched due to its limited access and only scarcely used for tourism, with a lot of untapped potential. Simultaneously, it triggered Basilis' passion for fly-fishing; the endless canals, streamlets and tributaries of the Delta. The thought of a river that connected Vienna to so many other cities and countries, across several borders, fascinated us. But the sheer size of the river seemed overwhelming, simply too big for our cause. However, a river was a logical starting point for our project. Rivers usually offer a huge variety of landscapes, change seasonally, connect settlements, village and cities and are central to many human activities. They host everything that is vital for the survival, development and growth of a region. Rivers are and have always meant life.

Combing through our memories and experiences, we remembered a specific river that we had heard of from different sources, scientific journals, environmental activists and the outdoor and fly-fishing community; The river Vjosa, or Aoos in Greek, the last free-flowing river in Europe.

Basilis Neururer and Vlad Popa

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I.

Introduction

Meaning of Rivers

An Introduction

'I do not know much about gods; but i think that the river is a strong brown god – sullen, untamed and intractable."
T.S. Eliot in Four Quartets

As a source of both beauty and destruction, rivers have always found a place in literature, poems and paintings. They are present in every human landscape, drawn on every map and woven into every folklore tale. Even the Book of Genesis describes a river watering the Garden of Eden, humanity's first home, that separates into four headwaters, the Pishon, Gihon, Tigris and Euphrates.[1]

Throughout history rivers often played an important role as barriers, physical or imaginary, or a connecting thread. They are sources of food and water and inevitably connected to human settlement. As the architecture critic and historian Lewis Mumford has observed "all the great historic cultures ... have thriven through the movement of men and institutions and inventions and goods along the natural highway of a great river"[2], linking the success of civilizations directly to the successful management of water. Their importance in everyday life has made them present even in our language. Metaphorically 'crossing the Rubicon' means passing the point of no return and refers to Caesar crossing the small river in order to conquer Rome.

The significance of a river cannot be disputed, but what exactly is a river?

From a scientific perspective, rivers start at mountain peaks or hilltops, where snowmelt and rainfall wash through underground rivulets to form mountain streams. As they descend, tributaries and groundwater add their volume to form the actual rivers. Cutting through the mountains, they flow from valleys into plains, where they start to meander and braid, seeking the path of least resistance. Eventually they arrive at the mouth, where they join a bigger water body and their sediments wash out to form the most biologically productive parts of the river – the nutrient rich deltas. Their waters evaporate and they enter the next stage of the hydrological cycle, manifesting as clouds and descending back to the mountains where they originated from.[3]

The new encyclopedia Britannica defines a river as a "flowing water in a channel with defined banks".[4] This would mean that a river stops to exist as soon as it dries out, yet we still call them rivers during droughts. The meaning of a river is thus much more complex, it is dynamic and ever changing, difficult to force in between two simple lines, as even the lines are constantly moving according to the amount of water it carries.

I Map of Europe's 135 million rivers

1 Mauch C. and Zeller T. (ed. 2008). p.1
2 Coates P. (2013).
3 McCully P. (2001). 1st chapter
4 Encyclopedia Britannica vol.26 (2007). p.843

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River Management

Historic overview

Throughout history, humanity has always sought to take control of rivers and their ever changing lines, in an attempt to keep them at bay and harness their potential. Ever since the earliest 'hydraulic civilisations"[5] started inhabiting the banks of rivers such as the Nile or Indus, and regulating the water flow for the benefit of agriculture and to protect against floods, there have been constant innovations in dealing with flowing waters.

Since the 17th century, scientific methodologies started influencing the works of river management. A seminal book on the topic was 'Travaux de Rhine', published in 1820 by the French engineer M.Fontaine, which set guidelines for regulating the Rhine in France. One of the rules stated that: "No stream or river needs more than one bed" and this thinking greatly influenced the course of action by hydraulic engineers at the time.[6] With the dawn of industrialization in Europe, new tools allowed for river beds to be increasingly straightened and turned into canals to protect our cities from floods and sediment erosion, as well as to facilitate navigation. Previously inaccessible land could be laid dry and reclaimed for agriculture or construction of new settlements. By the beginning of the 20th century, most of the large rivers worldwide had been regulated. The subsequent development of new dam-building technologies meant that complete control of rivers was possible.[7]

Rivers have always played a major role for socio-economic development. While fishing has proven a constant source of food and flowing water has enabled the transport of people and goods, the river water has been essential for domestic, agricultural and industrial purposes. Today, hydropower plants are able to provide entire countries with electricity. Due to the intense use and regulation applied to the global river network, talk of efficient river management has become an important topic. More economically developed European countries, with abundant alternative energy sources, have understood the ecological value of a more natural river state, as well as the growing desire of their citizens to connect more with nature in an increasingly urbanised environment. In response, several de-damming projects have been put into motion and some river sections have been fully renaturated. Landscape architects and urban planners have tried to find solutions to enable leisure and recreation along urban rivers and their alluvial corridors by reverting the functional, regulated river channels to a more natural state. Less developed countries, especially those with abundant river networks, see in hydropower a huge potential for economic growth and are increasingly open to dam construction projects.

Our dependence on hydropower as sustainable energy source has made dams a common feature of European rivers. They obstruct the flow and trap sediments but also create new lakes and spaces for recreational use. This development has changed the appearance of our rivers to such a degree, that we have become incapable of imagining an unregulated river. When we see the open floodplains of the Tagliamento in Italy, we get a glimpse at what rivers and riverbeds used to look like. Although such sights have become scarce in Europe, they still exist in the Balkan Peninsula, which is rightfully known in the community of fly fishermen, kayakers and hikers as the 'Blue Heart of Europe'.[8] With an abundance of wild rivers, clear streams, enormous gravel beds and deep gorges, the Balkan has become a beloved hotspot for outdoor enthusiasts.

5 Wittfogel K. A. (1956). p.152–164
6 Petts G.E. (1999).
7 Gore J.A. and Petts G.E. (2018).
8 Riverwatch (2019). 'Campaign'.

I Plan for the regulation of the Danube river in Vienna around 1931

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River Activism

The movement against hydropower

In the last couple of years organisations such as Riverwatch have been working relentlessly to raise awareness about the vulnerability and ecological importance of the Balkan rivers and have been fighting to stop the building of dams in the region. One of these organisations, an NGO called 'Balkan River Defence', arranged a series of kayaking tours, with participants from all over Europe, with the purpose of exploring these last free flowing rivers. During these tours they have organised protests in order to change the mindset of politicians, held workshops and presentations for the locals to communicate the challenges and find solutions together, and even gathered volunteers for river cleanup actions. A documentary presenting their efforts is currently being shown at film festivals around the world and has already received numerous awards.[9]

Every movement needs an example which epitomises its ideals and in the Balkans one river stands out as such. Vjosa, or Aoos, as it is named on Greek territory, with its intact river system is presented as one of the last wild rivers of Europe. At the same time, surprisingly little information exists about it. This has started to change in the last couple of years, with several local and international groups of scientists noticing the potential and conducting research on its ecosystem. As a result, several new papers have been written on the subject, improving our understanding of the river. An additional expedition, 'Scientists for Vjosa', was conducted in 2017 together with 'Riverwatch', 'EuroNatur' and 'EcoAlbania' and 'Balkan River Defence', in response to the imminent dam projects at Poçem and Kalivaç. In total, there are 38 hydropower plants foreseen for the Vjosa catchment area, eight of which would be built in the river basin itself. The initiative focused on the negative environmental impact dams would have on the ecosystem and concluded that maintaining such a dynamic and natural river system, as a base of research, would be of utmost importance as Europe does not possess any other river with these qualities. They have also highlighted the significance as a national heritage as well as the potential for future developments such as tourism, and promoted the idea of a 'Vjosa National Park'.[10] 'Scientists for Vjosa' was presented on the site of Patagonia, the well-known American clothing brand which focuses on sustainability and environmental protection.[11] As a means of spreading the image of the Vjosa, Patagonia has even developed a clothing collection named after the river and sponsored a documentary which presents its story and the imminent danger that hydropower poses.

Other respected broadcasters like Arte and ORF filmed short documentaries of their own depicting the condition of the Vjosa. More recently the Hollywood celebrity and environmentalist Leonardo di Caprio reposted a video on his Instagram account, originally shown in an article written by the New York-based Associated Press news agency, that criticises the dam projects planned along the Vjosa.[12] News of the river is starting to spread in a larger international context.

The pristine image of the river and its ecological significance make for a good story and turn it into the perfect poster child for the movement against hydropower, but what are the alternatives? Could the Vjosa evolve from a symbol to a catalyst for development in the region?

9 Balkan River Defence (2019).
10 Riverwatch (2019). 'Vjosa River'
11 Schiemer F. (2017).
12 Becatoros E. and Flesher J. (2019).

I 'Vjosa, no dams!', where over 150 participants gathered on the banks of the river to attract the attention of the Albanian prime minister Edi Rama

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II.

Water

An analysis of the river

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"The Viósa pours through a narrow gorge in the rocks at the foot of Mount Kúdhesi, and above this dark outlet rise the detached and finely-formed mountains of Trebushín and Khórmovo. Immediately below the spectator is the great extent of stony river course, along which the Viósa, no longer confined in its straitened limits – its dark waters sparkling like so many winding threads on a dazzling white ground – rushed in broad freedom, and many-channeld, to the sea."

Edward Lear during his travels in 1848

The Vjosa/Aoos

An introduction

In order to better understand the meaning of the Vjosa/Aoos, we first have to clear the disparity regarding its name. The Greek appellation 'Aous', or 'Aoos' might be derived from the Indo-European root au(e)-, which means to flow[13], or from an ancient Greek dialect, in which 'aa' signifies water. The Albanian Vjosë/Vjosa, as it is referred to in present times, is derived from 'Voioussa' - which was said to mean 'a never failing current'. This form of the name was mentioned by well-known scholars during the 19th century, such as Nicolae Iorga or Conrad Malte-Brun, in their descriptions of the Ottoman Empire.[14] The name of the river might also be related to 'Băiasa', the Aromanian name for the village of Vovousa[15], which is the first settlement along the river's banks. For the purpose of simplicity, we will mention the river as Aoos, on the Greek side and Vjosa on the Albanian side of the border.

The Aoos emerges from the springs reservoir located close to the village of Metsovo, in the northern-most province of Greece, Epirus. In this reservoir, the Aoos Springs dam was built in 1988 and concentrates several small streams into a large artificial lake.[16] From there on, the mountain stream starts its journey again, at this point not much larger than a hand span, and winds its way down, past the stone village of Vovousa. It passes through the valleys of the Vikos-Aoos National Park, past the city of Konitsa where it is joined by one of its main tributaries, the Voidomatis, and across the border to Albania. At the border, it unites with another large tributary and grows substantially in size. The Vjosa continues on past the mountains of southern Albania through a more urbanised landscape and reaches Permet, the largest city along the river. By the time it arrives at Tepelena, it flows into an almost 1km wide riverbed; the uniform channel splitting into little branches and braiding its way through the floodplain. The river continues on through hillsides and flatlands, where it waters extensive agricultural fields between Fier and the coastal city of Vlora, before it finally reaches its estuary in the Adriatic Sea. From the total length of 272 km, approximately two thirds of the Vjosa/Aoos flows through Albania and one third through Greece.

When meeting the river for the first time, it's the beautiful turquoise water that catches the eye. The wild landscapes surrounding it are equally impressive, but when confronted with the enormity of the floodplains at Tepelena or watching the sun set along the wide braids at Byllis, from the hill where the ancient Iliryan ruins still lie, one has to take a moment and reflect upon the surreal beauty of this river.

From a scientific point of view, the context of the river offers a unique opportunity of study. "The floodplains of the Vjosa river in the south of Albania count as one of the most magnificent riparian ecosystems of the Balkan peninsula, standing out due to their natural hydromorphodynamic fluvial processes. A broad main stream with anabranches, open gravel bars and islands, and pioneer vegetation, as well as bushes of willows, poplars and tamarisks give Vjosa's floodplain an extraordinary distinction. Combined with large grasslands and small-area softwood forests, they build the vegetation mosaic along the river".[17]

13 Pokorny J. (1959). p.78
14 Malte-Brun, C. (1827). p.105
15 Lambridis I. (1870).
16 Leontaritis A.D.1 and Baltas E (2014). p.3
17 Rössler N., Egger G., Drescher A. (2018). p.1

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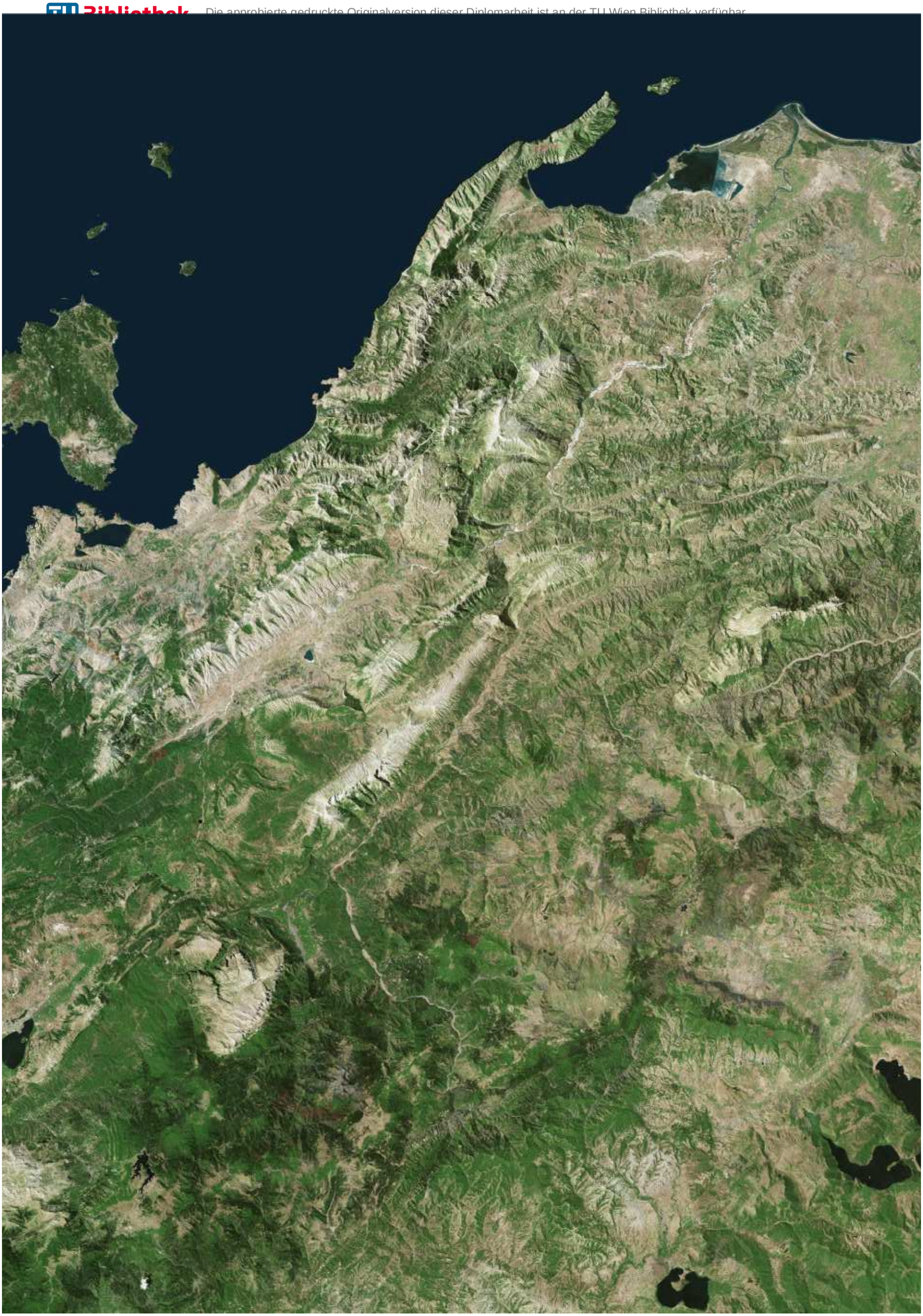


The Vjosa/Aoos

The river in numbers

RIVER HARD FACTS

Length 272km

Width up to 2km

Elevation 1300m

Av. discharge 203 m³/s

Bridges 31

TRIBUTARIES

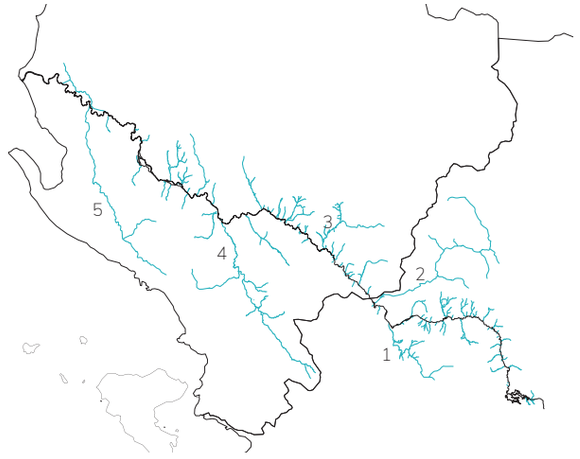
1 Voidomatis 15 km

2 Sarantaporos 50 km

3 Langarica 20 km

4 Drinos 84km

5 Shushica 80 km

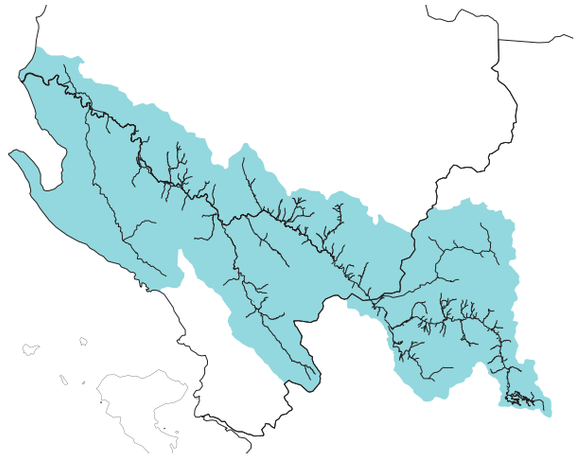


RIVER BASIN

Basin size 6520km²

The basin of the Vjosa/Aoos includes large parts of southern Albania and most of the Pindos mountains.

It is home to many communities of species that have largely or completely disappeared from European river systems. Many of them are endemic to the Balkan Region.



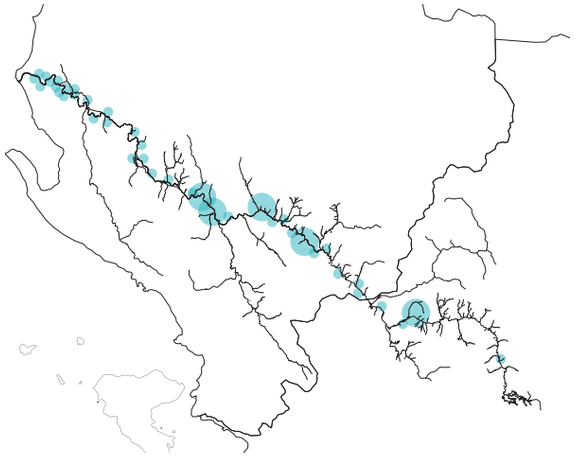
SETTLEMENTS ALONG THE RIVER

Over 40 settlements line the river banks from source to end.

4 of them are located in Greece, in the upper course of the river.

As the river progresses, the valley widens and the density of settlements increases. The highest density is found in the lower course of the river.

The largest of these are Konitsa in Greece and Permet, Kelcyra, Tepelena and Memaliaj in Albania.

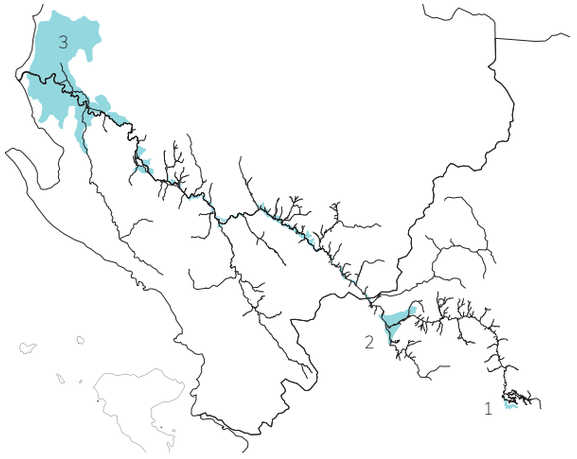


AGRICULTURAL FIELDS

1 Aoos artificial lake
After the first 10km of the river an artificial lake was created for the irrigation of agricultural fields and grazing areas.

2 Konitsa plain
The plains in front of Konitsa are the first location where the river is extensively used for agriculture. From this point until the river estuary, fields line the river banks.

3 Mizeqe plain
The so-called “Albanian granary” are the vast fields of farmland that surround the river close to the delta. They include about 1350km² of fields that mostly produce cotton and grain.



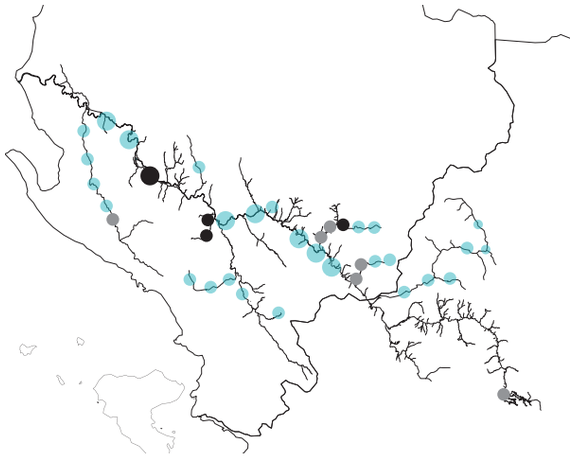
HYDROPOWER PLANTS

38 hydropower plants are projected along the entire length of the Vjosa/Aoos.

6 of them are currently planned in Greece, one - the Pigai large Dam - is already in operation.

31 are planned in Albania, 8 of which are located on the main river, the rest on its tributaries. 4 are completed and construction for another 4 has already started.

- Planned
- Under construction
- Existing



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River Comparison

Graphical analysis

In the never-ending quest for electric energy, humanity came across the potential of hydropower as a renewable form of production and started damming rivers all over the planet in order to harness it. This process brought with itself a massive change of the landscape surrounding us. Everybody knows the size of artificial lakes and the imposing appearance of the dams keeping them at bay, as well as the trickle that follows where once there was a river. These artificial lakes submerge large areas of land and their vastness fills up those former valleys and canyons which flowing water took ages to shape. We seem to have forgotten how rivers used to look in their natural state, and this is one of the reasons the Vjosa leaves its visitors in a state of awe.

In order to visualize the effects of anthropogenic interventions we conducted a graphical analysis, in which we compared the Vjosa/Aoos to 6 other rivers from the Balkan Peninsula, with different lengths and degrees of regulation.

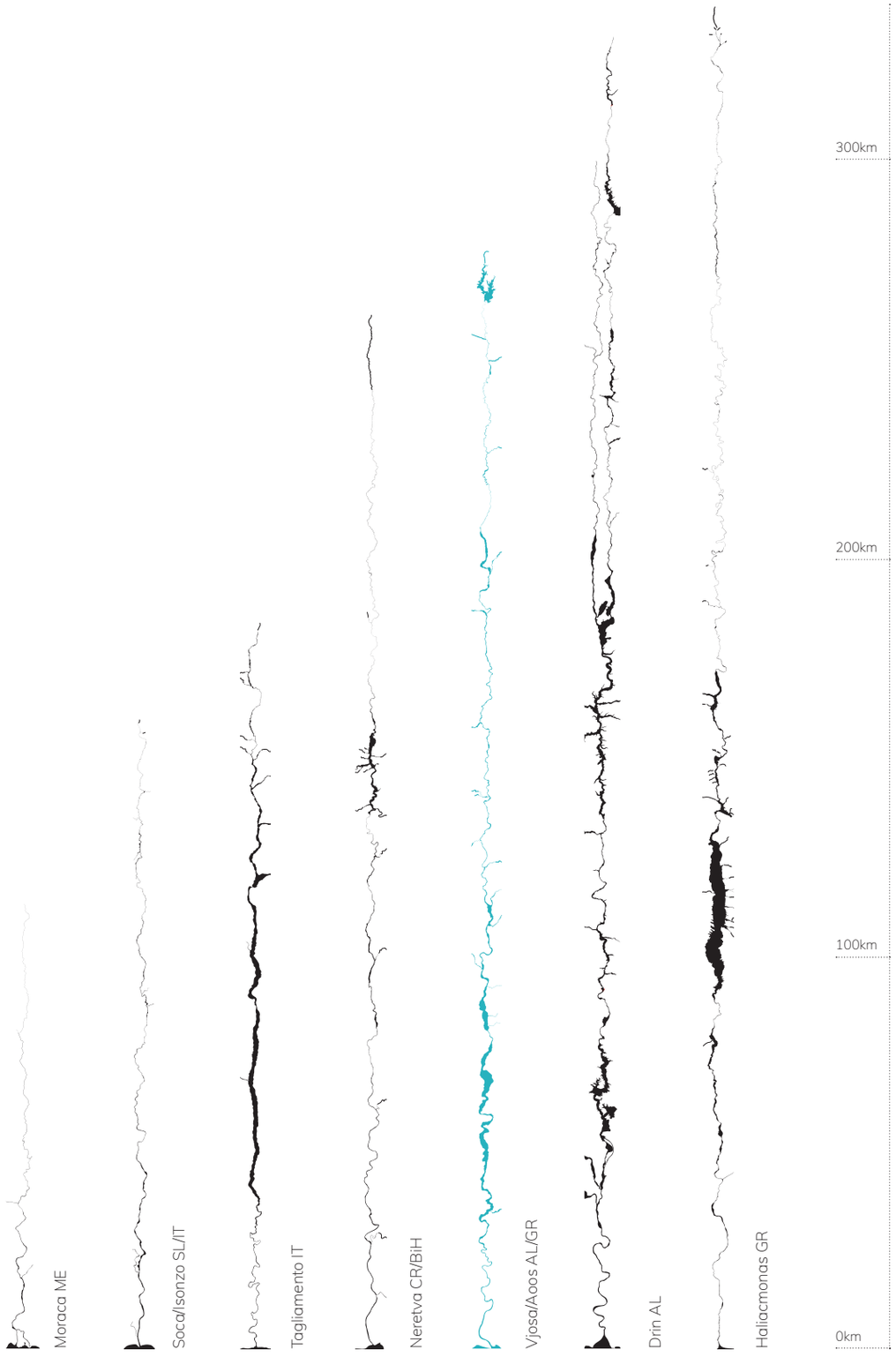
As it can be seen in the adjacent diagram, the Vjosa basin tends to become narrower in a mountainous landscape, before entering a flood plain where it can naturally expand and the water discharge becomes gradually larger, from one measuring station to another.[18]

By comparison, the Drin, a river of great significance for the Albanian economy as the 7 hydropower plants built along it produce most of the country's electricity[19], human regulation caused drastic changes. As described by Ullrich Schwarz in his article on the Drin "The river turns from highly dynamic braided river sections with huge gravel bars and islands into very slow flowing to stagnant (during low water period) reservoirs".[20] This means that the natural shape of the river was altered and it is now widest where it should be narrow.

Another river we looked at is the Haliacmon, the longest river in Greece that springs near the source of the Aoos but discharges into the Aegean Sea. The middle section of the river was transformed into the artificial lake Polyfytos, one of the largest in the country and is clearly distinguishable in the diagram.

Neretva, Tagliamento and Moraca, all discharge in the Adriatic Sea, as well as Soca, a river whose upper part is experiencing a boom in tourism and bears many similarities to the Vjosa/Aoos.

By retracing the watercourse from source to mouth it became apparent how rivers react to obstacles or changes in landscape, either manmade or natural. Certain river typologies vanish completely where water regulation is the strongest, but make room for new bodies of water- big artificial lakes that are used for irrigation and recreational uses while also causing great changes in fauna and flora. Comparing these rivers next to one another allows for river regulation and human intervention to become visible.



18 Leontaritis A.D. and Baltas E. (2014). p.3
19 Wikipedia (n.d.). 'Drin River'.
20 Schwarz U. (2009). p.4

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River Profiles

Topographical analysis of the Vjosa/Aoos

The following pages contain an analysis of nine different topographical situations which emerge along the Vjosa/Aoos, each representing different relations between the water surface, the riverbed and the surrounding landscape.

Valley: In the upper course, near the headwaters the river channel is mostly straight and has a steep inclination. The terrain here is rocky and similarly steep, with a tendency of landslides, thus the river shores are hard to access. During floods the velocity of the water and the coarse sediment carried along make these rough sections extremely dangerous.

Gorge: The river cuts deep into the mountains, creating steep walls that make it impossible to access this river section on foot. The mountainous landscapes, where gorges are typically formed, allow for spectacular views of the river from the distance.

Gorge opening: The walls of the gorge gradually widen when opening up to a valley, allowing to walk in between the steep rock formations and the water course.
Confluence: The points where tributaries meet the main river mostly represent natural barriers and one must look for a bridge to cross over to the other side. Strong currents are formed downstream because of the two bodies of water combining their flows.

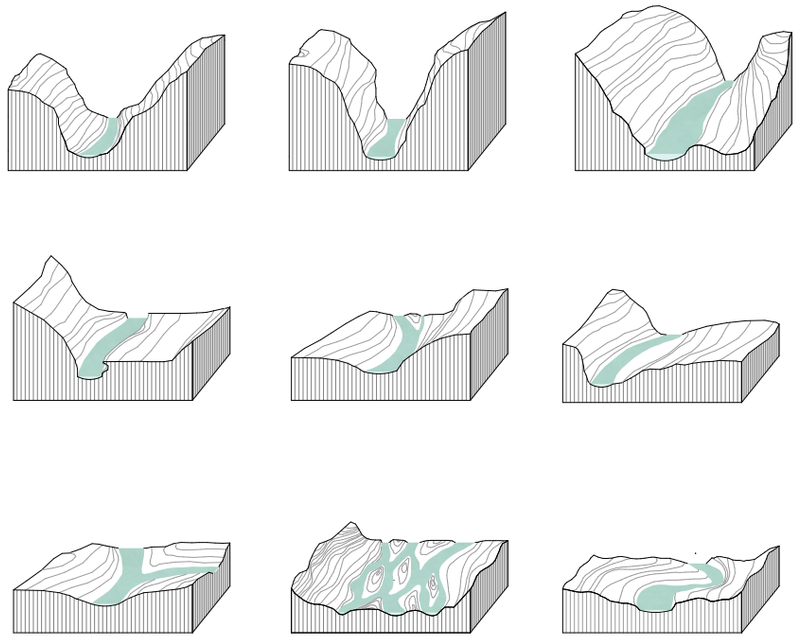
Conglomerate canyon: These environments, found especially in the middle part of the river where it flows through wide valleys or flatlands, are formed by natural consolidation of mixed, harder sediment. Here the river flow is confined between stepped walls and not directly accessible, although it is possible to reach the ledge of these canyons and watch the water from above.

Outer bend: Typical of the meandering middle section, the outer bends are more vulnerable to erosion due to the higher river energy and velocity. On the outer bends, the river encourages the forming of steep cliffs (cut banks).

Inner bend: On the other side of a meander, the stream is slower and deposits the eroded material, creating gentle slopes and large sand or gravel banks.

Braided river: Water flows freely over a broad plain with a medium gradient. The water body splits into multiple streams or little rivulets depending on the season. In summer the river bed is mostly dry, with only a few streams meandering through the valley, while in times of floods the whole width of the riverbed can be filled.

Meandering river: As the inclination becomes gentler the river starts to meander slowly through the landscape, in a concentrated line, folding into itself and creating a snake-like pattern. With a very steady flow, it creates an optimal living space for animals and a variety of fish species. Meandering rivers are exclusively found on unregulated segments of the river, usually surrounded by dense vegetation and a natural landscape.



How accessible is a river at a certain point? What activities are possible? How do floods influence the river? How does the river and the landscape relate to human scale? The graphics are an attempt to understand these questions, as basis for possible architectural interventions

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River Profiles

Vjosa/Aoos upper course

1 VALLEY (VOVOUSA)

Riverbed: 24m wide, average water level <1m

Accessibility: reaching the water possible (difficult, rough and dense vegetation, steep terrain), walking possible along narrow gravel banks, crossing over possible over large rocks scattered through the riverbed

Activities: fishing, kayaking (class IV difficulty), stone collecting

2 GORGE (VRYSOCHORI)

Riverbed: 20m wide, average water level <1m

Accessibility: reaching the water not possible (steep walls)

Activities: kayaking, rafting (class IV difficulty, no exit points)

3 GORGE OPENING (KONITSA)

Riverbed: 40m wide, average water level 1-2m

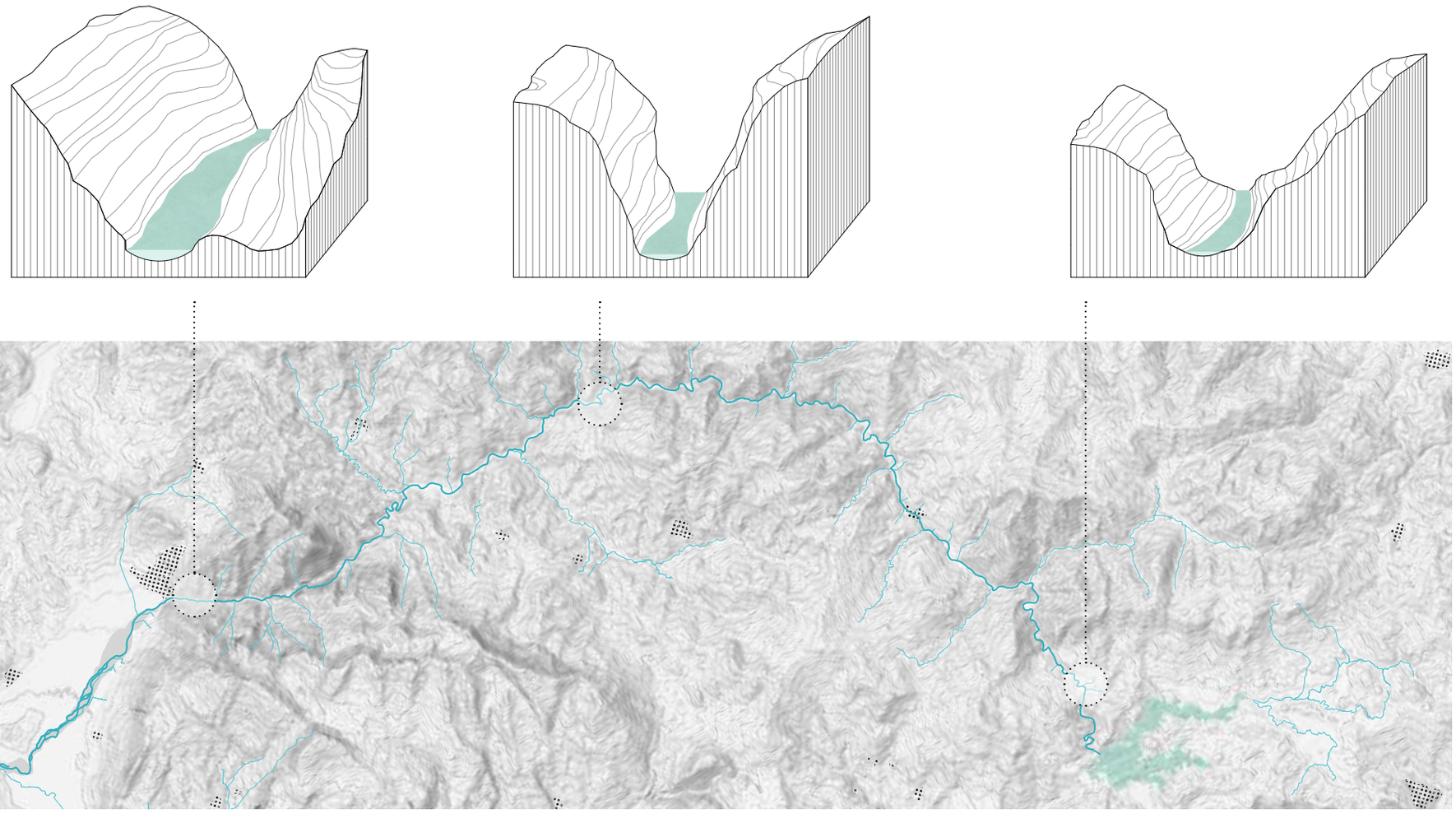
Accessibility: reaching the water possible, walking possible along the steep walls

Activities: swimming, kayaking, rafting (class III difficulty), fishing

3

2

1



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River Profiles

Vjosa/Aoos middle course

1 CONFLUENCE (GR-AL BORDER)

Riverbed: 230m wide, average water level 1-2m

Accessibility: reaching the water possible, walking possible along narrow gravel banks, crossing over not possible without a bridge

Activities: kayaking, rafting (class II difficulty, strong currents), fishing (very good spot), stone collecting

2 INNER BEND (PERMET)

Riverbed: 80m wide, average water level 1-2m

Accessibility: reaching the water possible, walking possible along large gravel banks

Activities: swimming (very good spots), kayaking, rafting (class II difficulty), fishing, stone collecting, camping

3 CONGLOMERATE CANYON (PERMET)

Riverbed: 30m wide, average water level >2m

Accessibility: reaching the water not possible (ledge)

Activities: swimming, cliff diving, kayaking, rafting (class II difficulty), fishing

3

2

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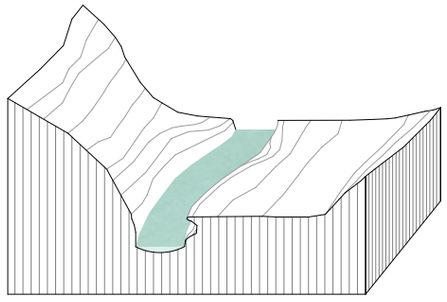

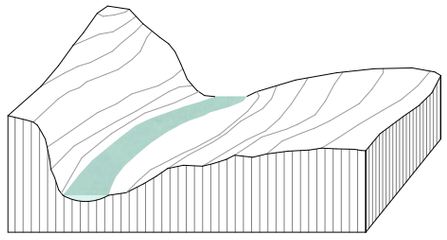

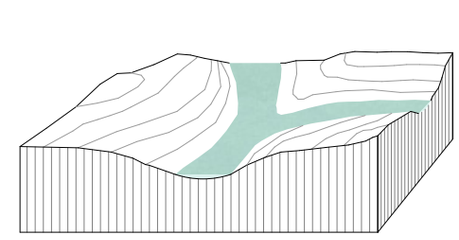

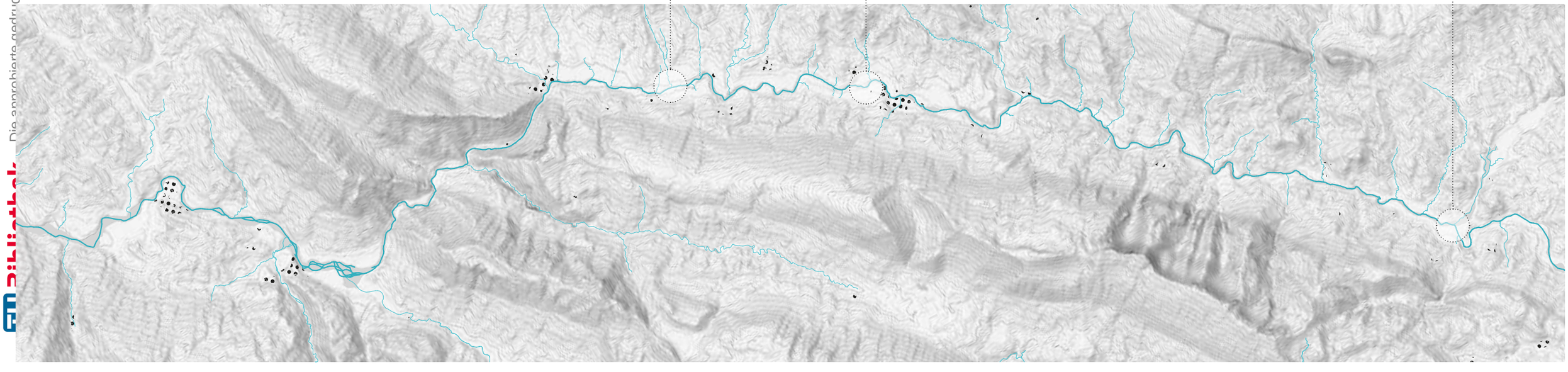

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River Profiles

Vjosa/Aoos lower course

1 OUTER BEND (MEMALIAJ)

Riverbed: 120m wide, average water level >2m

Accessibility: reaching the water not possible (steep cliff)

Activities: swimming (dangerous, strong current), cliff diving, kayaking, rafting (class II difficulty), fishing

2 BRAIDED RIVER (KALIVAC)

Riverbed: 900m wide, average water level 1-2m

Accessibility: reaching the water possible (depending on water level sometimes the entire river bed may have to be crossed to reach the water), walking possible along large gravel banks

Activities: swimming, kayaking, rafting (class II difficulty), fishing, stone collecting

3 MEANDERING RIVER (DELTA)

Riverbed: 240m wide, average water level >2m

Accessibility: reaching the water possible (approach difficult, wet plains and thick underbrush), walking along river partly possible

Activities: swimming, kayaking, (class II difficulty), fishing (very good spot)

3

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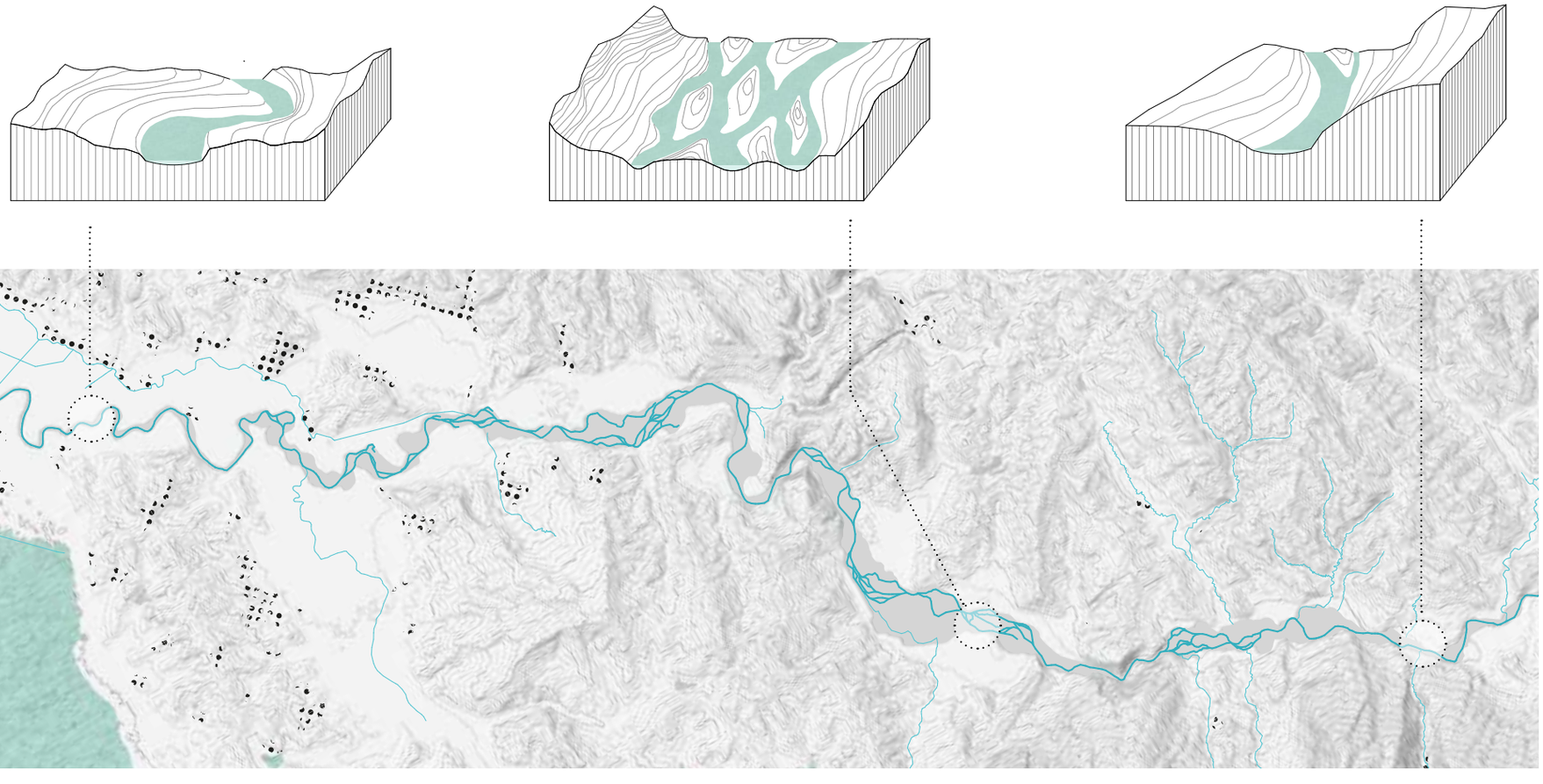

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River Morphology

Over time and seasons

Changes in river morphology of the Vjosa at Tepelena over a four year time period

Top: September 2019

Bottom: August 2015

Seasonal changes of the Vjosa at Tepelena between autumn and spring

Top: October 2018

Bottom: March 2019

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III.

Land

An analysis of the river region

Historic Timeline

From Antiquity to the Ottoman Empire

The history of southern Albania has since ancient times been intertwined with that of Epirus and Greece. Today you can find Illyrian and Greek ruins scattered around the region and most of the locals speak Greek as second language while Albanian shepherds roam the Greek mountains. To fully understand the connection between the two cultures and what role the river played, one must look back at the history of both countries.

The beginning of Albanian history is still largely disputed, although it is generally accepted among historians, that by the 7th century BC certain tribes sharing a common Illyrian Language had settled into the territory of the modern state of Albania. Illyrians are described as the tribes who at one time occupied much of the Balkan peninsula as far north as the Danube. Whether Greeks or Illyrians inhabited much of the southern region of Albania is to this day a very controversial issue. During this time, Greek settlers (Molossians) and traders established the first colonies in the south, today known as Durres, Butrint and Vlora (Apollonia), that developed trading links with the tribes further inland.[21] After the roman occupation in 168 BC and the splitting of the empire in 395 AD southern Illyria became part of Eastern Roman Empire and the Eastern Church.

In the upcoming centuries, the indigenous tribes were regularly attacked by Slav raids and by the end of the 10th century the entire central Balkan region became the scene of conflict between the Bzantines and the Bulgarian tsars. By then, the Illyrian tribes were already known to their neighbours as Albani, with their own language.[22] In 1018 the Bulgarians were defeated close to Berat and the Byzantines could reestablish their rule over the Albanian-speaking regions. Following the religious schism in 1054 the Albanian regions were divided into a Catholic north and an Orthodox south, each respectively with Latin and Greek as main language.[23] After the sack of Constantinople in 1205 by Christian crusaders, most of the coastal area of southern Albania fell to Venetian rule, which had previously established important trading posts along the coast. Meanwhile the Despotate of Epirus was founded and established its rule as part of the Byzantine Empire over Albania and northern Greece until the beginning of the Ottoman rule in 1479.

For around five hundred years the Balkan Peninsula, as well as Greece, was governed, to varying degrees, by the Ottoman Empire. During their rule many Albanians throughout the country converted to Islam due to political and financial benefits or to pursue a carrier in the military or government, however the south of Albania largely remained orthodox. When the power of the Ottomans started to decline in the 18th century, Ali Pasha of Tepelena established an independent region with Ioannina as its capital, which he ruled with renowned brutality until his assassination in 1822.

Up until the First World War, the river never played the role of border, but was always part of a greater geographical region. This led to the cultural and religious similarities throughout the whole river region that we can experience today.

Ancient Illyria and Epeiros, until 27 B.C.

Byzantine Empire, 27 B.C.

Bulgarian invasion, 880 A.D.

Despotate of Epirus, 1204

Ali Pasha's domain during Ottoman Empire, until 1822

21 Vickers M. (2005). p.1
22 Hammond N. (1992). p.39
23 Vickers M. (2005). p.3

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Historic Timeline

The 20th century

Following the First Balkan War and the Treaty of London in 1913, the current borders were defined, leaving Greek and Albanian minorities on both sides in foreign territory. Part of the Greek population based around Gjirokaster refused to be incorporated into the Albanian state and promptly declared their independence as the autonomous Republic of Northern Epirus, which remained in Greek hands until 1923.[24] When Albania was occupied by Italian forces in 1939, Greece military pushed back and recaptured northern Epirus again until the arrival of the German troops in 1941. After the Second World War, another tug of war erupted around the region, when the Greek nationalist resistance movement laid claims on the territories around Gjirokaster, but they were driven back for the final time.[25]

In the aftermath of the wars, the communist Enver Hoxha quickly rose to power in Albania and ruled the country with an iron fist until 1985. Although credited with the modernisation of agricultural and industrial sectors in the early half of the 20th century, his increasing paranoia led to fully detaching Albania from the rest of the world. Until the fall of the dictatorial communist regime in 1991, Albania was completely isolated from its surrounding neighbors and experienced high poverty and poor quality of life.[26] After the collapse of the regime, large portions of the population emigrated to Greece and Italy to escape the Kosovo War and the conditions of their country.

Greece in the meantime endured the Greek Civil War following the retreat of the German troops in 1944 and the return of their former government from exile. The conflict between the left- and right-wing parties cost the lives of 100 000 people and would determine the fate of the country in the following decades. Epirus became the scene of brutal guerilla fights in the mountains of Pindus. In the second half of the 20th century, the country struggled with the economic consequences of its recent war-torn history. After a short-lived dictatorship of the military junta from 1967-1974, the political system stabilized.

Even though relations between the two countries are generally good today, with EU funded cross-border programmes and many common interests, a traditional feud between Albanians and Greeks still exists , promoted by nationalist movements on both sides, driven by politics and prejudice.[27] The large Greek community around Gjirokaster maintains Greek traditions and culture, while Albanian minorities, the Muslim Chams, live side by side with ethnic Greeks in Epirus. The border between the countries exists, but when crossing it, the cultural landscape only gradually changes.

24 Bowden W. (2003). p.28
25 Kavas (n.d.).
26 Stefa E. and Mydyti G. (2012). p.13
27 Elsie R. and Destani B. (ed. 2013). p.345

1914 Northern Epirus declaring its autonomy

1940 WWII: troops on the slopes of Pindos

1944-1985 Regime of Enver Hoxha

2013 Border conflict today

Republic of Albania and
Hellenic Republic, 1912 - today

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Introduction of the Region

Greece and Albania

In the recent years, a plethora of papers and studies have been produced about the Vjosa or Aoos, with emphasis on its ecological value and importance in the future of Europe's rivers. While the river has been increasingly well documented, the region it passes through has been largely ignored. It is mainly divided into two countries, Albania and Greece. Although the two countries share many similarities, their recent history set them on completely different trajectories.

Greece is located in south-east Europe, at the south end of the Balkan Peninsula. With an abundance of more than 6000 islands, distributed in the Aegean, Ionian and Adriatic Sea and a history that dates back thousands of years, it attracts more than 33 million visitors per year and has subsequently built a large part of its economic existence on the basis of tourism. Almost 80% of the country is covered by mountains and hills, with the highest peaks concentrated in the north of the country in the district of Epirus, where the source of the Aoos river is located.

The recent economic collapse of Greece in 2010 has completely changed the social and political climate of the country. Decades of prosperity were suddenly replaced by harsh austerity measures, leaving large parts of the population in dire straits.[28] Cuts in public expenditure and pensions coupled with rising unemployment rates , especially in the young population, have dismantled social protection networks and have left many destitute. Although the situation is slowly improving, the recent developments, including the migration crisis of 2015, have left their marks on Greek society.

Albania is located to the north of Greece, bordering Montenegro and the Kosovo to the north and Northern Macedonia to the East. With a mean elevation of more than 700m, it is characterised by its rich relief of mountains and hills and is considered one of the most mountainous countries in the world.[29] The highest peaks are mainly found to the north in the Albanian Alps and to the south in the Nemercka mountain range that defines the Vjosa valley. Albania's economy is mainly based on the agricultural and industrial sector but in the recent years the country is being discovered for its wild landscapes and beautiful Riviera.

In the last two decades, Albania has undergone a major population change.[30] After the fall of communism in 1990, a wave of emigrants left the country heading mostly for Greece and Italy. This mass emigration, known as the Albanian diaspora, has led to one of the highest emigration rates in the world, with almost 40% of the population living abroad.[31] As a result, many Albanians today have lived abroad at one point in their life and thus speak multiple languages.

28 Knight D. (2015). p.2
29 Wulfenia (2007). p.15
30 Instat (2014).
31 Oculus News (2017).

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Albania

28.748 km²

2.821.977 inh.
60,3 % urban population

13,3 $ GDP/c.
12,9 % unemployment total
39,8 % unemployment (15-24)

Economic sectors I./II./III.

Religion

Greece

131.957 km²

10.768.477 inh.
79,1 % urban population

30,25 $ GDP/c.
18,9 % unemployment total
49,8 % unemployment (15-24)

Economic sectors I./II./III.

Religion

Introduction of the Region

The region in numbers

REGIONAL DISTRICTS

Vlora
175.640 inh.
2706 km²
6 % of total GDP

Fier
310.331 inh.
1890 km²
13,2 % of total GDP

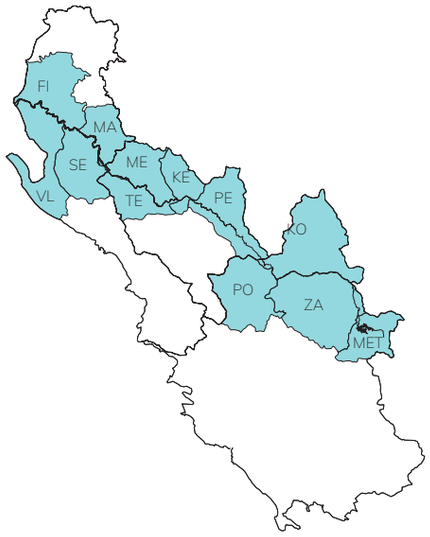
Gjirokaster
72.176 inh.
2884 km²
2,6 % of total GDP

Epirus
336.856 inh.
9203 km²
2,2 % of total GDP

MUNICIPALITIES

Fier (FI) 120.655 inh. / 619 km²
Vlora (VL) 130.827 inh. / 616 km²
Selenice (SE) 18.476 inh. / 561 km²
Mallakaster (MA) 27.062 inh. / 329 km²
Tepelena (TE) 8949 inh. / 431 km²
Memaliaj (ME) 10.657 inh. / 372 km²
Kelcyra (KE) 6.113 inh. / 304 km²
Permet (PE) 10.614 inh. / 601 km²

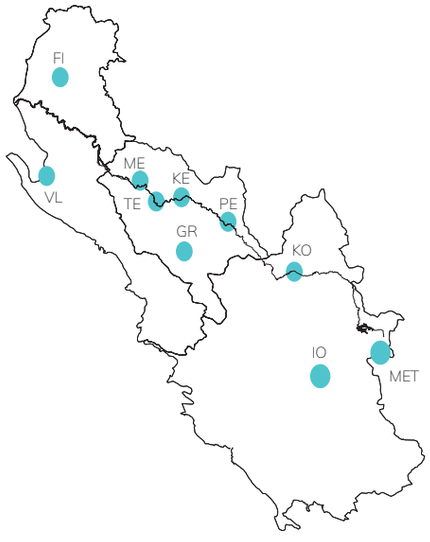
Konitsa (KO) 6.362 inh. / 949 km²
Zagori (ZA) 3.724 inh. / 995 km²
Pogoni (PO) 8.960 inh. / 701 km²
Metsovo (MET) 6.196 inh. / 363 km²



CITIES

Fier (FI) 55.845 inh.
Vlora (VL) 79.513 inh.
Tepelena (TE) 4.342 inh.
Memaliaj (ME) 2.647 inh.
Kelcyra (KE) 2.651 inh.
Permet (PE) 5.945 inh.

Konitsa (KO) 4.632 inh.
Ioannina (IO) 80.371 inh.
Metsovo (MET) 3.469 inh.



PROTECTED AREAS

1 Vjosa-Narta Protected Landscape
established in 2004
19,4 km²

2 Fir of Hotovë-Dangelli National Park
established in 1996
34,3 km²

3 Vikos-Aoos National Park
established in 1973
126 km²

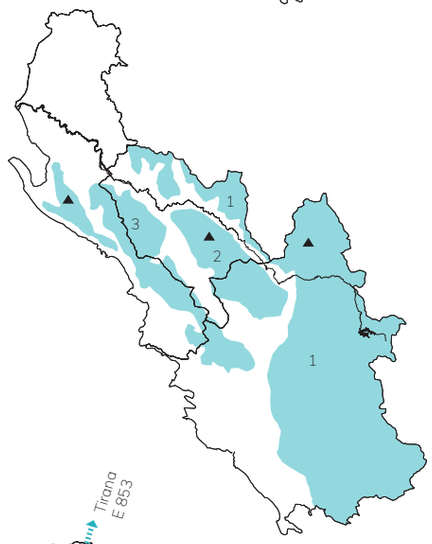
4 Pindus National Park
established in 1966
69 km²

MOUNTAINS

1 Pindos Mountains
max. elevation 2632m
highest peak 'Smolikas'

2 Nemercka Mountains
max. elevation 2485m
highest peak 'Maja e Papingut'

3 Ceraunian Mountains
max. elevation 2044m
highest peak 'Maja e Çikës'



ROADS / BORDER STATIONS

North/South Highway E853 - E951
Connecting Tirana via Fier-Tepelena-Gjirokaster-Ioannina to Arta

West/East Highway E90 (Egnatia Odos)
Connecting Igoumenitsa via Ioannina-Metsovo-Grevena-Kozani-Veria to Thessaloniki

SH75
Following the Vjosa/Aoos

SH8
Following the coastline

1 Kakavia border station

2 Tre Urat border station

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Epirus

An introduction

In Greece, the Aoos flows through the province of Epirus, the northernmost of the thirteen administrative regions of the country. It is the least densely populated region in Greece, largely due to its mountainous landscapes and rugged terrain. Most of the population is concentrated in and around the capital, the city of Ioannina. Dominating the landscape just north of Ioannina is the limestone mountain range of Pindos, where the source of the river is located. With an elevation of up to 2632m it represents Greece's most mountainous region. It is home to the the Vikos-Aoos and the Pindos National Park with their impressive natural scenery, beautiful rivers, picturesque stone villages and the famous Vikos gorge – Europe's deepest gorge.

Located directly on the border to Albania, it has always been a place of migration, resulting in a very complex demography constituted of ethnic Greek Sarakatsani and many different minorities. The biggest group concentrated around the Aoos river basin are the Aromanians, or Vlachs. The nomadic tribe initially came from the geographic region of today's Romania and settled into Epirus as shepherds, laborers and artisans. Emigrating abroad for work, they brought back wealth and education. To this day they populate many of the mountain villages surrounding the Aoos, retaining their own culture and language.[32] At the time of Ottoman occupation, these villages grew to become prosperous trading posts.

In recent years, the region suffered from immense population decline, the young moving into the cities to find work in an increasingly difficult economic climate. The older generations remained in the villages living in relative solitude, tending to their flocks of sheep and goats. In the harsh environment the Epirotes have developed a very distinctive form of mountain culture. A feeling of solitude, sorrow, harshness but also pride and strength seems ever-present and is deeply rooted in the cultural fabric of the region, reaching all the way to Albania. This is mirrored in the traditional folk songs, the mirologi, a form of lamentation that is still sung today to mourn death or at the yearly festivities of the paneigiri, for which Epirus is renowned.[33]

Today, with financial help of the European Union, the villages are being restored and new houses are constructed, actively attempting repopulate the area and protect its rich cultural and natural heritage.[34]

I Mountain Scene in Epirus, 1890

32 Potts J. (2010). p.183
33 King C. (2018). p.114
34 Potts J. (2010). p.187

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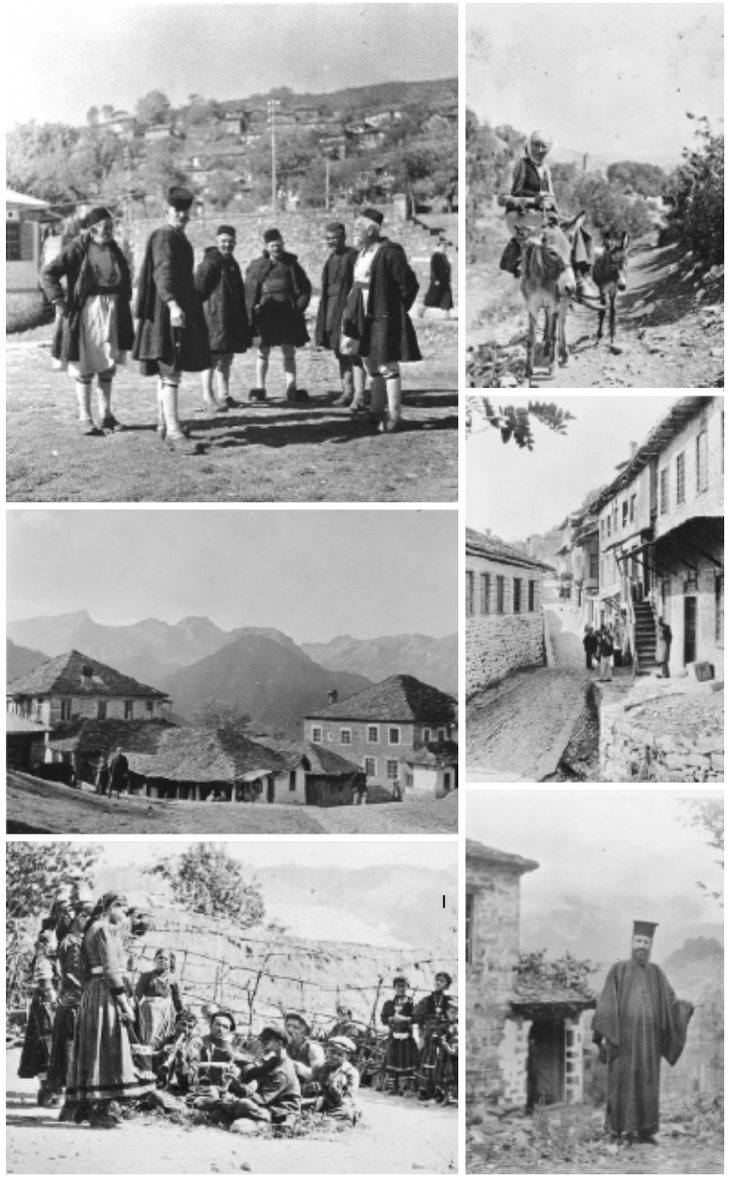
Epirus

Historic impressions



Epirus through the lense of Margaret Hasluck, around 1920
Travelling through the mountains she photographed - among others - the town of Metsovo and the Aromanian and Sarakatsani shepherds and artisans populating the region

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Southern Albania

An introduction

In Albania, the Vjosa crosses three regional districts, or Qarks: Gjirokaster to the east, Vlora on the coast and Fier to the north of the delta. The biggest cities along the river are Permet, Kelcyra, Tepelena and Memaliaj. Apart from that, the region around the river is characterised by small settlements scattered across the Vjosa valley that mostly survive off agricultural activities like crop production and livestock farming. The river has always played an important role in the region, since the surrounding population depended on it for the irrigation of the extensive agricultural fields.[35]

Gjirokaster, to the east, directly bordering Greece, is the most mountainous of the three districts, where about a third of the river length is located. Similar to Epirus, the mountains are populated by Aromanians, Greeks as well as Albanians that have brought with them the culture of transhumant pastoralism, making use of the abundant grazing land. During Ottoman rule under the famous Ali Pasha, the region of Grjirokaster prospered. Cities like Tepelena became centers for arts, culture and developed polyphonic singing, a type of music that is still practiced today.

Fier is located to the north of the lower part of the Vjosa, where most of the fertile lowlands of the Mizeqe plain are found. In 1928, the Patos-Marinza oil field was discovered close to the city of Fier, just north of the river, and the province has since played an important economic role in the country.

Vlora is the coastal province that includes the coastline along the Ionian Sea, the Albanian Riviera. The capital with the same name is located only a couple of kilometers south of the Vjosa. Home to one of Albanias largest ports it has grown to become one of the most significant cities of southern Albania, economically as well as culturally. Just north of it is the Narta lagoon, a protected landscape that encompasses the lower part of the Vjosa delta and is a valuable habitat for a variety of birds and fish species.
The south of Albania, especially further inland, is generally less developed, suffering from high rates of unemployment. Changes in political and everyday life, as well as increasingly hard conditions for the small agricultural businesses created in socialist times have caused migration towards the urban centers and abroad, leading to the depopulation of the area.[36]

Although a road has been recently built along the Vjosa, infrastructure and public transport are in bad condition, but the situation is gradually improving. With the plans of the Albanian government to enter negotiations for joining the EU by 2030, an optimistic mood has settled into the region. Programmes like the Rilindja Urbane direct financial help towards urban renewal and infrastructural enhancement and are currently being implemented by the municipalities.[37] Further, the goal is to reduce unemployment by investing in the agricultural sector, although it remains to be seen what this territorial plan can set in motion.

35 Riverwatch – Society for the protection of rivers (n.d.). 'Europe's Unknown Wild Jewel'
36 Ahmedaja A. and Haid G. (2008). p.215
37 Isto R. (2019).

I The city of Tepelena on the banks of the Vjosa 1848

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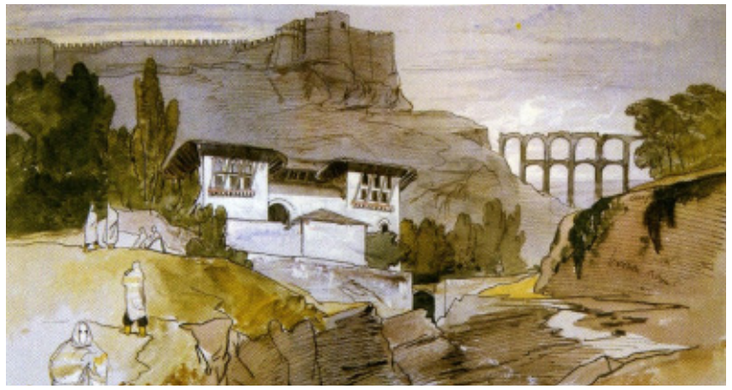
Southern Albania

Historic impressions



Southern Albania through the eyes of the landscape painter Edward Lear, around 1848
The paintings show the Vjosa close to Tepelena and the city of Gjirokaster

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Architecture

In Epirus and Southern Albania

The region is mostly known for its stone architecture, concentrated in and around the region of Zagori. The so-called Zagorochoria are located in the Pindos Mountains just north of Ioannina. The municipality consists of 46 stone villages that are famous throughout Greece and Albania due to the 160 stone arch bridges that were built to cross the many streams and rivers of the area, each unique and different in design. Constructed during the Ottoman rule, they connected important trading routes through the mountains.

The buildings are exclusively built out of local lime- or sandstone, with timber roofs that carry roof tiles made of slate.[38] The stone slabs lie on top of each other, traditionally without using mortar, held together just by their weight. They are typically organized around one or several town squares, the mesochori, where the townspeople up to this day gather for various festivities to dance and celebrate.[39] The squares are defined by a tall plane tree that acts as a marker and provides shading or protection against rain. It is so distinctive that the locals constantly use it to judge distances or give directions in the village. The buildings and squares are connected by cobblestone streets, essentially creating mono-materialistic villages that look like they have been carved out of a single rock. The mansions are maintained in remarkably good condition, due to the strict building regulations in the entire Zagori regions. Until the 1950s there were no roads or other signs of modernity, only 200 year old stone bridges and cobbled paths.[40] Today the houses are still maintained, used and newly constructed, but the core structure of the buildings has been substituted by concrete.

The villages stand testament to a rich history of stonemasons that practiced their craft in Epirus as well as southern Albania, since many builders were ethnic Albanians. Many of these stone villages also exist on the other side of the border. Lesser-known and sometimes still in use, they have been left in a much more original state. Sadly, the traditional craft of the stonemasons fell in decline after the Balkan Wars, the remaining few living on the Albanian side of the border.

Further downstream, the built environment is characterized by the industrial architecture that was built during the communist regime as well as slab buildings for residential use in the settlements along the river. The industrial buildings are mostly abandoned today; the brutal reinforced concrete ruins are a reminder of coal mining and oil industry that surrounded Memaliaj and Berat.[41]

At the lower part of the river, where the flatlands provide excellent nutrient rich soil for crops and livestock, informal architecture dominates the landscape. Huts used for fishing or to provide shade for the nearby plantations are mostly crude, temporary buildings created out of locally available or repurposed materials.

Top: Aerial view of Tsepelovo, one of the Zagorochoria

Bottom: Arched stone bridge in Albania, close to the thermal baths of Benja

38 National Technical University of Athens (2019).
39 Zagori (2013).
40 Tuppen H. (2019).
41 Sorotou A., Katsaros A., Dedej Z., Christou V., Capullari M., Elton I. (2014). p.93

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Industrial ruin near Memaliaj

Fishing hut in the delta of the Vjosa

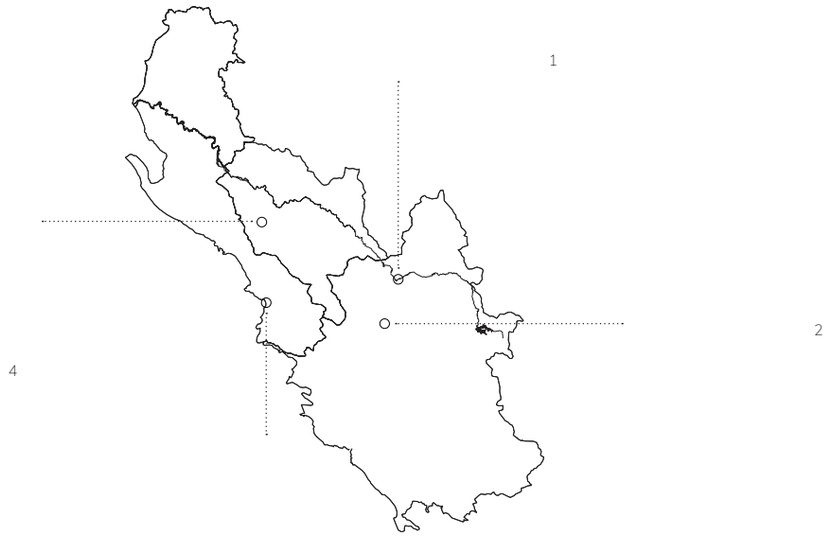
Tourism

In Epirus and Southern Albania

Tourism in Southern Albania and Epirus is concentrated around the coastal parts, with cities like Saranda and Korfu catering to the needs of mass tourism. With its impressive rocky coast and beautiful beaches, it has become a prime destination for summer tourists. Additionally, Gjirokastra, a stone city and main seat of Ali Pasha close to the coast, has been given the status of a UNESCO world heritage site in 2005 and has now become one of the main touristic hotspots of the region. Further inland in Albania Well-known sights are scarce; a few Illyrian, Greek and Roman ruins like Byllis or Amantia in the are of note and apart from that, the region of the Pindos mountains is visitied for its impressive stone architecture and stone arch bridges.

In recent times, the demand for reconnecting with nature, slowing down the pace of life and living and travelling environmentally friendly has been growing steadily. In the Greek mountains the community of outdoor enthusiasts have already realised the potential of this stretch of land and have been creating new hiking trails, climbing routes and kayaking opportunities. Although mostly focused on the neighboring Vikos gorge, the Aoos valley offers a similar variety of activities. This form of active tourism is becoming more and more popular as an alternative to the overcrowded beaches of the coast.[42]

Similarly, especially due to the recent international attention, residents in Albania are realizing the potential of the Vjosa and its natural heritage. The rising demand for eco-tourism provides a viable option to make a living and thus many small businesses have emerged, offering activities like kayaking and canoeing. They are all basing their existence on a free-flowing Vjosa.[43] Up until now, this development happened on a small scale, since the potential of the region was only known to a specific group of outdoor enthusiasts and scientists. But the promotion of the Vjosa by media and protests has set in motion something larger. While the use of the river for eco- and active tourism could provide an important alternative to hydropower, it also represents the risk of overusing the river. As it gains in popularity, a balance must be found to enable a sustainable use of the region as a touristic destination.



I Touristic hotspots in the region of Epirus and Southern Albania

1 Bridge in Konitsa
2 Vikos gorge
3 Saranda
4 Gjirokastra

42 Papadimitriou D. and Gibson J.H. (2008).
43 Riverwatch – Society for the protection of rivers (n.d.). 'Europe's Unknown Wild Jewel'.

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IV.

Defining the region

Development of a regional strategy

Field Trip

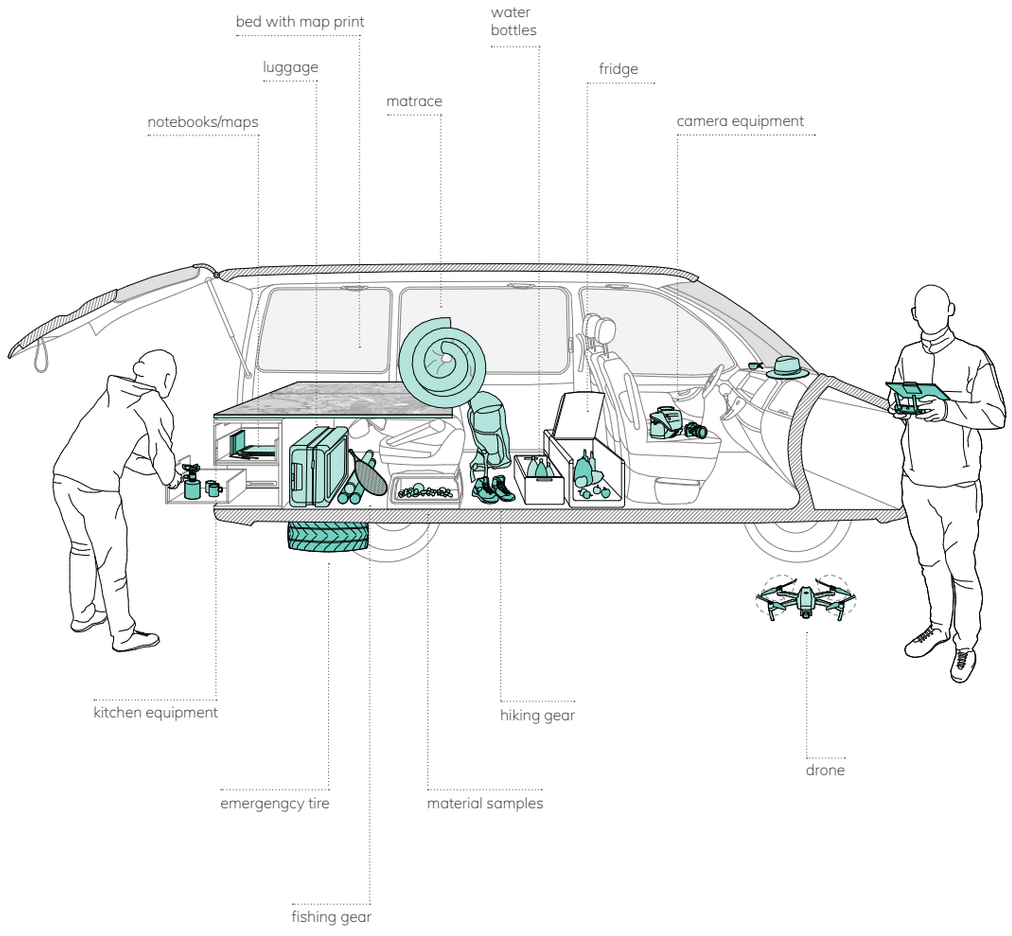
Visiting the Region

Information on the ecosystem, the biodiversity and the rivers beauty was widely available, but details especially about the region in Albania were hard to come by. In order to gain further insight into the region, we decided to conduct field research and visit the area ourselves. The aim was to follow the river as closely as possible, eat, sleep and live on its banks for the duration of our stay. Additionally, we needed to document points of interests, possible building sites, existing buildings, conduct interviews and collect samples.

Before embarking on our adventure, we connected to people we knew, who had already been in the region. A hydrobiologist, Paul Meulenbroeck, who himself had written multiple papers on the Vjosa's ecosystem, established a connection with Viktor Vahdat, currently writing his thesis in the field of landscape design on the topic of the Vjosa and had documented the river from source to mouth for his own work. Through the two contacts from Vienna, we were further introduced to organizations and stakeholders who were connected to the river. It quickly became obvious that a whole network of people who are actively involved in researching and documenting the region for varying purposes had come together with one common interest in mind – the Vjosa or Aoos.

Unsure what to expect, we filled our VW van to the brim with photo equipment, hiking, fishing and camping gear. Knowing we were dealing with a large region and a wild, sometimes inaccessible river, we packed a drone for aerial photography of the landscape. Our approach for the analysis of the region was very simple – visit and get a feeling for the river, local culture, the people and the region.

The resulting project is, apart from the research surrounding it, strongly influenced by the experiences gathered during our two visits.



I Van and enquipment used during our travels

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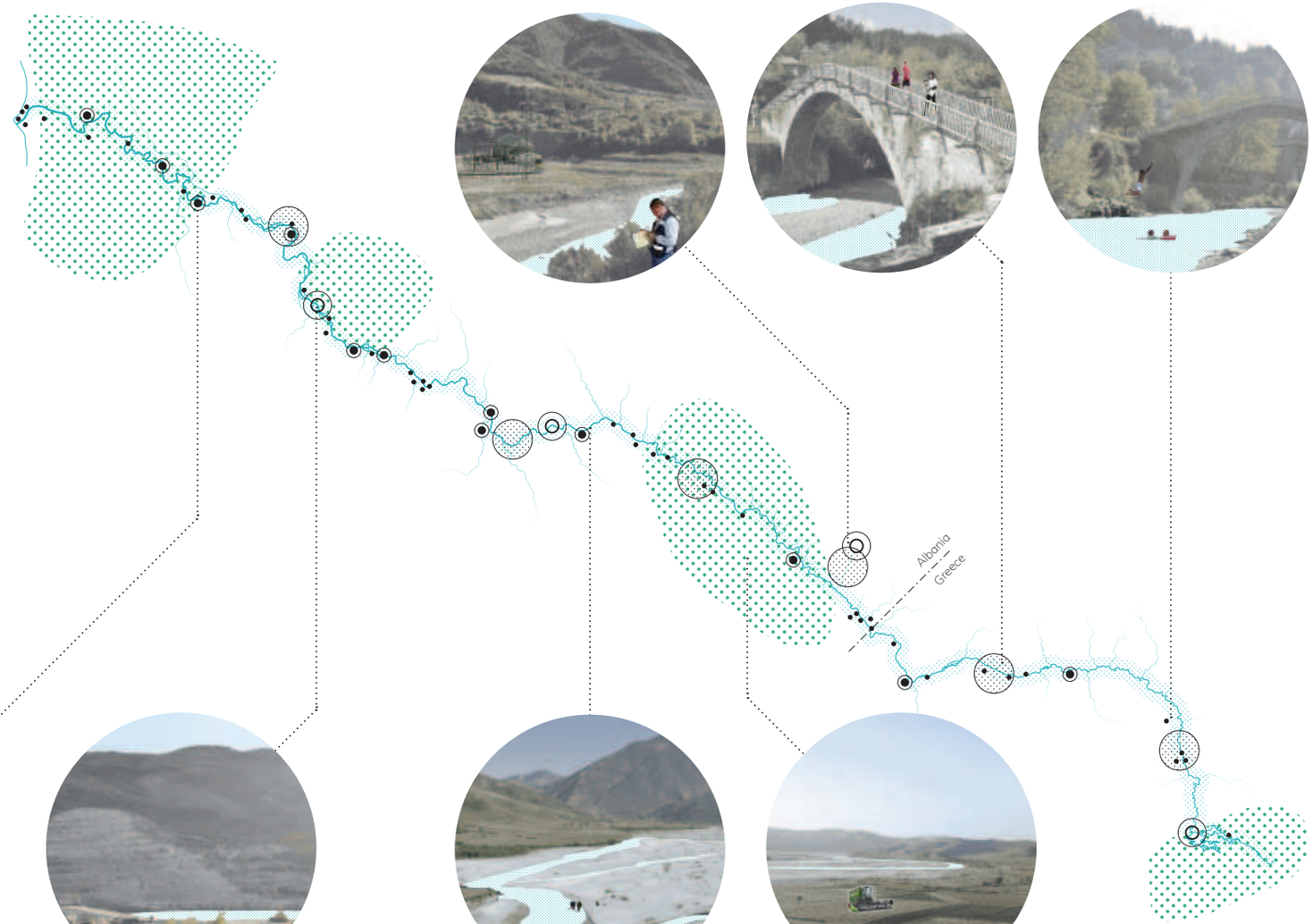
Layers of Perception

How the river is currently percieved

The name Vjosa and Aoos river region implies that it is at least perceived as a single geographically defined area. But when people, residents and tourists, talk about the river it quickly becomes obvious that in reality this is not the case. A few factors come into play here which can be used to explain this situation.

Firstly, the region is divided by a country border, at this time even a Schengen external border, which represents a physical barrier. This barrier is extended to the water body - the Aoos ends and the Vjosa begins. Secondly, the river spans a long distance of about 270km from its source to the sea, constantly changing its size and appearance, flowing through a variety of landscapes. The mountain stream is very different from the wide meandering water surface in the delta. Similar to the appearance of the river, the people living close to the river also change: from the shepherds up on Tymfi to the city residents of Permet. Without a good overview of the whole area it is hard to understand how all of it is connected. Thirdly and most importantly, the perception of the river is largely based on the experiences and interests along the river. Whether one remembers the river from a childhood fishing adventure, uses it to water fields of grain, builds a cafe on the riverbank or analyses the whole water basis for scientific purposes, the meaning of the river changes.

The diagram to the right shows a mapping of these perceptions, attempting to explain how residents and visitors are linked to the river. It creates a dense tapestry of experiences that sometimes overlap, and other times don't meet at all. At a first glance, some of them don't seem connected but any event, be it a natural disaster or man-made, could trigger a chain reaction that affects all of them.



... as a business

In order to deliver a renewable, sustainable and reliable energy source to the surrounding villages and cities, we decided to tap the still unused potential of the Vjosa and its tributaries. With just a few state of the art hydropowerplants on strategic positions along the river green energy could be delivered to the region, additionally creating jobs int the energy sector.

... as a destination

Visiting the mountains in the north of Greece was always a dream of mine, with its impressive masonry and network of stone bridges. The cold, clear mountain air was a welcome change from the heat of the summer months. Staying in one of the small mountain villages we enjoyed the daily hikes taking us up to see the impressive scenery of the Pindos mountains.

... as a memory

As a kid I remember playing in the water by the main square in Vovousa, jumping off the rocks into to the deep pools. We challenged ourselves who would jump off the highest rocks and how long we could swim in the faster currents. In the summer months we hiked further down into the canyon to try fishing with rods made out of the flexible branches of the surrounding forests.

... as an opportunity

The beauty of the river always fascinated me. I realized early on that it was special, that the fascination would spread. I invested in a small lot close to my home, where a beautiful river bend and the main road meet. Now more and more tourists arrive here at my little shack and I plan to build a small café or replenishing station for the passer-bys.

... as a poster-boy

This river is not only unique in Europe, the last free-flowing river, but a symbol for what has been destroyed by the hydropower industry during the last century. The damage though is not irreparable, we have to start putting nature before the interests of the hydropower lobby starting now, with this river.
Save the Vjosa!

... as an ecosystem

Our field trip in the flood plains of the Vjosa river near Tsepelovo were absolutely breathtaking. I had never seen such a lush lora accompanied by fauna only briefly mentioned in scientific journals. Every day we took samples of a multitude of different fish species, found and documented species of semi aquatic plants and gathered mineral samples for analysis in the labs.

... as a resource

The river and the nutritious sediments it brings into the river basin provide the perfect ground for the local plants and vegetables. Using the infinite water supply it offers, we are able to economically and efficiently grow our crops almost all year round. The roaming flocks of sheep and goats also profit from the lush plant vegetation that surrounds it.

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The VA River Region

Naming the region

While the reasons for people's interest in the Vjosa/Aoos may vary, they all have one thing in common: they are dependent on the survival of the river, in one form or another. The question remains: how can a common ground between these perceptions be found?

On both sides of the Schengen border, the territory is divided into a variety of administrative units, making it hard to create a strategy for the entire river. These administrative units are not interlinked and in the current conditions the stakeholders mostly create plans and concepts for a very specific purpose in their area of interest. This is one of the major issues that become visible when looking at the planning process of the dams, where construction had started before the local communities had received any information about it. This short-sighted decision-making inevitably leads to a fragmentation of the region and a chaotic development.

By defining the Vjosa/Aoos river as one coherent, cross-border geographical unit, to be regarded as such by policy-makers, planners, residents and visitors, a foundation would be laid, upon which the general perception could be transformed. The region would appear on the map with a particular name, which can be talked and written about. The unified perception of this singular entity would have the potential to create a powerful brand, which can be communicated to the outside and generate a strong local identity as well.

The image of the river has been evolving in recent times. Engaged activism has attracted local and international attention and not only among outdoor enthusiasts. This attention has spread further to scientific circles and numerous expeditions were organised over the past few years with the purpose of analysing and understanding the specific ecosystem. A scientific background has been created as a result of the investigations, which makes the communication of the causes and effects of human intervention possible, and stimulates environmental awareness. A next step would be to highlight the potential of a regional development and how, by focusing on the river as a whole, the geographical region surrounding it could grow together. For this, it is imperative to show the benefits of a collaboration to everyone involved or who would be affected by the changes, as well as persuade the decision-makers of such an enterprise through concrete examples.

Now, the river represents a means to an end for many different individuals and organisations. In the future, it could play a central role in the growth of the region around it. It is an asset which cannot be ignored. This first step, although simple as it is, is essential in creating a holistic strategy for the sustainable development of the river.

I The *VA River Region* is defined across administrative borders

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Material Identity

Creating a connecting thread

The question remains however, what the common identity of the region actually is and how it can be incorporated into our projects. In the case of the *VA River Region*, it is not something that exists only in theory, but in the form of a physical entity: something which can be touched, felt and seen. It is and has always been the river; a common thread. Through millennia it created the valleys, gorges and wetlands seen today and thus in a way formed the people, architecture and cultures that surround it. No matter what form the river embodies, the raw materials: the water, stones and sediments it carries always persist.

In order to make the VA brand more recognisable, a new site-specific building element is needed which would be recurring throughout the region and would be directly associated with the VA; a material that represents the river and connects the individual places directly to the river itself. Additionally to the abstract process of naming the brand, this new physical element would help enhance its identity through materiality.

After hours and hours spent with our favorite activity – collecting stones along the river, we stumbled upon large rock formations with river stones embedded inside them: conglomerates. A conglomerate is a sedimentary rock with rounded fragments trapped in a matrix and can be thought of as a naturally occurring concrete.[44] Inspired by this, we decided to use the collected stones to create a new material which can be used for the creation of new interventions along the river. These would speak the same language, but would be unique at the same time. By binding the stones into concrete with different surface finishes, we created a material that can be used for different purposes – the *Riverstone Concrete*.

To see what was possible and how the material can be produced, we decided to conduct some experiments.

Conglomerate with trapped river stones regularly appear in the river bed - a form of natural concrete

44 Hudson J.A. and Cosgrove J.W. (2019). p.112

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Material Identity

Developing a formula

Experimenting with different ratios and types of cement, sand and stones, it quickly becomes apparent that the possibilities are endless. In order to develop a formula, the type of cement, the ratio between cement, sand and aggregate and the size of the river stones had to be determined.

The question of what type of cement to use was the first one we had to answer. The addition of white cement causes a change in color and provides a more neutral background for the colorful stones. White Portland cement is produced of high purity raw materials with low iron contents, at higher temperatures and in smaller quantities. As a result, it is 2-3 times more expensive than normal Portland cement.[45] Grey Portland cement takes the focus away from the stones and reduces the contrast between the two materials. The main advantage though, is that it is cheaper and more easily available.

Additionally, the visibility of the stones can be altered by how they are added to the process. Placing the stones in the cast at the beginning of the process enables us to create very specific patterns, as the stones remain in position. Stones mixed into the concrete protrude irregularly, creating a more randomized appearance of the surface. Embedding the stones in the cast concrete while it is still wet, enables us to create profiled surfaces that show larger portions of the river stones. All these factors play an important role in how the finished material performs.

The surface finish of the concrete determines especially how the material performs in a small scale. Concrete is very adaptable in that perspective, since it enables us to create smooth, textured or uneven and rough surfaces, thereby altering the tactile and visual experience of the material by changing only the finish. Five main categories of surface finishes can be differentiated which can be combined to achieve a specific effect:
Leaving it as cast doesn't alter the appearance of the concrete. It keeps its form after removing the formwork and the finished surface usually contains board marks or wood grains. Abrasive blasted surfaces expose fine and coarse aggregate that are smooth to the touch. This method is effective for large surface areas. Mechanical altering of the concrete removes chunks of the outer layer and creates a rough, fractured surface. Depending on the tool used, the results vary. With the use of chemical solutions, so called retarders, the binding process can be delayed. By applying them to the cast, the cement at the surface of the concrete can be washed out to expose its aggregates. This process exposes the larger river stones embedded in the outer layer, creating an uneven surface. The last option is the grinding of the surface to create a terrazzo-like finish.[46]

Taking all these factors into account and based on our own experiments, we decided to use ground and exposed aggregate concrete based on their unique qualities for our projects.
The smooth surface of the ground concrete creates a stark contrast to the natural surroundings, water and plants wash off quickly and the concrete patina develops very slowly. This makes it perfect for uses where the material acts as a sign, marker or for interior uses. The exposed aggregate creates a bigger surface area for water, algae and plants, deteriorating faster and developing a patina that enables it to blend into the natural environment. Ideally, this is used in the exterior or when a rough surface is needed. The two finishes can also be applied on the same object to create contrast.

45 Reeves R.M., Sims I. and Cripps J.C. (ed. 2006). p.433
46 The American Institute of Architects, Hall J.D. (ed. 2010). p.463

I Experimenting with different mixture ratios of cement, sand, aggregate, water and river stones

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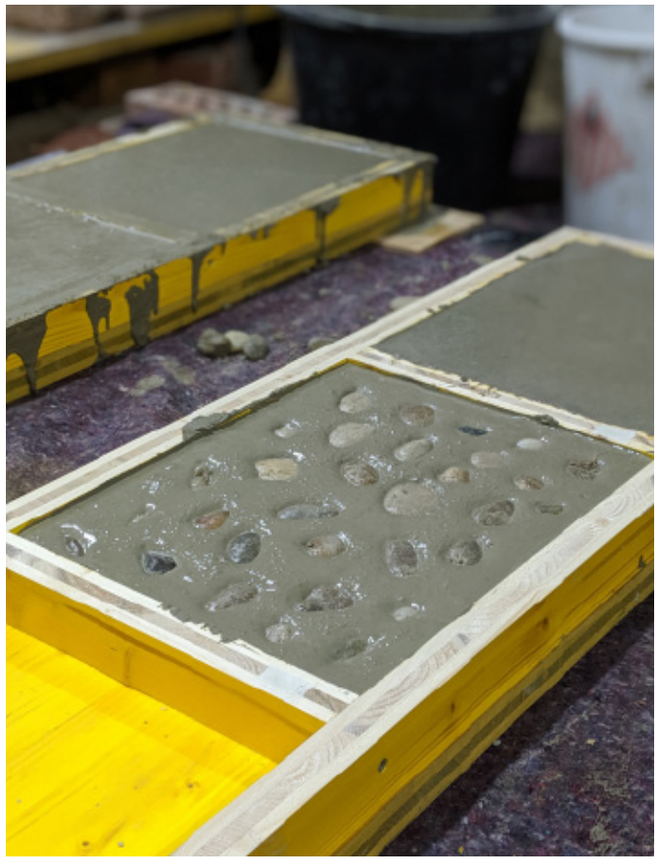
Creating the casts for the *Riverstone Concrete* tests



River stones placed on the not-yet dry concrete

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Material Identity

Experiments

Pattern: random, mixed in
Aggregate: 0-8mm
River stones: 6-12mm
Concrete: grey portland cement
Ratio cement/aggregate: 1:2
Surface finish: half exposed aggregate, half unaltered

Pattern: random, mixed in
Aggregate: 0-8mm
River stones: 12-24mm
Concrete: grey portland cement
Ratio cement/aggregate: 1:2
Surface finish: half exposed aggregate, half unaltered

Pattern: random, mixed in
Aggregate: 0-8mm
River stones: 24-50mm
Concrete: grey portland cement
Ratio cement/aggregate: 1:2
Surface finish: half exposed aggregate, half unaltered

Pattern: none
Aggregate: none
River stones: none
Concrete: grey/white portland cement
Ratio cement/aggregate: 1:1,5
Surface finish: unaltered

Pattern: random, mixed in
Aggregate: 0-8mm
River stones: 0-24mm
Concrete: grey/white portland cement
Ratio cement/aggregate: 1:5
Surface finish: exposed aggregate

Pattern: placed on formwork
Aggregate: 0-8mm
River stones: 16-32mm
Concrete: grey/white portland cement
Ratio cement/aggregate: 1:2
Surface finish: exposed aggregate

Pattern: none
Aggregate: none
River stones: none
Concrete: grey portland cement
Ratio cement/aggregate: 1:1,5
Surface finish: unaltered

Pattern: random, mixed in
Aggregate: 4-16mm
River stones: 0-24mm
Concrete: grey portland cement
Ratio cement/aggregate: 1:3
Surface finish: exposed aggregate

Pattern: placed on top
Aggregate: 4-16mm
River stones: 16-32mm
Concrete: grey portland cement
Ratio cement/aggregate: 1:2
Surface finish: sanded

Pattern: none
Aggregate: none
Stones: none
Concrete: white portland cement
Ratio cement/aggregate: 1:1,5
Surface finish: unaltered

Pattern: random, mixed in
Aggregate: 0-16mm
River stones: 0-32mm
Concrete: grey portland cement
Ratio cement/aggregate: 1:3
Surface finish: mechanically altered (hammer)

Pattern: placed on top
Aggregate: 0-8mm
River stones: 16-32mm
Concrete: grey portland cement
Ratio cement/aggregate: 1:2
Surface finish: sanded

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Material Identity

Manufacturing methods

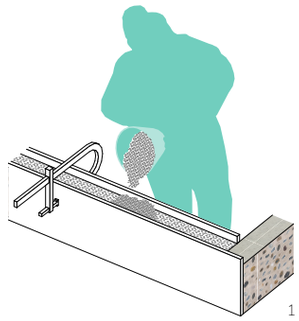
Apart from cement type, sand to cement ratio and surface finishes, the most important thing is the production method itself. This determines in what form the material can be incorporated into our buildings. In order to use the *Riverstone Concrete* that we propose in our architecture, we decided on four different methods and developed solutions on how to create the stone patterns.

Prefabricating concrete has the advantage of producing more precise parts, better surface quality and a shorter building duration. However, the restrictions of prefabrication are evident. The transportation, as well as the movement of the parts on the building site are often problematic. Maximum slab dimensions for economic transport are a length of 10m and a width of 4m.[47] In prefabrication, parts are generally produced horizontally, as it is easier to control the flow of concrete. This makes the method perfectly suitable to create our proposed river stone patterns, as they can be cast horizontally and then used as vertical elements like walls or columns.

In-situ concrete is largely dependent on the formwork that is used to create the mold for the part and how it is mounted. Since the river stones must be placed into the outer layer of the wall to become visible, using formwork to cast them vertically poses a problem. Adapting this technique to our needs, the river stones are mounted onto the formwork with silicone. When the hardening process is complete, the cast can be removed and the stones stay in the outer layer of the concrete. This technique only works for small structures, since the added pressure of the poured concrete in larger wall segments would rip off the stones.

Rammed concrete derived from the so called Pisé-technique used since the early 17th century in France. Instead of the loam that was originally used, a mixture of dry concrete and aggregate that can be sourced locally is poured into the cast in layers of at least 15cm. Each layer can then be condensed with hands and feet. After about a day of drying the next layer is applied.[48] The river stones are added in between each layer, making this method ideal for creating vertical wall elements on-site. Additionally, the process of creating such a wall adds a participative component to the creation of a building, since many people are required for the intense manual labor.

UHPC (Ultra High Performance Concrete) is a concrete with very high density, making it ideal for bridge construction and other wide spanning elements. It consists of very fine aggregate of 0,5 to 2mm and is reinforced by adding 2,5% of steel fibers that are up to 20mm long.[49] Adding different aggregate like our river stones to the mixture would result in highly reduced stability. By adding a thin layer of spray-on concrete instead, in which the river stones are placed, the part can be then sanded down to its final shape and size and used for bridge construction.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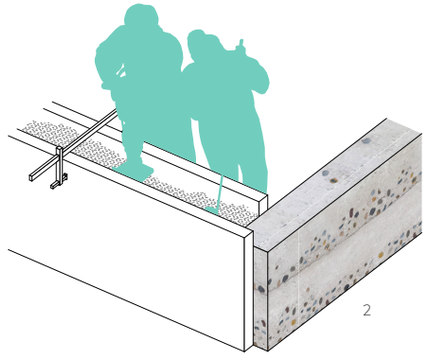
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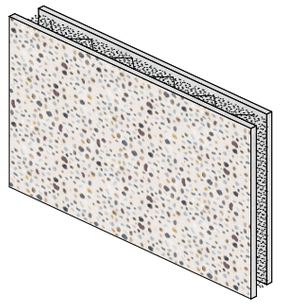
3

1 In-situ
2 Rammed concrete
3 Prefabricated elements

47 Bögl M. and Gierer A. (2012). p.654
48 Baunetzwissen (n.d.).
49 Schmidt (2003). p.7

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Strategy

A regional plan

In order to deal with a region that spreads on such a large area, we devised a strategy that is implemented in three phases and works on different scales. Following these steps, we ensure the connection and activation of the region, on which further development along the river can be based.

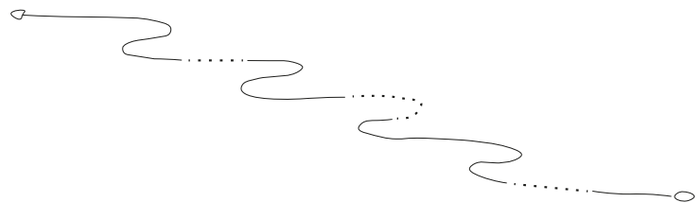
The first step is the implementation of a hiking trail that follows the river from the source to the mouth. It is created by connecting exiting paths and trails and adding the missing links. It is almost 300km long and follows the river as closely as possible. Divided into 15 stages that can be reached within a day's hike, we add an access or exit point at the end of each stage, providing water, rest, orientation and necessary information for the hikers.

The second phase consists of small-scale interventions along the hiking trail. They enhance the experience of the trail, as their programmeme is specifically designed to serve the needs of the hikers and of other users visiting the *VA River Region*.

The third phase focuses on large-scale interventions with a regional impact. Based on local potentials, they create new impulses for the entire *VA River Region*.

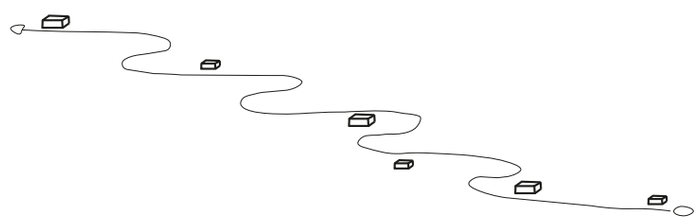
Phase 1

THE HIKING TRAIL



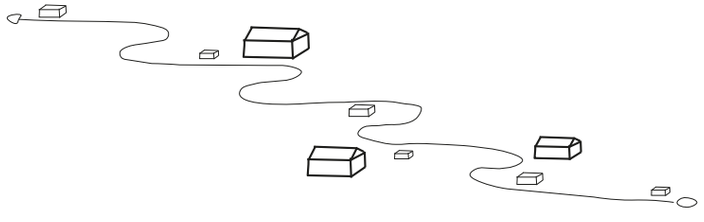
Phase 2

SMALL SCALE INTERVENTIONS



Phase 3

LARGE SCALE INTERVENTIONS



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The book is split in
'Part One: Greece' and
'Part Two: Albania',
each containing
'The Hiking Trail' and three
design projects.

0 5km 15km

The Kiosk

The Field Lab

The Factory

River delta

Vlora

Vjosa

Kalivac

Memaliaj

Tepelena

Permet

Albania

Greece

The Refuge

The Cultural
Convent

The Milestone

Vjosa

Konitsa

Vovousa

Aoos

Source

Metsovo

Ioannina

The VA Organisation

A platform for communication

Finding a common ground between all these different opinions, approaches and interests is no simple task. To facilitate this process, we propose an organisation that acts as a mediator across theoretical and administrative barriers.

As a platform for communication, it encourages decision-making based on a bottom-up approach that involves everyone connected to the river. This could be achieved in the form of monthly meetings that encourage the different parties involved to present their thoughts on the future development of the river. Although this is possible in the form of online forums and similar media, it is necessary to provide a physical space for debate. In addition to these discussions, events can be organised through the platform of the VA. The different facets of the river region can be moved into the spotlight through cultural, culinary and sports events and the qualities of the river region can reach their full potential. By bringing stakeholders together and combining their energy and influence, as has rarely been done in the recent history of the Vjosa and Aoos, the movement gains more political weight and can thus achieve much more.

Apart from the role as a mediator for communication on a local level, the organisation would also act as a conveyor for the VA brand. The brand enables the organisation to better impart the image of the river region to the world, make it more recognisable and thus put it on the map of naturally and culturally appealing areas. Additionally, the brand can help the visitor understand the complexity and diversity that is the *VA River Region*.

I The VA Organisation acts as a platform for communication and thus tries to find a common ground between different perceptions of the region

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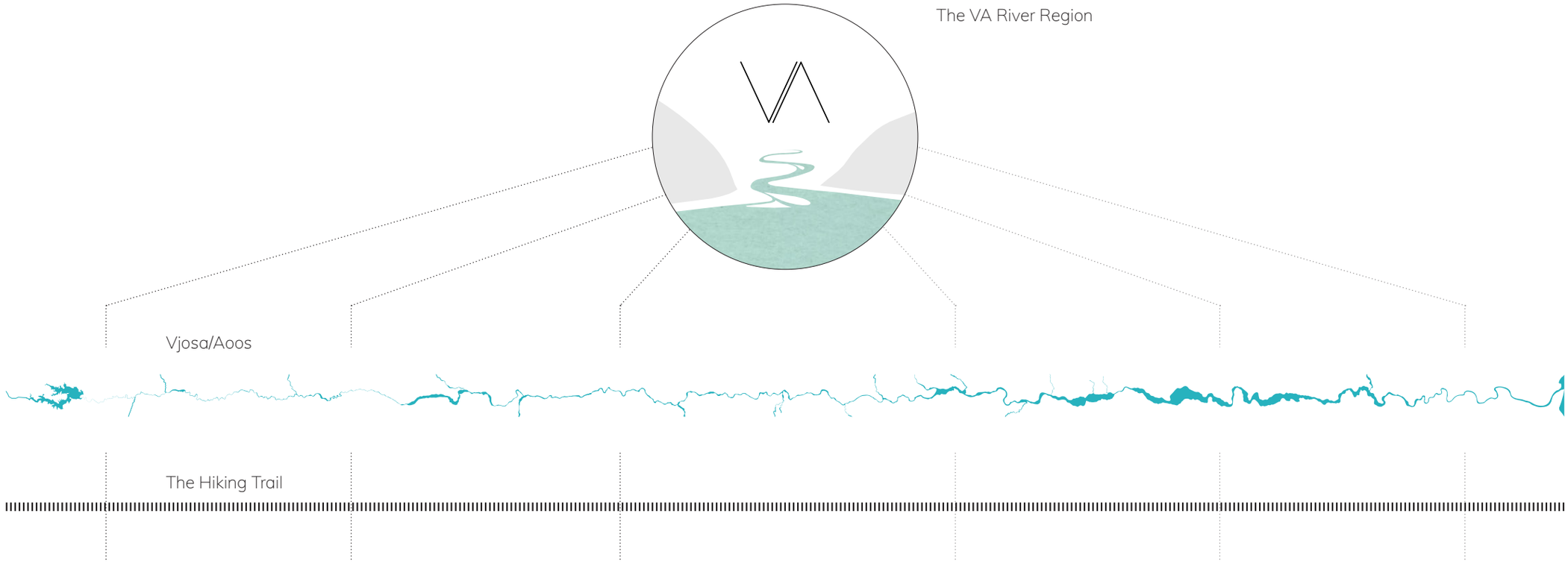
Summary

Overview



The Milestone
Project 1

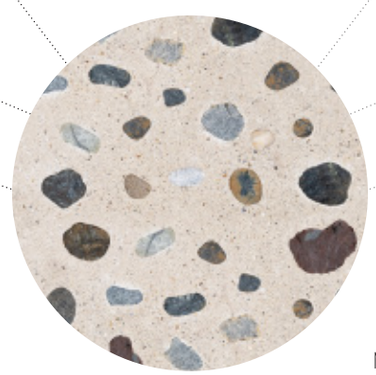
The Cultural Convent
Project 2

The Refuge
Project 3

The Factory
Project 4

The Field Lab
Project 5

The Kiosk
Project 6



Material identity

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V.

The Journey

A hike from the source to the delta

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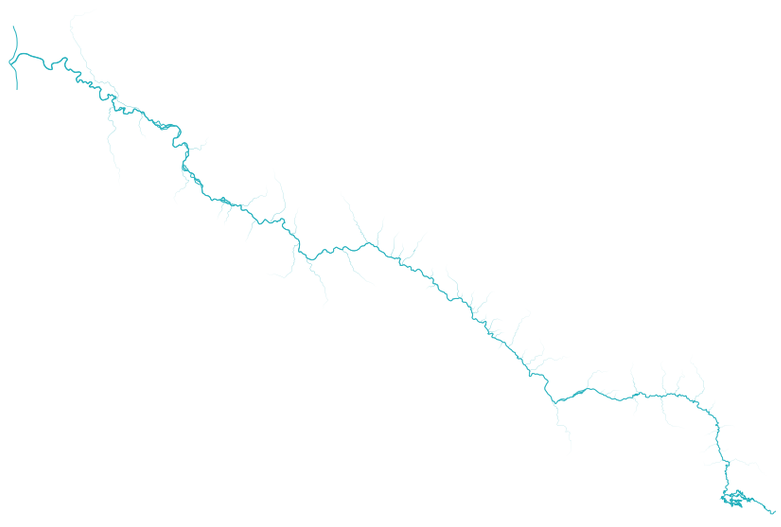
The Hiking Trail

Prelude

The VA Hiking Trail is mapped across the entire region and systematic solutions for specific situations are developed.



Paths in the Region

As the Aoos slowly makes its descent it passes through an ever-changing landscape until it finally reaches the sea. From the mountains in Pindos, through the canyon at Konitsa, over the plains of Tepelena, to the delta, the topography and vegetation vary fundamentally and so do the people's means of transportation and movement. Over the years, shepherds, foresters, traders and fishermen had to adapt the landscape in order make the region accessible, according to their preoccupation and mode of transport. Consequently, a tapestry of different trails, paths and roads was formed which connect settlements to one another and to the nature around them. Several types of distinctive trails can be identified within the region, upon which the newly conceived hiking trail is based.

Unique to the mountainous part of the region is an extensive network of cobblestone streets made of locally sourced limestone and sometimes granite - the kalderimia.[50] Built during Ottoman rule, they were initially used for hoofed transport, trading and seasonal migration. They connected the many bridges in the area to form important trading routes through the mountains. Today, this style of path can be observed in almost every village of the Zagori area and can appear up to Tepelena. In these parts, whole towns are cobbled to facilitate movement, especially in the harsh conditions of winter. Made of stone, over the centuries they have blended into the nature and have thus become one with the landscape.

Shepherd's trails are the least noticeable in the area even though they are everywhere. The flocks of goats, sheep and even cows, in their never-ending search for fresh grazing spots, leave behind chaotic, usually very steep and inaccessible trails. The more frequented they are, the more visible they become.

In the mountains of Pindos the local economy depends largely on forestry and therefore numerous forest roads were cut deep into the woods to allow, initially carriages and more recently four-by-four vehicles or logging trucks to move around the region. These roads are mostly steep, rough and rocky, and sometimes blocked by landslides or fallen trees.

Local fishermen, the only people who venture into the delta wetlands on a regular basis, use improvised roads in between marshes or sand-dunes and paths along the river banks to access their fishing nets. These access routes were formed gradually because of an increased traffic condensing the sandy terrain.

In the region, especially in the Pindos area, there are some established hiking trails as well which are either based on existing trails and roads or were specially set up for the hikers. The demand for outdoor tourism is growing and in response more hiking trails are appearing on the map of the area.

I A variety of different paths exist in the VA River Region

50 Wilson L. (2015).

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The Hiking Trail

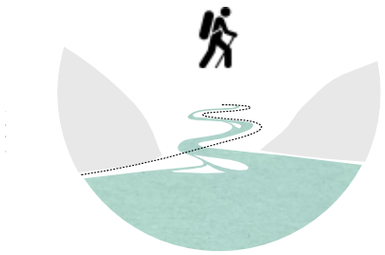
Based on this variety of different paths, a tapestry as diverse as the people and landscapes of the area, the idea of a hiking trail along the Vjosa/Aoos was born. By connecting different types of paths and adding missing routes, we propose a pilgrimage along the river that can be hiked in 15 days, allowing the user to experience the river from the beginning at the source to end in the delta. Being the first trail that runs along the entire length of the river, it enables visitors to experience the characteristics and beauty of the constantly changing river. Additionally it provides access to the many sights surrounding it and lets the user understand the diversity of the *VA River Region*.

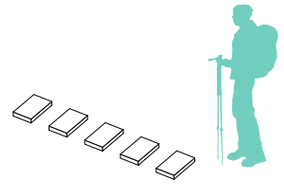
To achieve this, we first had to map the whole trail and find a way to convey this information to the user. Splitting the *VA River Region* into nine chapters, we created a series of hiking maps that provide orientation and information for the user. The reader can find the location of the access points, height profiles, distances to close infrastructure and length of the stages.

Next, we defined the missing links of the trail and tried to find solutions for reinforcing and marking dangerous sections of the new parts. As the basis for our design we asked ourselves what the main obstacles are along the trail and how hikers would deal with them in a natural, unaltered situation.

The crossing of a river can be one of the most memorable hiking experiences one can encounter. At the same time it is essential for the *VA Hiking Trail*, since walking along the course of the river, its tributaries often present a challenge that has to be overcome. Finding a shallow section of the river, the hiker can use stones protruding from the water surface to jump over them and reach the other side. Based on this concept of skipping stones, *Riverstone Concrete* slabs are positioned in line with the trail to assist the crossing of a river or other obstacles, by creating a direction and an improved sense of security. Made from exposed aggregate *Riverstone Concrete*, they blend into the landscape, leaving a minimal impact on the natural environment. Additionally, we add a railing to improve safety. The railing also provides visibility when the steps vanish due to rising water levels or when they are overgrown.

Using our *Riverstone Concrete*, the slabs are prefabricated or created in-situ out of exposed aggregate concrete, providing the friction needed to comfortable walk on them. The format of the slabs is 336mm / 259mm and 40mm thick. The stones are optimised for their weight, providing just enough space for two booted feet. Weighing just seven kg, a person can carry up to two of them.





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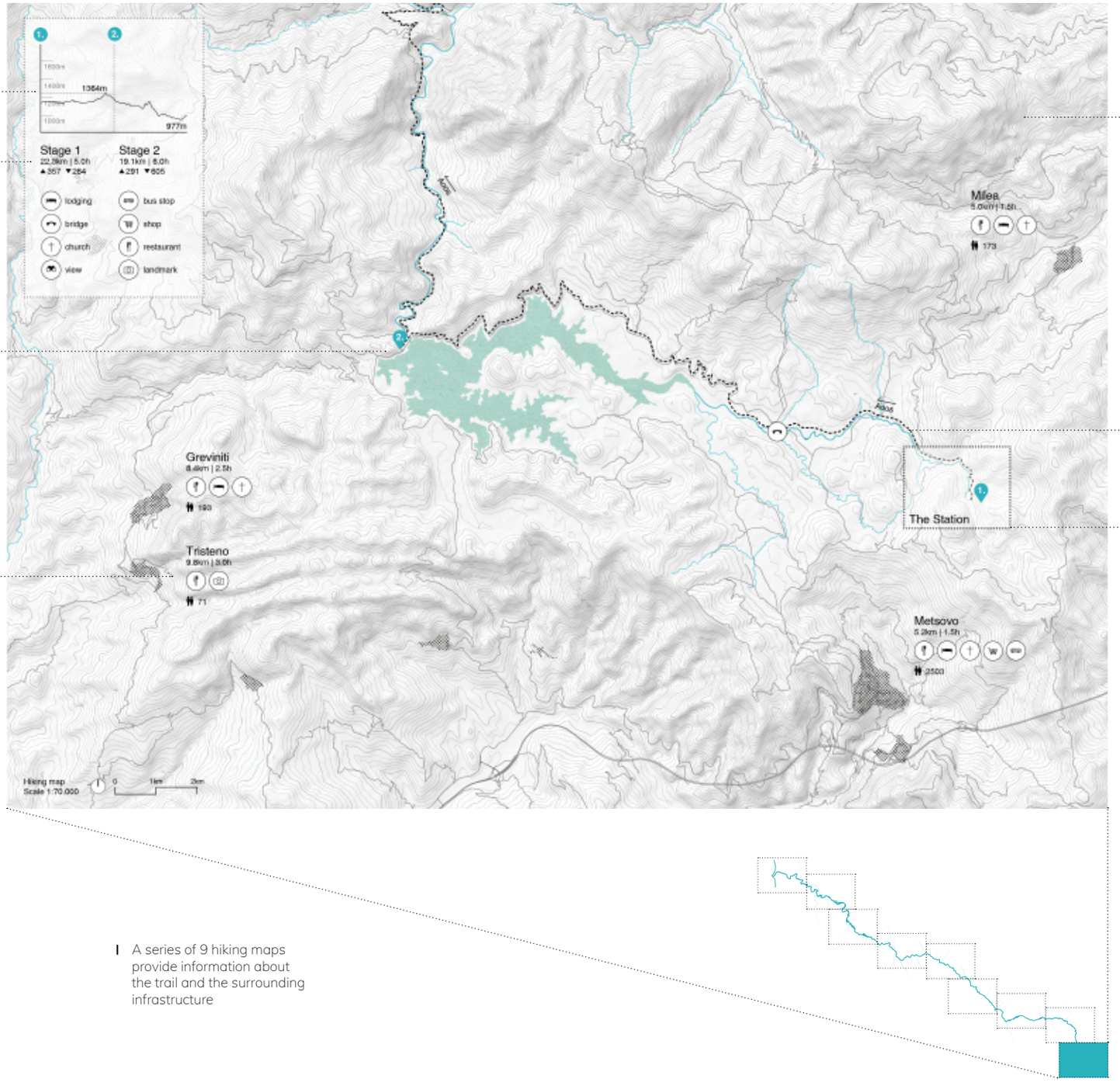
Hiking Maps



A series of 9 hiking maps provide information about the trail and the surrounding infrastructure

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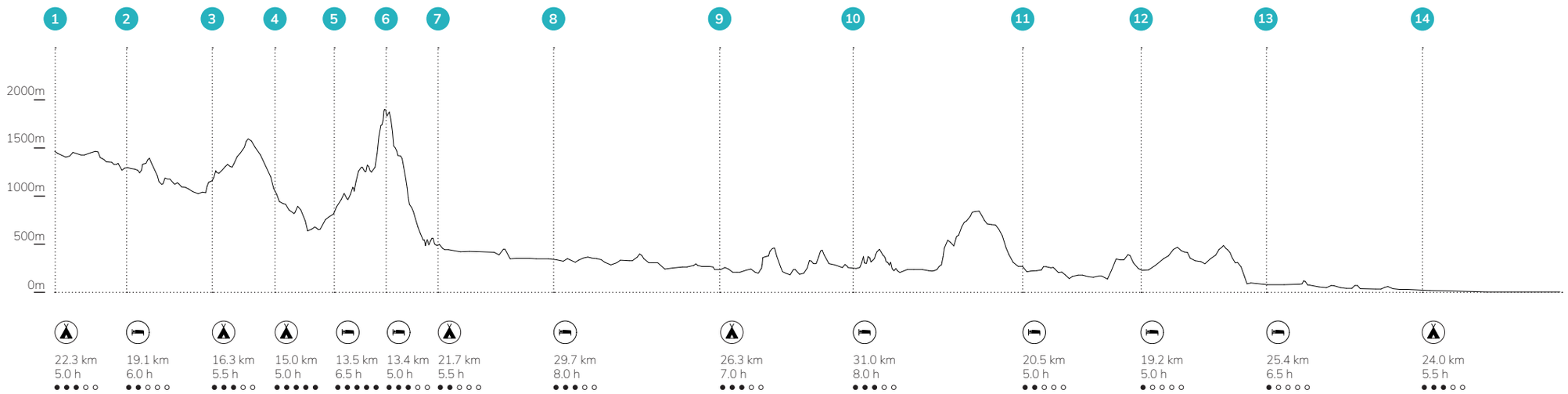
Hiking Trail Overview



existing trails

new hiking trail

tent needed

lodging available

difficulty 1-5

Total - 14 stages

266,4km

36km new trail

83.0h

5282m

6234m

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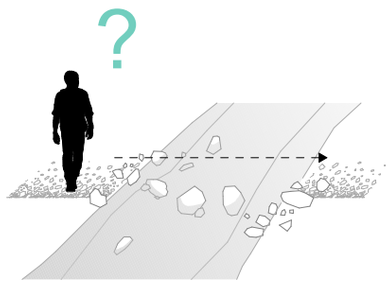
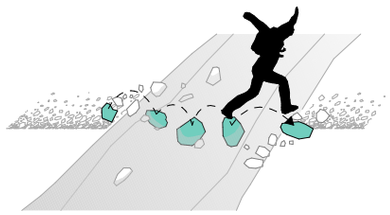
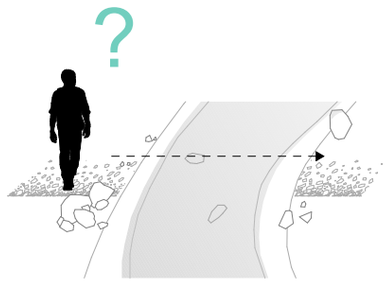
Design Concept



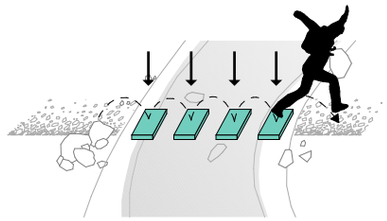
Problem of crossing a river tributary



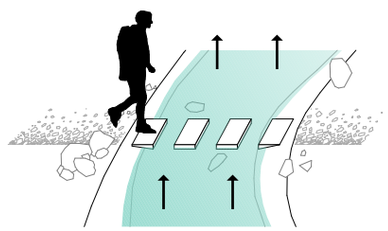
Skipping over river stones



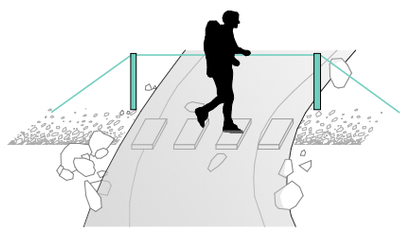
Problem of crossing a tributary without rocks



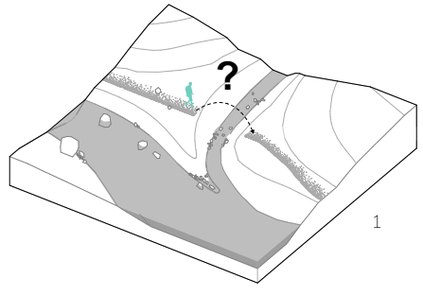
Placement of *Riverstone Concrete* slabs to create a trail



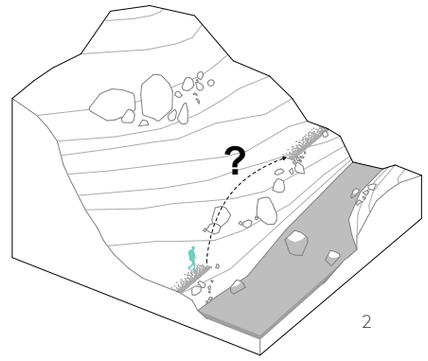
Water levels rise and fall, covering the stepping stones



Add a railing for additional safety and direction when the trail is not visible



1



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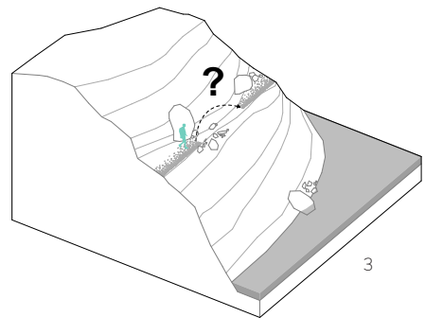

3

Concept is adapted to the different obstacle situations encountered along the trail

1 Tributary crossing
2 Slope crossing
3 Ridge crossing

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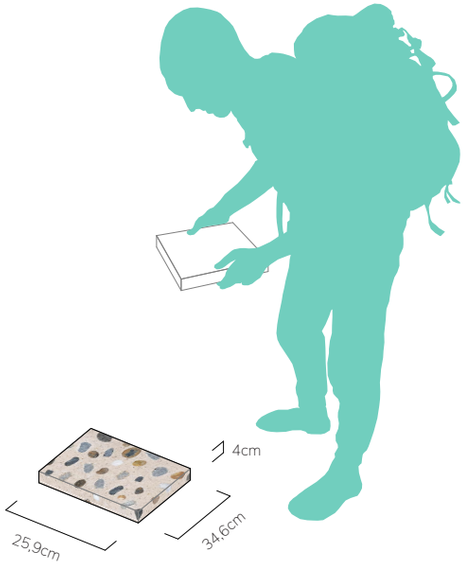
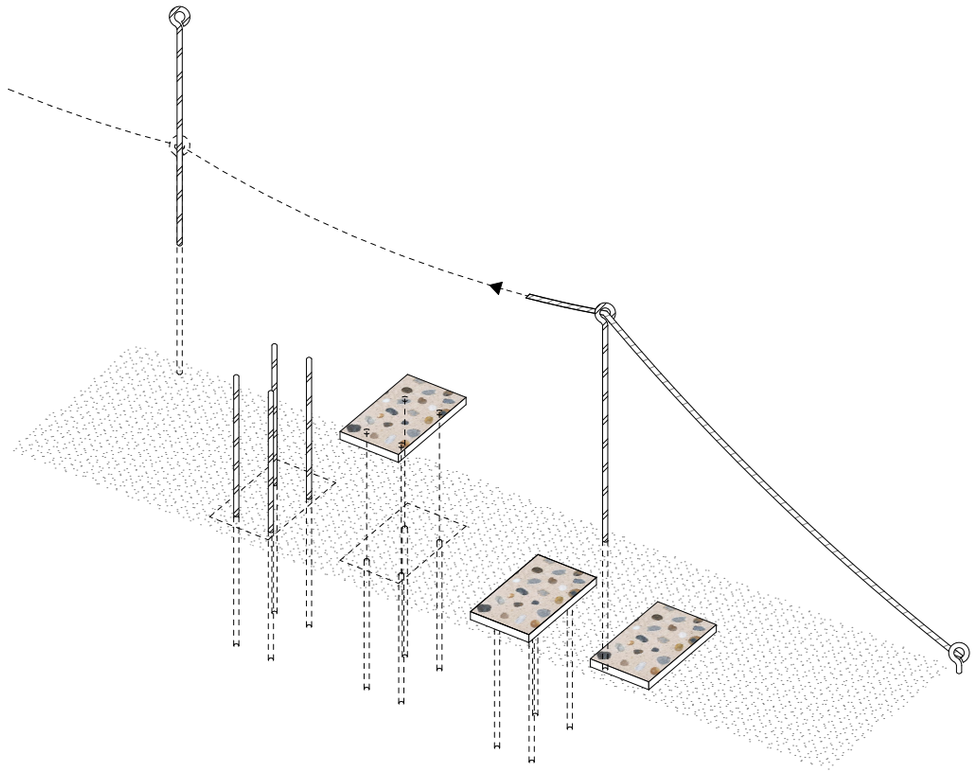


The stone slabs are either prefabricated or created in-situ, depending on what the situation allows



Rebar is rammed into the earth to provide a better foundation and prevent the slabs from rotating. They are held down by their own weight

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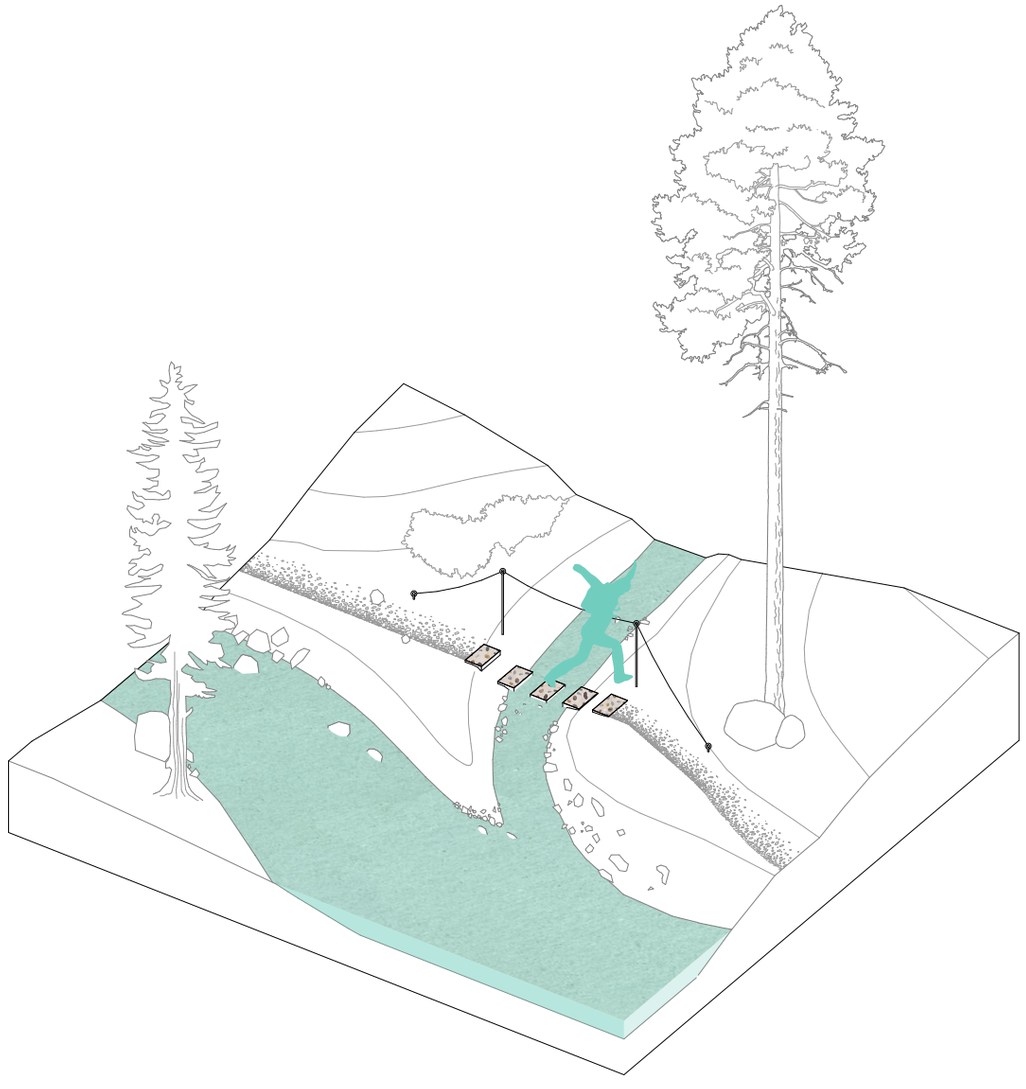
The trail frequently has to deal with tributaries that flow into the main river. The concrete slabs are positioned as stepping stones in the water, marking a safe spot to cross



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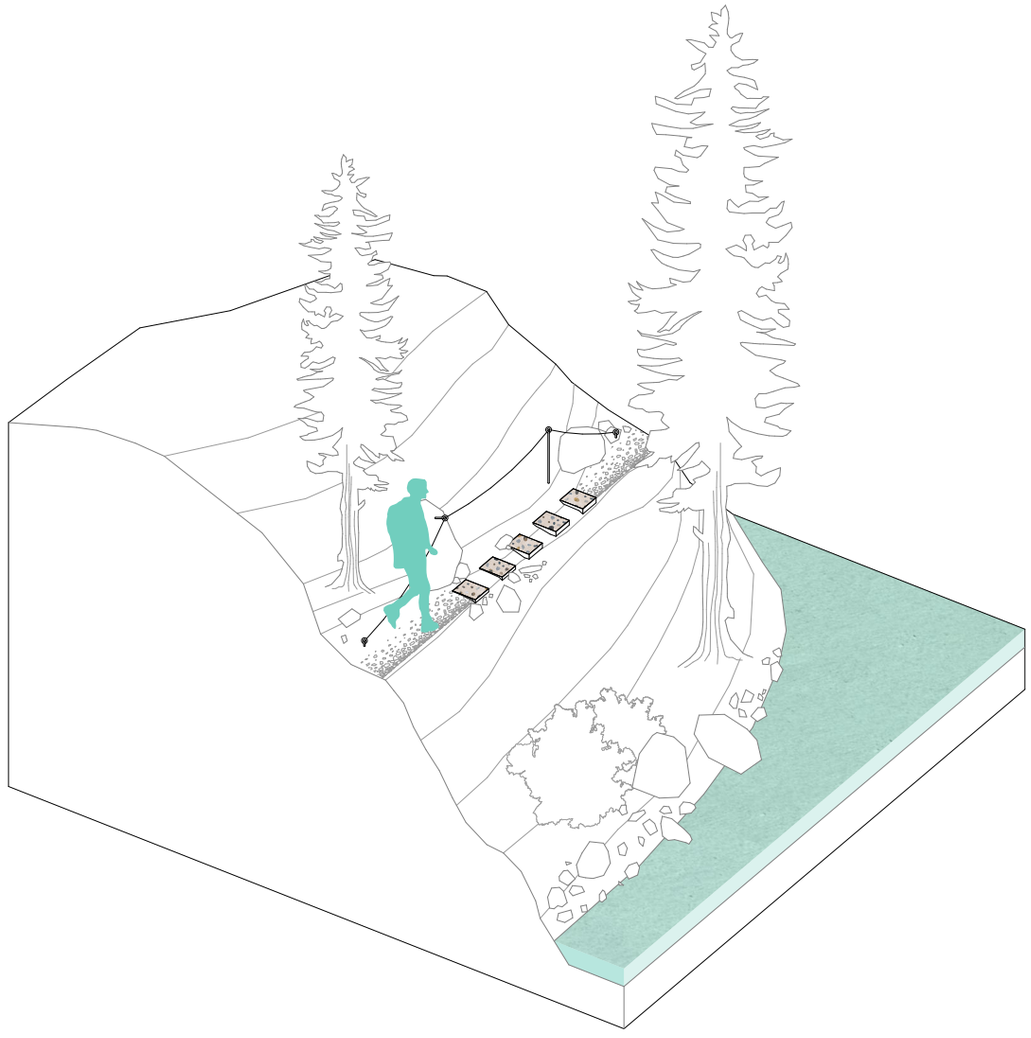
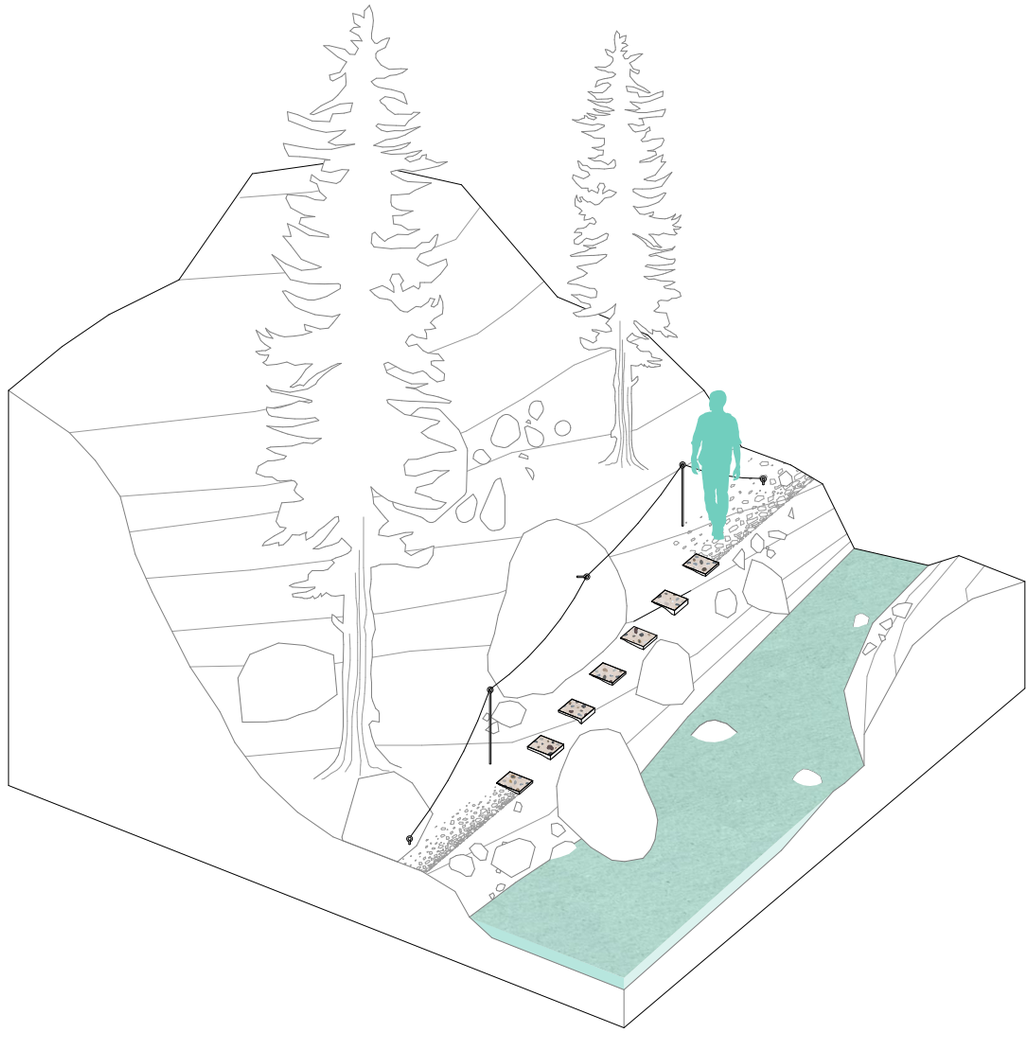
Steep ridges are prone to landslides that oftentimes make the trail impossible to cross. Reinforcing these situations provides them with more protection, but maintanance is still required



Slope Crossing



I Placing the riverstone slabs like a stair enables the hiker to overcome steep slopes, the railing adds addiotional security and visibility

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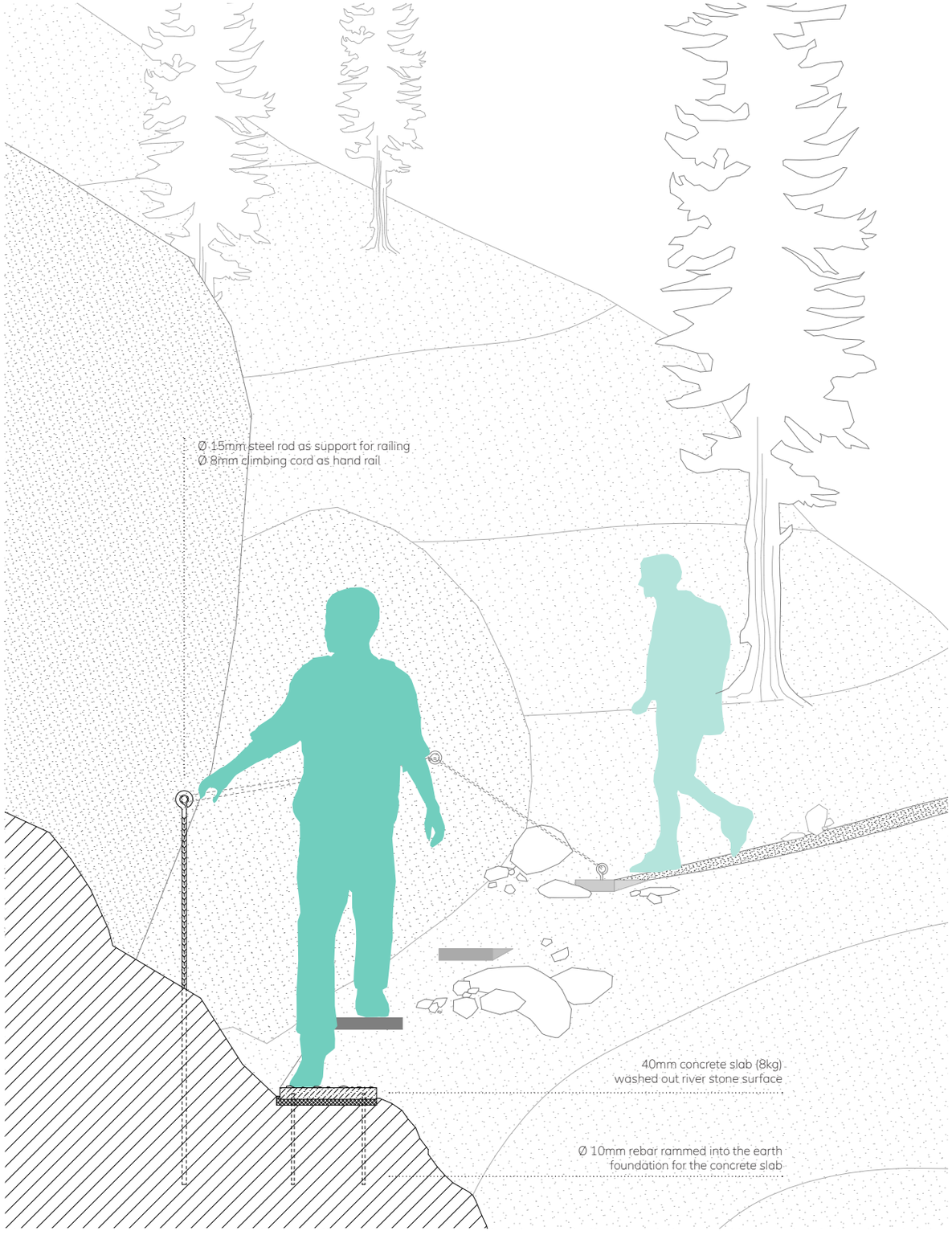
Detail

I The friction of the slabs is increased by washing out the surface to expose the riverstones and aggregate fo the *Riverstone Concrete*



I Detail section
Scale 1:20

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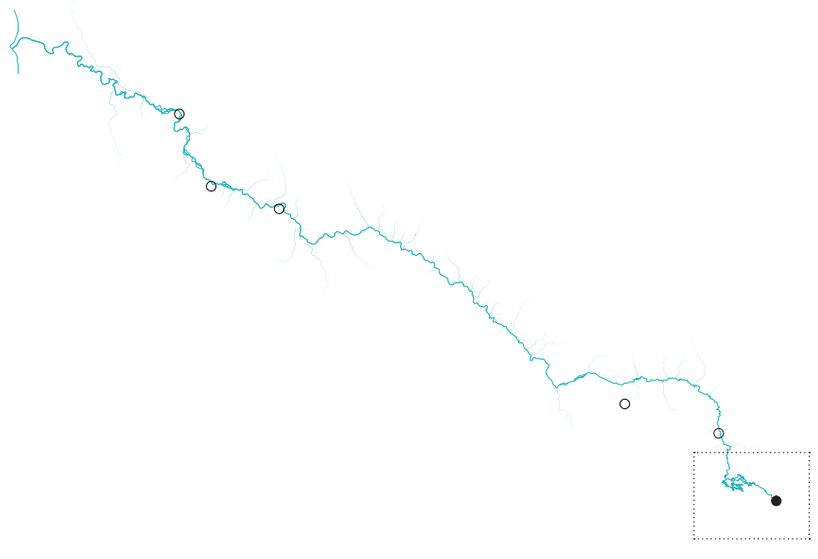
The Milestone

Project 1

A small object that marks the threshhold between stages
and offers orientation, water and a place to rest.



Impressions

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– The mountain stream flows through the high plains close to Metsovo

– The Aoos artificial lake begins after about 10 km

– One of the river sources; the first time the Aoos becomes visible

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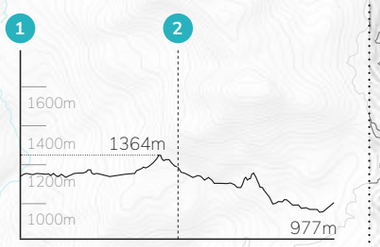

Stage 1
22.3km | 5.0h
▲357 ▼264

Stage 2
19.1km | 6.0h
▲291 ▼605

lodging
bridge
church
view
bus stop
shop
restaurant
landmark

A005

Milea
5.0km | 1.5h
173

Greviniti
8.4km | 2.5h
193

Tristeno
9.8km | 3.0h
71

Metsovo
5.2km | 1.5h
2503

The Station

Hiking map
Scale 1:70.000

0 1km 2km

Elements of the Region

Visiting the region, one can quickly notice the many small, recurrent elements that have taken on a very distinctive form – the fountains, miniature churches or proskinitaria and benches.[51] Further analysis and documentation of these objects led to the idea of creating a milestone as a physical element between stages.

Due to the abundance of water in the drainage basin of the river, as most of the tributaries come straight from mountains or hilltops and provide easy access to drinking water, countless fountains have been built on the roadsides and usually at every village centre. Resembling small altars their appearance is uniform. They are almost exclusively built out of stone and the water runs out of the walls into bowls of carved rock, before toppling over to the ground into iron grates. Over decades the crystal-clear water leaves traces of algae and small plants where it passes, covering the bowls with greenery that lets them blend into the landscape.

The second type of elements are the little shrines by the roadside, so-called 'proskinitaria'. Travelling through Greece and Albania it doesn't take long until you notice the miniature churches placed in the middle of the landscape. Some more elaborate than others, they appear at the most curious places, sometimes with no village or house in sight for miles and yet carefully tended. The reason behind the little chapels are many, some are built by the roadside in remembrance to a victim of a traffic accident but sometimes they are built by survivors or people of faith to honour a saint or patron. While each might tell a different story, they all share the same purpose – to provide the passerby with a moment of rest and spiritual reflection. As a sign of civilisation in the wilderness, they also remind the traveler that someone has been there and emanate a sense of safety.

The third type of elements are benches. They usually mark points of interest of all different kinds. Built out of stone or placed as light metal constructions they are always directed towards an interesting view, if possible, onto to the river.

Top row: Fountains

Middle row: Miniature churches (proskinitaria)

Bottom row: Benches

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51 Sutton B.S. (ed. 2000). p.153

The abundant fountains oftentimes resemble shrines or altars built into the landscape

The miniature churches appear in the strangest of places but are almost always carefully tended to

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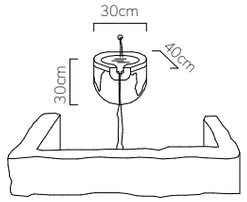
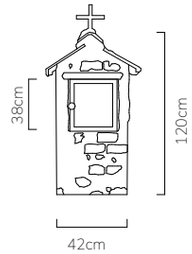
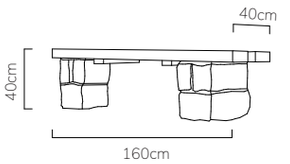
Benches are directed towards the breathtaking views







Although unique in design, the elements are similar in shape and sizes

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The Milestone

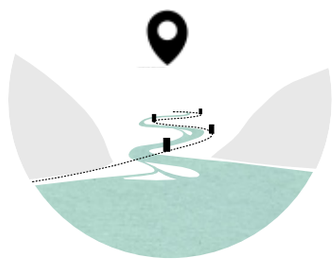
About 10 km away from Metsovo, on a tranquil meadow at the foot of Mavrovouni, where only shepherds and their flocks of sheep can be seen roaming, the journey begins. In between the chirping of birds and the distant barking of dogs, one can hear the trickling of water. Out of a little stream that at first glance seems completely dry, a crystal-clear trickle of water escapes through the gravely bed. There, the first *Milestone* is set into the landscape and overlooks the source of the Aoos.

On the backside, the *Milestone* resembles a portal, placed transversally onto the hiking trail, and symbolises a threshold the hikers must pass through. In doing so, they have to step over gently flowing fountain water, before entering the new stage of the hike.

Cast entirely out of the *Riverstone Concrete*, the *Milestone* combines the three types of re-curring elements together into one. The fountain nourishes the travellers with fresh spring water, the bench offers them a place of respite and the 'proskinitari' lights their way onwards. The fountain is integrated in the vertical wall of the *Milestone*. The fresh spring water runs through hidden pipes into a stone basin, where it provides nourishment for the traveller. Through an opening in the basin, it flows into a groove in the floor and under a vertical column on the other side of the It is hollowed out to offer space for a candle and items or symbols left there by previous passerby. The small light source offers a feeling of safety, especially amid the wild nature of the Pindos mountains Before moving on-wards, the hikers can catch their breath on the stone bench, over which a fourth element is added; the hiking map. It provides orientation and offers an insight into the upcoming stage. A fourth element - the hiking map, adds the component of orientation and offers an insight into the upcoming stage.

The object marks the beginning and the end of the *VA Hiking Trail*, as well as the junction between two stages of the hike, thus occurring 15 times. It also provides an entry or exit point for day hikes and for those who might want to interrupt their pilgrimage.

From here on, the trail runs at high altitude into a shallow valley, forcing the hiker to walk through dense underbrush and onto the high plains of the Aoos artificial lake. The vegeta-tion on the windswept plains quickly becomes scarce. Walking past the reservoir built in the late 70s the first station comes into sight after a hike of around 20km. The trail contin-ues through a steep gorge towards a little mountain village called Vovousa.



Chapter I

The Station

A waystation that creates a threshhold between stage water and a place to rest.

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An Albanian shepherd tending to his flock in the vast pastoral plains that surround the source of the river

The start of the trail is located at the source of the Aoos at an altitude of about 1450m

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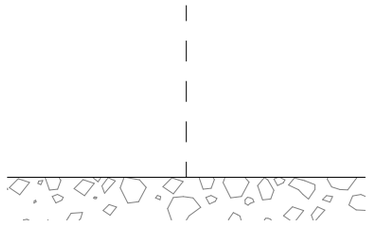
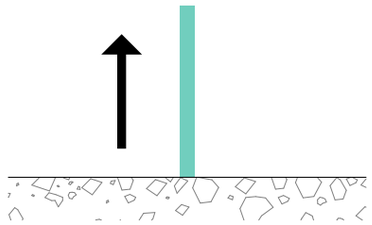
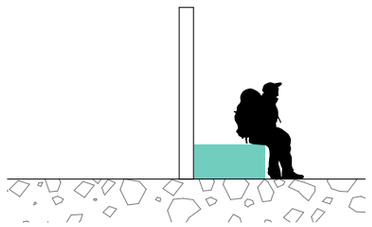
Design concept



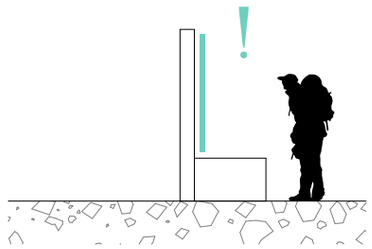
Creating a threshold between the stages



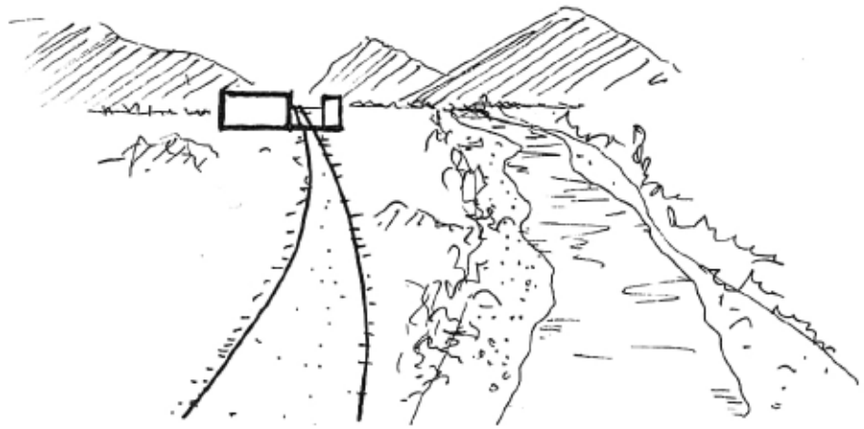
Raising a wall as physical marker



Add element of the bench directed towards the next stage



Map is added for orientation



I The object appears perpendicular to the trail as a wall with an opening through which the hiker passes

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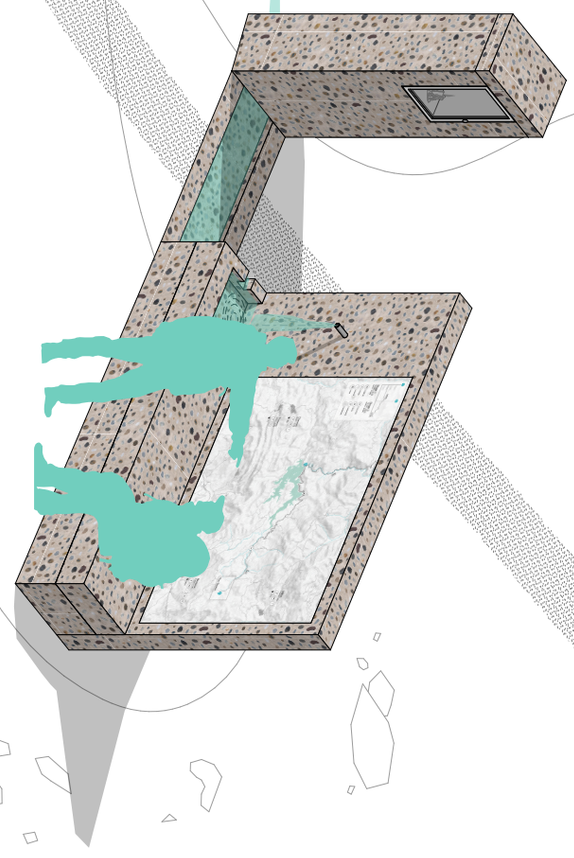
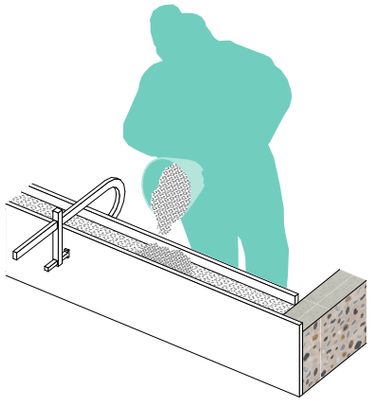
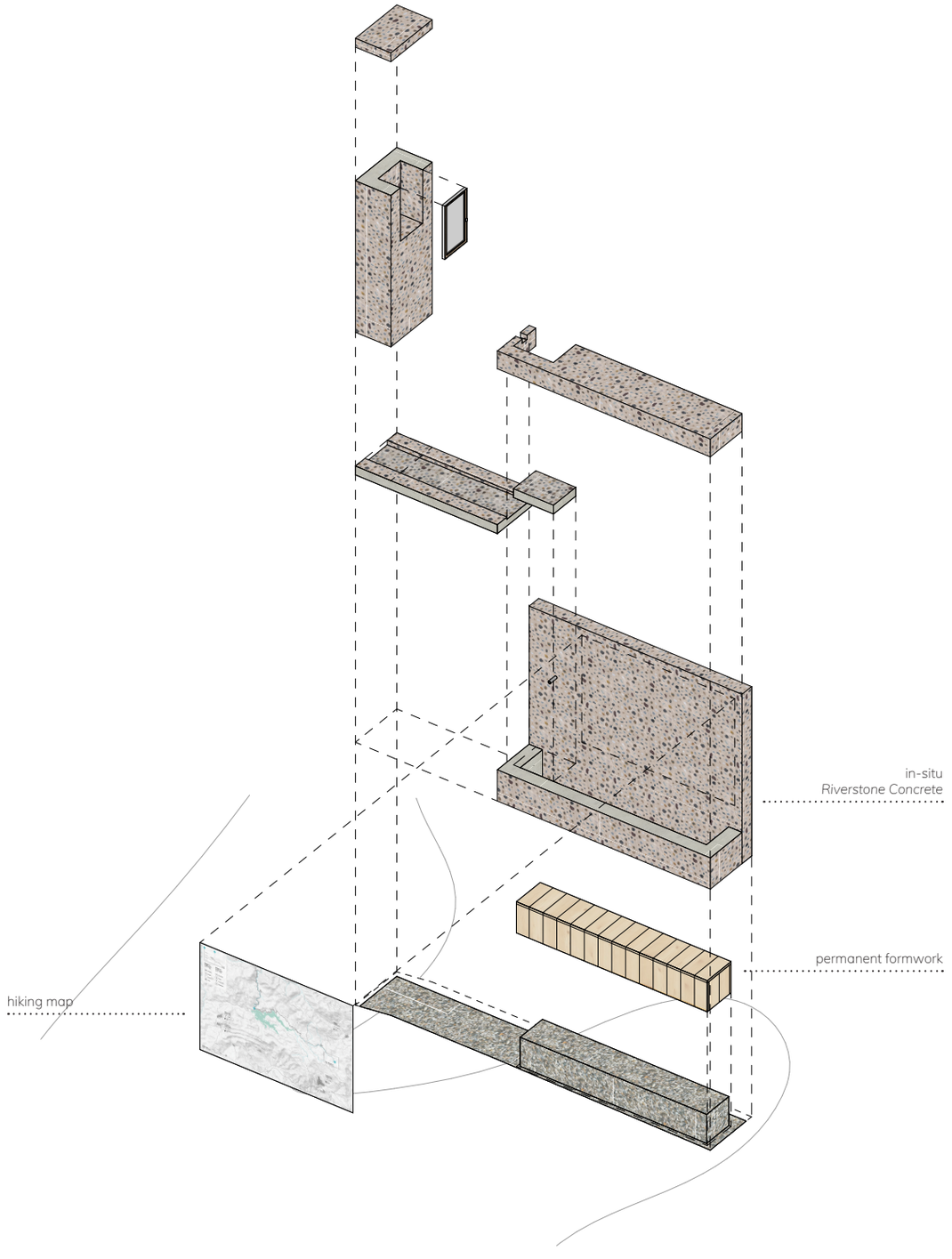


Material concept



Riverstone Concrete is used in-situ to create the small object

The *Milestone* is cast on-site in multiple steps



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Plans

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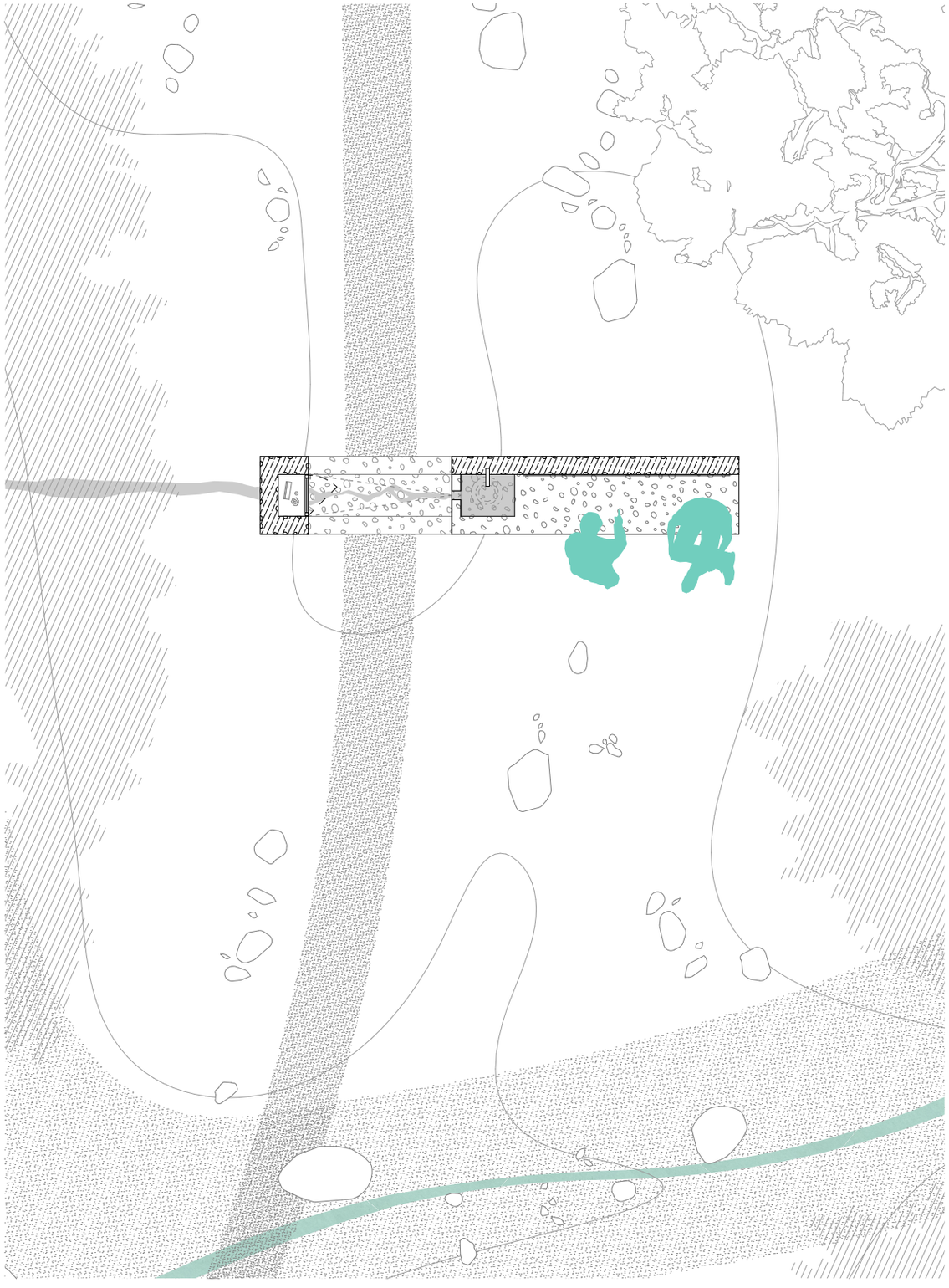
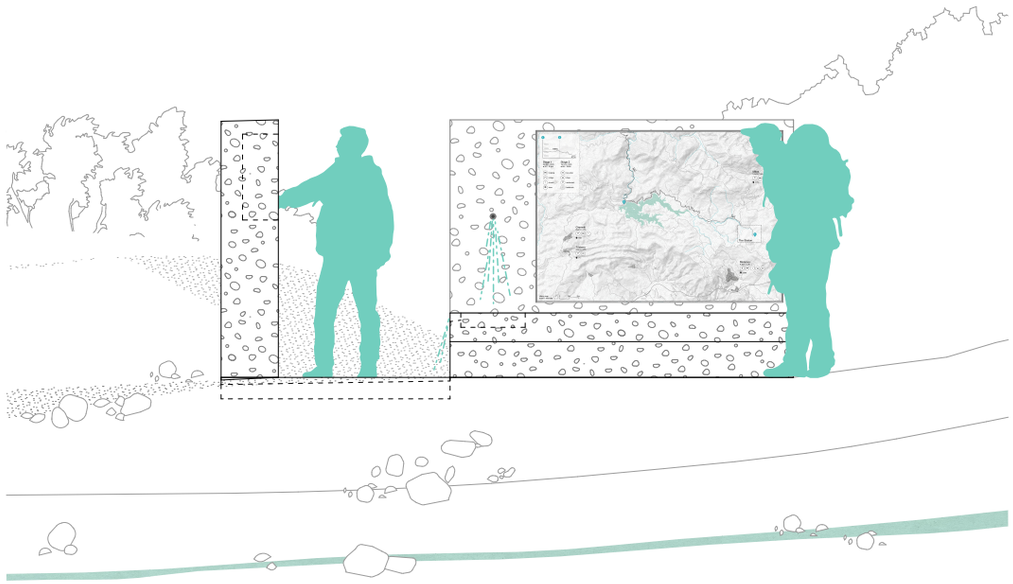
Site plan
Scale 1:500

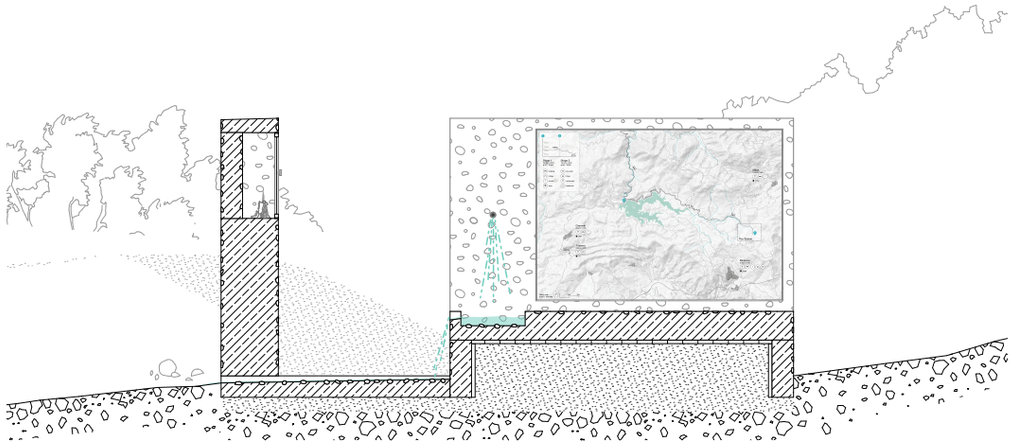


Floor plans
Scale 1:50

0 0.5 1

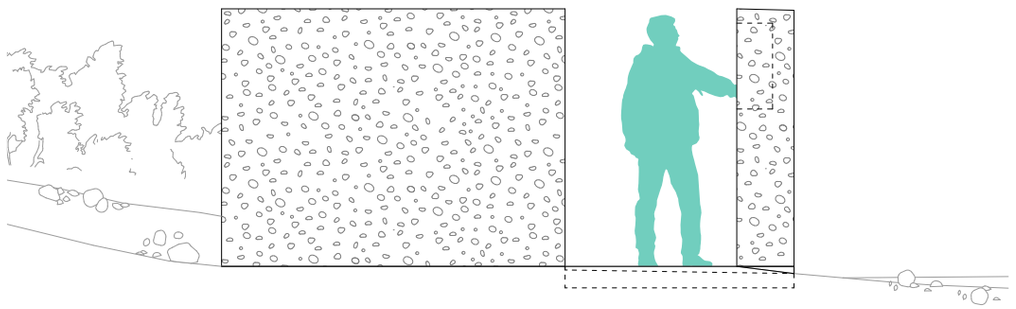
Plans

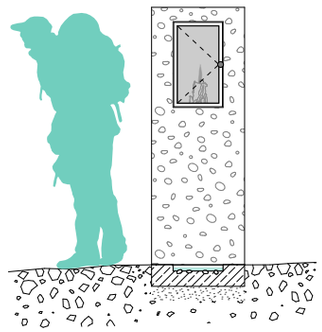


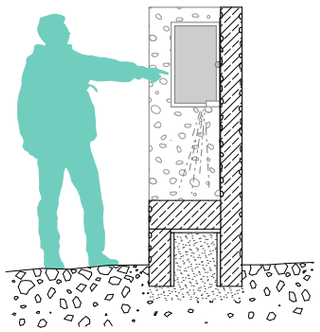


Sections and elevations
Scale 1:50

0 0.5 1







Sections and elevations
Scale 1:50

0 0.5 1

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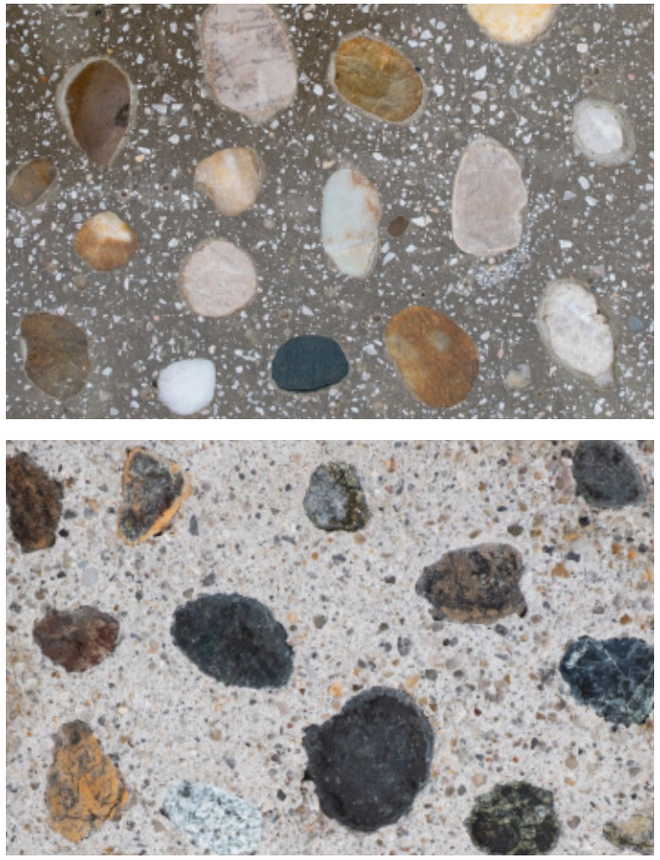
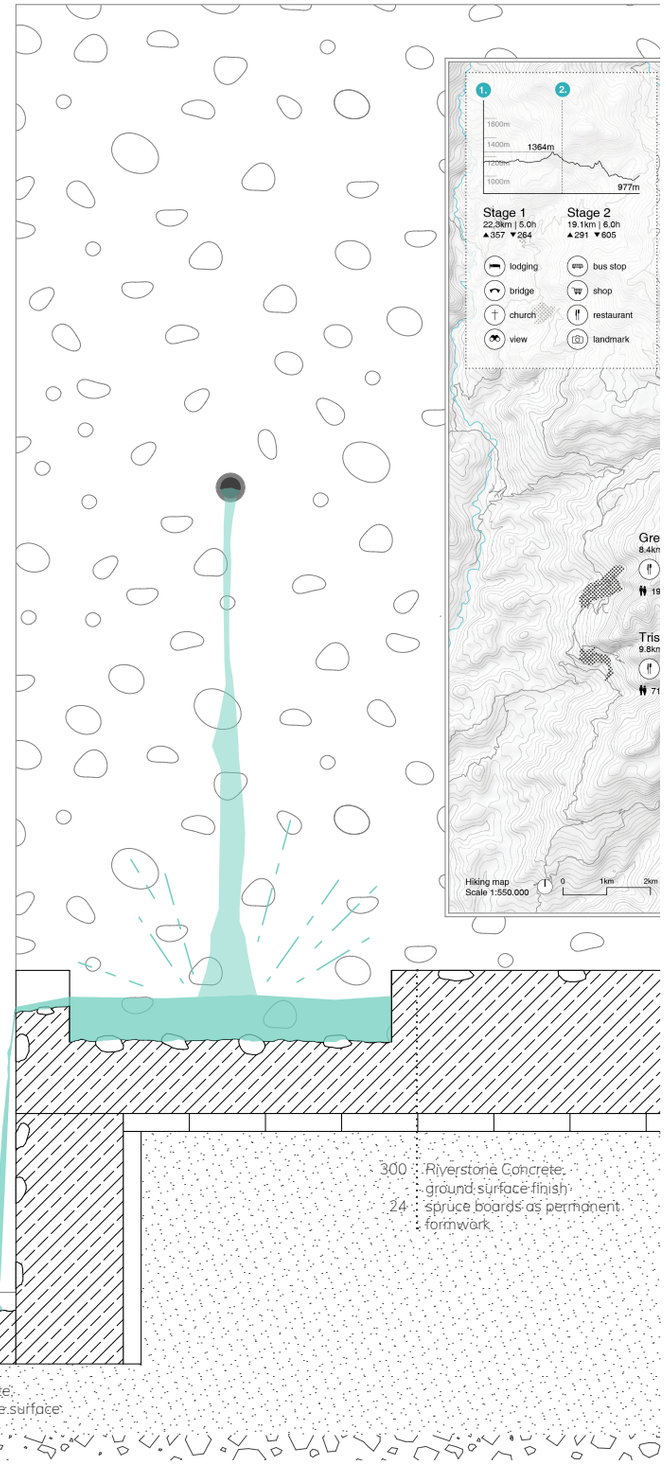
Detail



I *Riverstone Concrete* is used with two different surface finishes: exposed aggregate for the water basin and the threshhold groove, the rest is sanded



I Detail section
Scale 1:20

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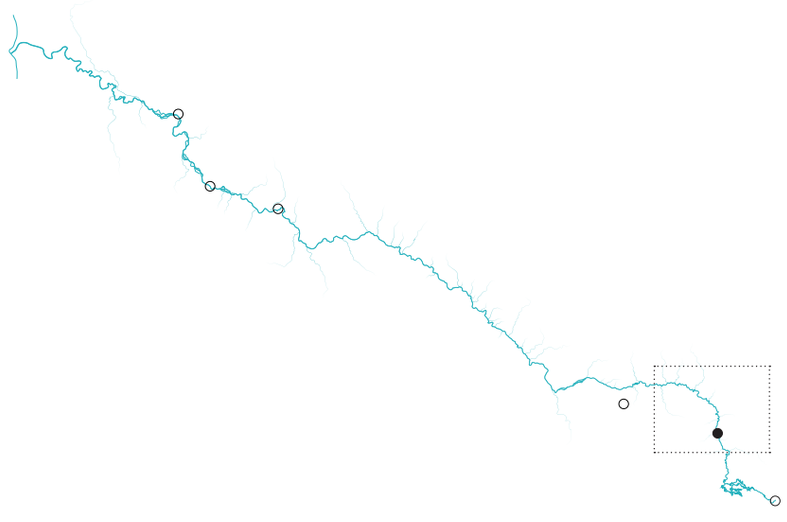
The Cultural Convent

Project 2

Residents for artists on the edge of the remote village Vovousa in the Pindos mountains.



Impressions

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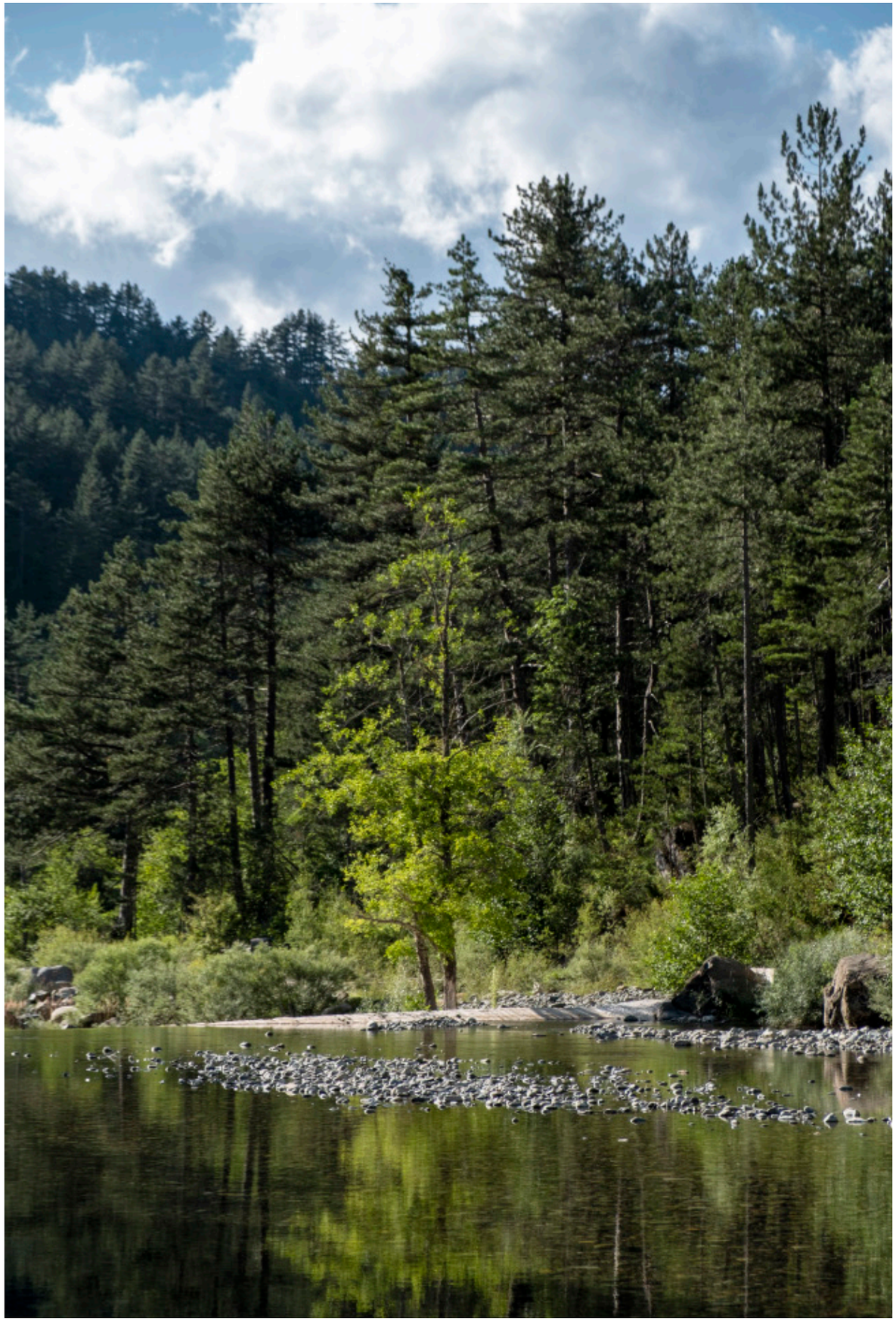
– After the Aoos lake, the trickle slowly grows again

– The Aoos cuts through the steep valleys close to Vovousa

– Dense trees and untouched nature line the river banks at Vovousa



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Distrata
43.3km | 10.5h
278

Avdella
20.3km | 4.5h
280

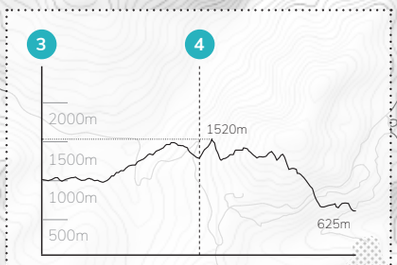
Laista
9.4km | 2.5h
127

Perivoli
5.2km | 1.5h
21

The Cultural Convent

Vovousa
0.2km | 0.3h
115

Aoos



Stage 3
16.3km | 5.5h
▲680 ▼429

Stage 4
15.0km | 5h
▲455 ▼1166

lodging
bridge
church
view
bus stop
shop
restaurant
landmark

Hiking map
Scale 1:70.000
0 1km 2km

Vovousa

Vovousa is a small village in Zagori. At an altitude of 1000m in the Pindos Mountains it is located about 1 ½ hours from Ioannina, close to the artificial lake of the Aoos. The river is about 5-10 meters wide at this point, going straight through the village and continuing on from there to flow on the north side of the Tymfi mountains toward Konitsa. Vovousa's 115 inhabitants are Greeks and Aromanians, a nomadic group that settled into the region. To this day, tension between the two ethnic groups consists, the Greeks accusing the Romanian government of promoting Romanian nationalism by establishing schools within the region.[52]

During the Ottoman occupation, the group of settlements – the Zagorochoria - became prosperous trading villages, its inhabitants had profitable trading agreements with Constantinople, Russia and Romania and were able to navigate through the difficult terrain of the mountains. As a testimony to this time, the 'kalderimia' (cobblestone streets) and the many stone bridges used for hoofed transport still remain. After the fall of the Ottoman Empire, the inhabitants slowly left the villages to work abroad or in the bigger cities, leading to an immense decline of population in the Zagori area. Nowadays in the winter time, the remote stone villages are mostly empty, with the people hibernating in Ioannina. A feeling of nostalgia seems to float in the air.

The village is densely built and organised around a single centre, the village square, marked by an old plane tree, as is common, and surrounded by public functions such as a church, a school and a 'kafeneion' (coffee shop), as well as the main fountain. The main square represents the centre of social life.[53] Also part of this assembly, is a 270-year old stone arch bridge, which connects the two neighbourhoods flanking the Aoos. Here, the houses are arranged organically along the winding streets. They are typically constructed out of stone, with timber roofs covered in slate tiles. The tiles are piled on top of each other and held together only by their weight. The floor plan of traditional houses is organised around the main room for the winter months, the 'mantzato', that includes a fireplace, a table and elevated seating areas that can be used as beds, called 'basia'. From there, a wooden staircase leads up to the 'krevattia', an area between the actual bedrooms.[54]

The slow pace and small scale of Vovousa induces a sensation of calm, reinforced by the remoteness of the place. In the summer months it is bustling with life, hikers from Ioannina and all over Greece come to enjoy the scenery and take walks in the mountains.

The village of Vovousa was built in a narrow valley on both sides of the river Aoos, which are connected by an old arched stone bridge

52 Weigand G. (reprint 2014). p.305
53 UNESCO (2014).
54 Elena T. (2019).

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A typical town square in the Zagori area marked by an ancient platanus tree

The famous stone bridge in the center of Vovousa

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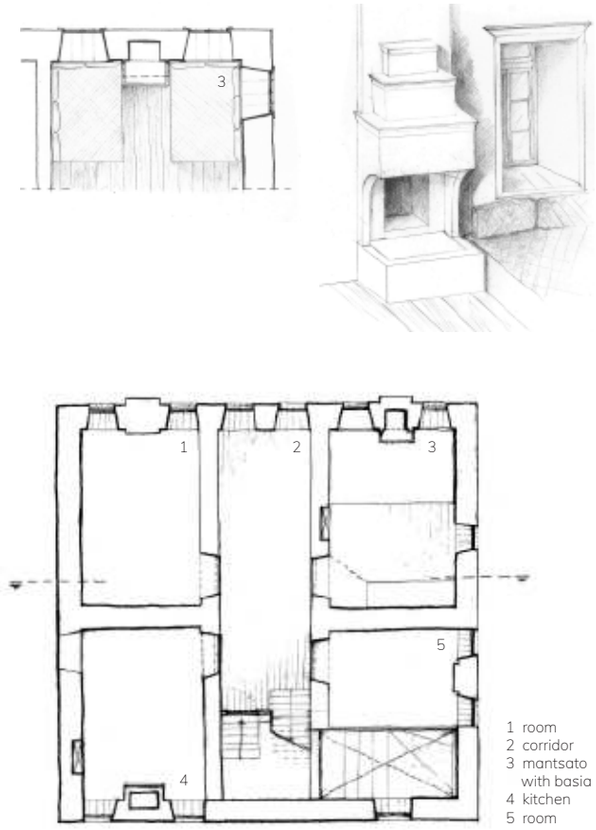
Traditional stone house with the roof covered by slate tiles



1 room
2 corridor
3 mantsato with basia
4 kitchen
5 room

Example of a traditional Zagorian house floor plan in Tsepelovo

The mantsato is the main room with a fireplace and raised, heated beds (basia)

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Vovousa Festival

Summer is also the time of the Vovousa festival, during which the village is completely transformed. It all started back in 2013, with the peaceful protest against a planned dam project, which would have threatened the Aoos, as well as the way of life in the region and would have violated national park laws. The protest took the form of a festival and has been gradually expanding each year, while focusing on and celebrating themes such as arts and crafts, local knowledge of herbalism, foraging for wild food, nature conservation, sustainable development and regional history and way of life. While it was initially limited to a weekend gathering, attended by a handful of regular Vovousa visitors, locals and people from surrounding villages, the latest editions grew significantly in size and programmeme.

As a newfound tradition, every mid-July, the village is the stage for a whole week of film screenings, workshops, lectures, children's activities, music performances, photography exhibitions and more.[55] The events make full use of the village structure and take place in saw-mills, woodworker shops, or abandoned buildings as well as in front of the two churches or on the main square. Aside from the core team, locals and regulars, the festival is now attracting new volunteers, participants and visitors from larger cities like Thessaloniki or Athens and even from abroad.

Artistic director Kamilo Nollas, who has roots in the region, intended to show the beauty of the mountains as an alternative to the allures of the Greek Islands. In his words: "We want to jumpstart tourism; bring culture to an otherwise isolated location and educate people on sustainability and the environmental treasures of our national parks."[56] He has managed to put this small, eclectic festival on the map and establish an artistic and environmentally conscious community, connected to the region and to the village. Because of the growing interest, the organisers are constantly looking at new premises to use during the festival, be they lodging for the visitors and participants or places for exhibitions.

Each year during the Vovousa festival, woodworker's workshops and warehouses are used for exhibitions, screenings or concerts. Above, the festival director Kamilo Nollas holds the opening speech for a photo exhibition

55 Pavlaki D. (2017).
56 Nollas K. (2015).

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The Cultural Convent

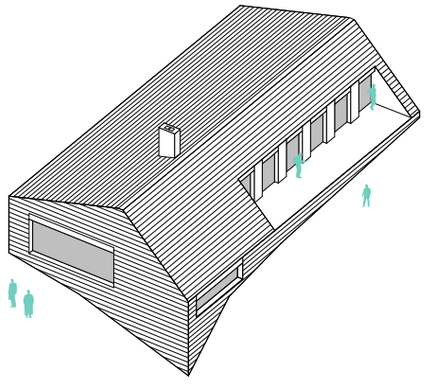
Based on the up and coming artistic scene of Vovousa, the *Cultural Convent* is a residence for artists who can live and work in the village for an extended period of time. The idea of an artist-in-residence programmeme aims to tackle the issue of seasonality in the region by offering a platform for interested artists to work closely with the village structure and population and organise activities outside the touristic season.

While there is not much young population to account for in the area, constant batches of artists arriving in Vovousa might bring along a new energy and impetus, especially during the cold months. They could profit from the remoteness and peacefulness of the place, as it offers a perfect environment for reflection and idea-finding. On the other hand, the village life could profit from any new ideas coming in and from an exchange of knowledge and culture.

Because the goal is not to create an enclave on the village outskirts, the *Cultural Convent* would only serve as dwelling and communal space. For the actual work and exhibitions, the artists would have to make use of the existing village structure, in the same way the Vovousa festival does. The many wood-workshops and the few vacant buildings can be of great help for this purpose.

The building site chosen for the *Cultural Convent* is a rock formation on a nearby hill, which offers spectacular views of the village, the river and the surrounding mountains. Additionally it has the advantage of being very well visible from the main square. The rock formation builds a natural plateau, which we consolidate and mark with a young plane tree, as the traditional sign for important social spaces. Inspired by frequently occurring situations throughout the Zagorochoria, the building itself is embedded into the slope, its roof connecting with the new square, to act as a tribune for larger gatherings and events. The interior is organised around a warm heart, the central chimney offering warmth during the cold months and opens up in two directions, allowing different views. The common area is oriented towards Vovousa and the river, to the north-west, while the private rooms face the wooded mountains to the south-west.

In response to the traditional building culture of the region, but with a modern twist, the *Cultural Convent* is clad entirely with prefabricated slabs of *Riverstone Concrete*, stacked on top of each other. Reinforced concrete is used for the support structure, to allow embedding the house into the terrain. The roof is constructed of timber, to make use of the local know-how and available material. The interior of the building is covered in oak wood, a material which is abundant in the region.



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Building Site

Left: Views from the building site

Right: View of the site from the village

Perched on top of a hill overlooking the village, the river and the surrounding mountains, this rock formation offers a perfect vantage point

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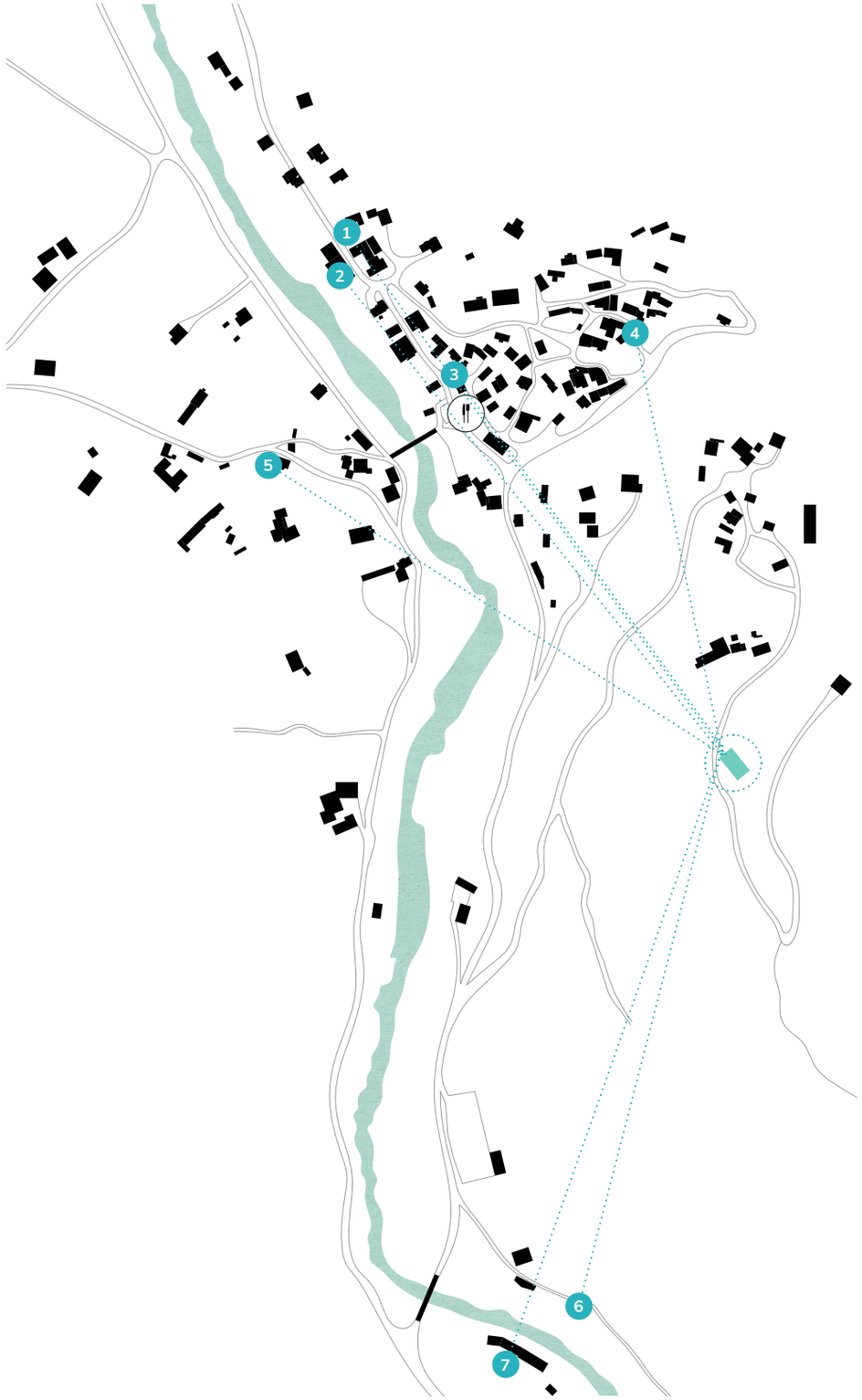
Site Concept

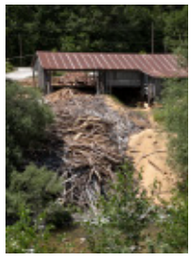


wood workshops

1 4 5

sawmills

6 7



vacancies

2 3

The *Cultural Convent* offers shelter for the artists, but the actual work would be spread throughout the village. Wood workshops, sawmills and vacancies would be used for building and exhibiting the artworks

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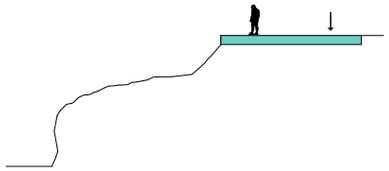
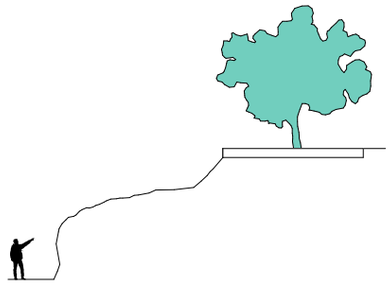
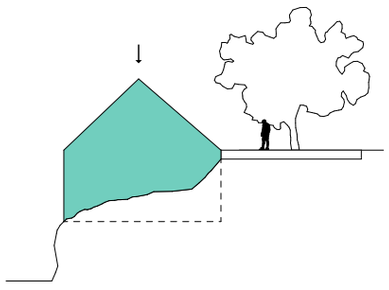
Design Concept



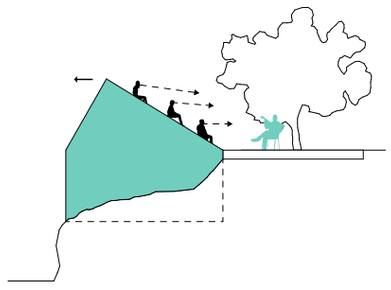
Create a platform on the existing plateau as a place for gathering



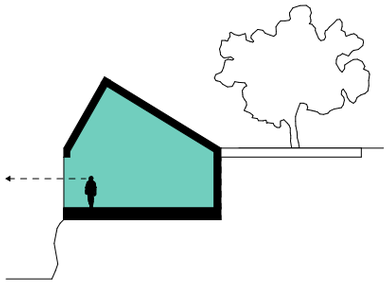
Place a plane tree on the square to act as a marker



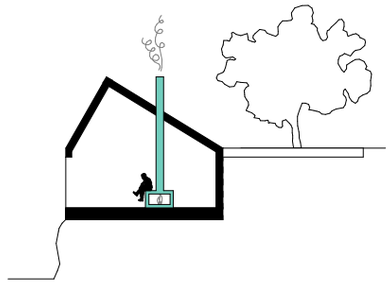
Place the Cultural Convent next to the new square



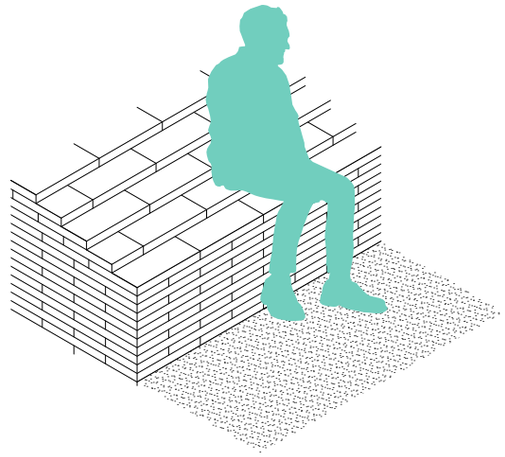
Move the ridge of the roof to create a tribune directed to the square



Add programme inside the the base of the building



Use a chimney as a central element



I Stone roofs in the villages of Zagori serve as inspiration for the stepped roof, connected to the square below

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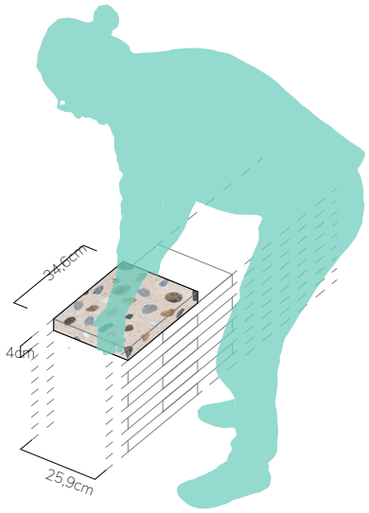
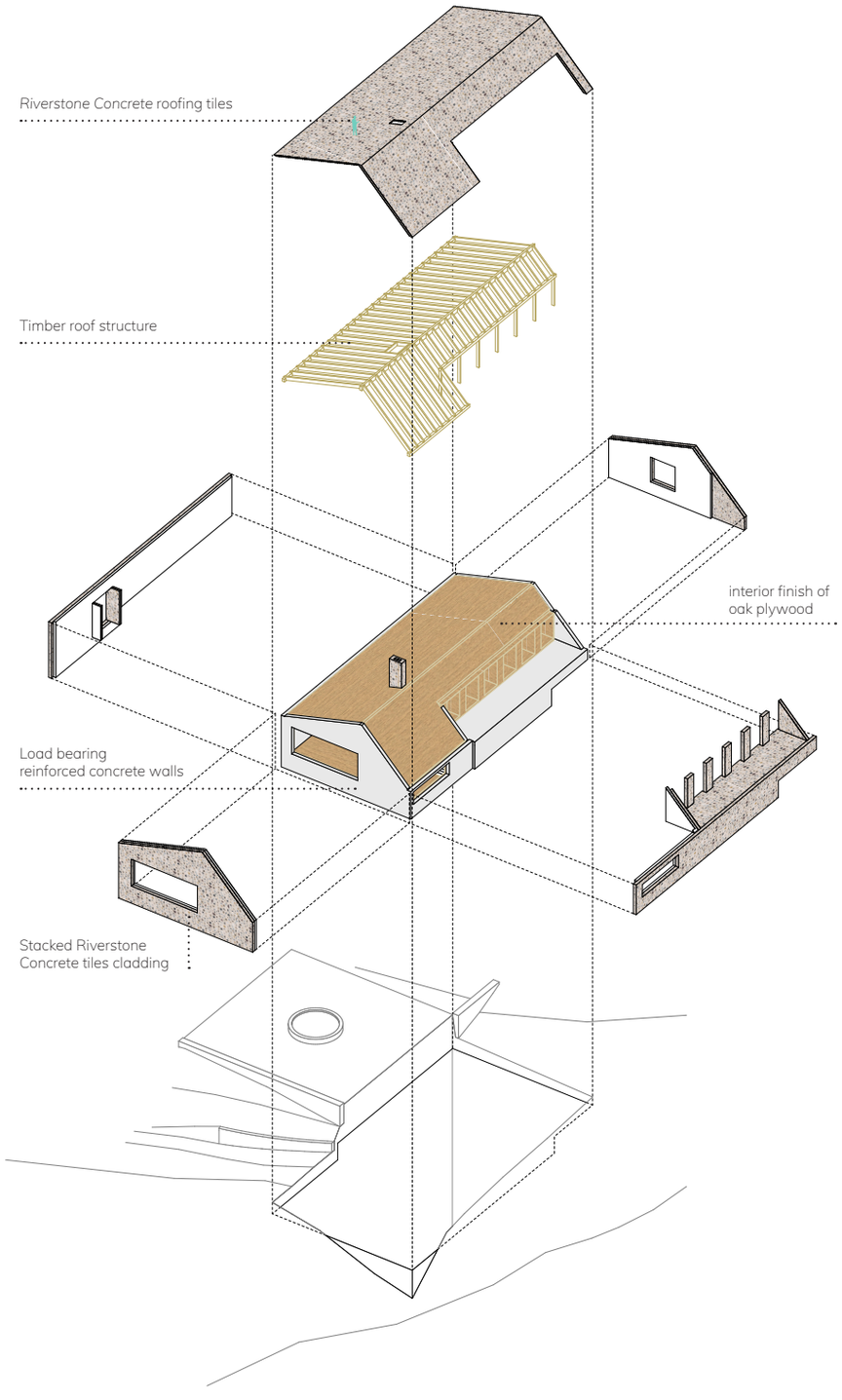
Material Concept



Riverstone Concrete tiles will be stacked to create the outer skin of the building

Reinforced concrete walls are cast on site. Stacked concrete tiles and cavity insulation are then applied on the outside as a protective layer. The timber roof structure is set on top and covered with *Riverstone Concrete* tiles to create a homogenous outer skin. To the inside, a layer of oak plywood serves as interior finish



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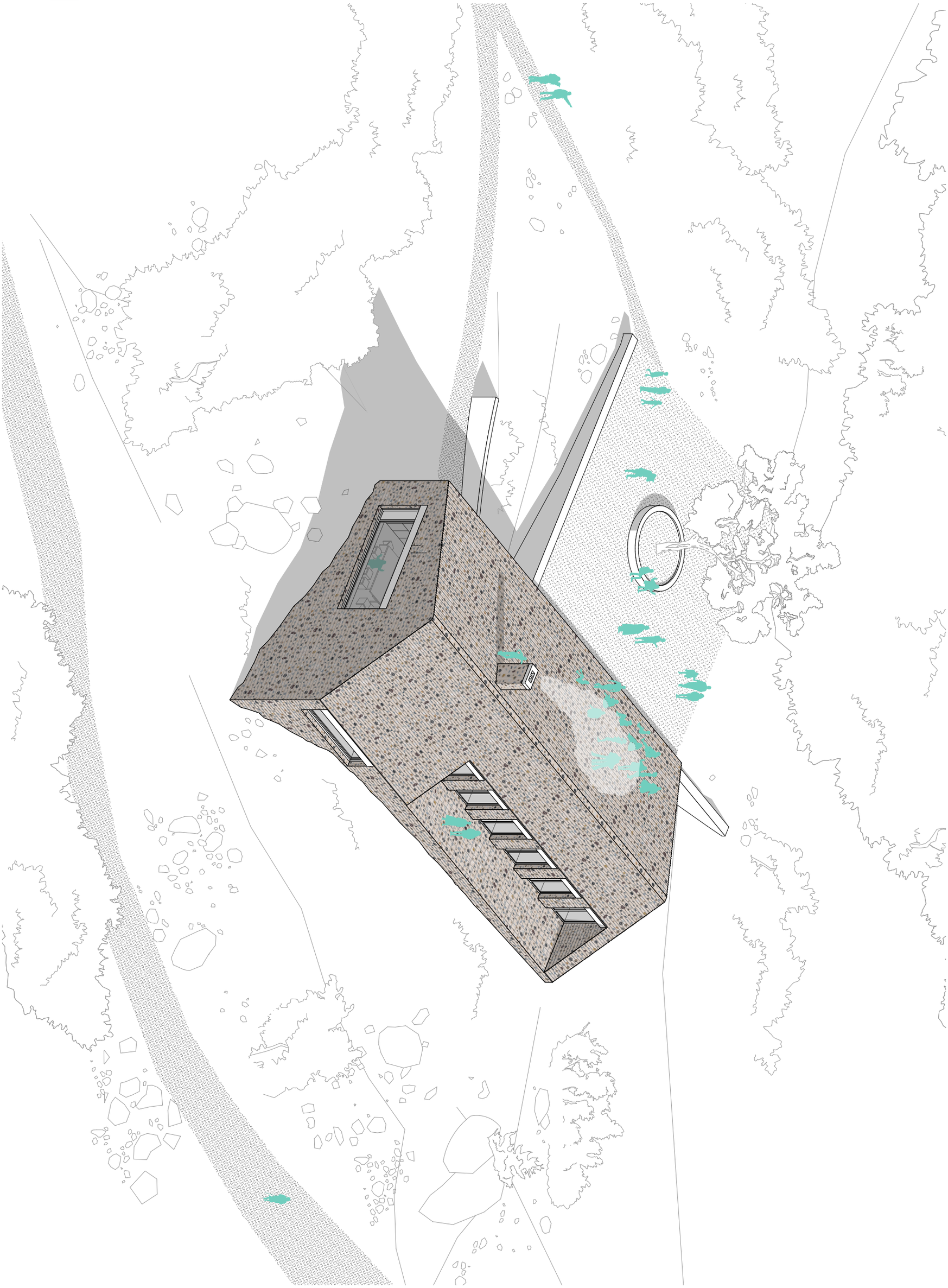
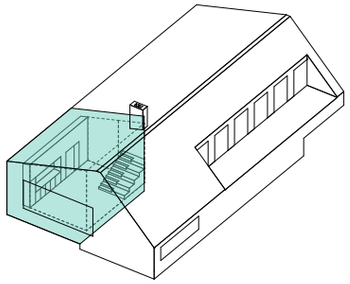
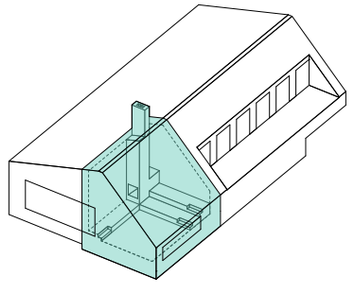


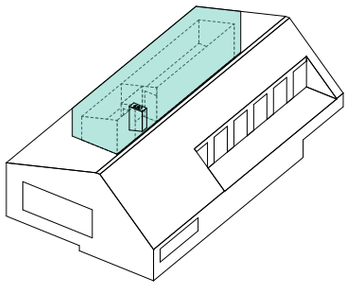
Programme



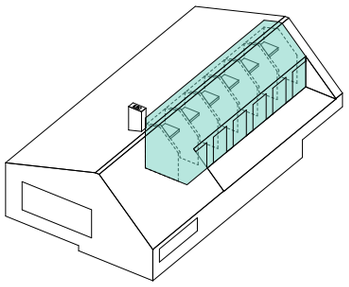
foyer/
kitchen



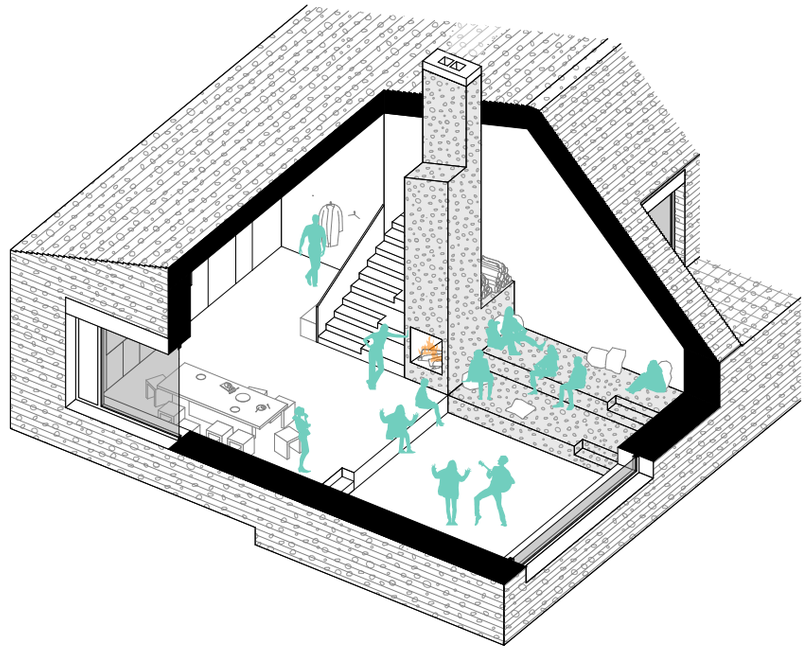
chimney room/
recreational space



sanitation facilities/
laundry room



private rooms



Interior impression of the chimney room. Two stepped platforms are connected to the fireplace to serve as a warm seating element. The floor is lowered slightly to create an auditorium situation for events and larger gatherings

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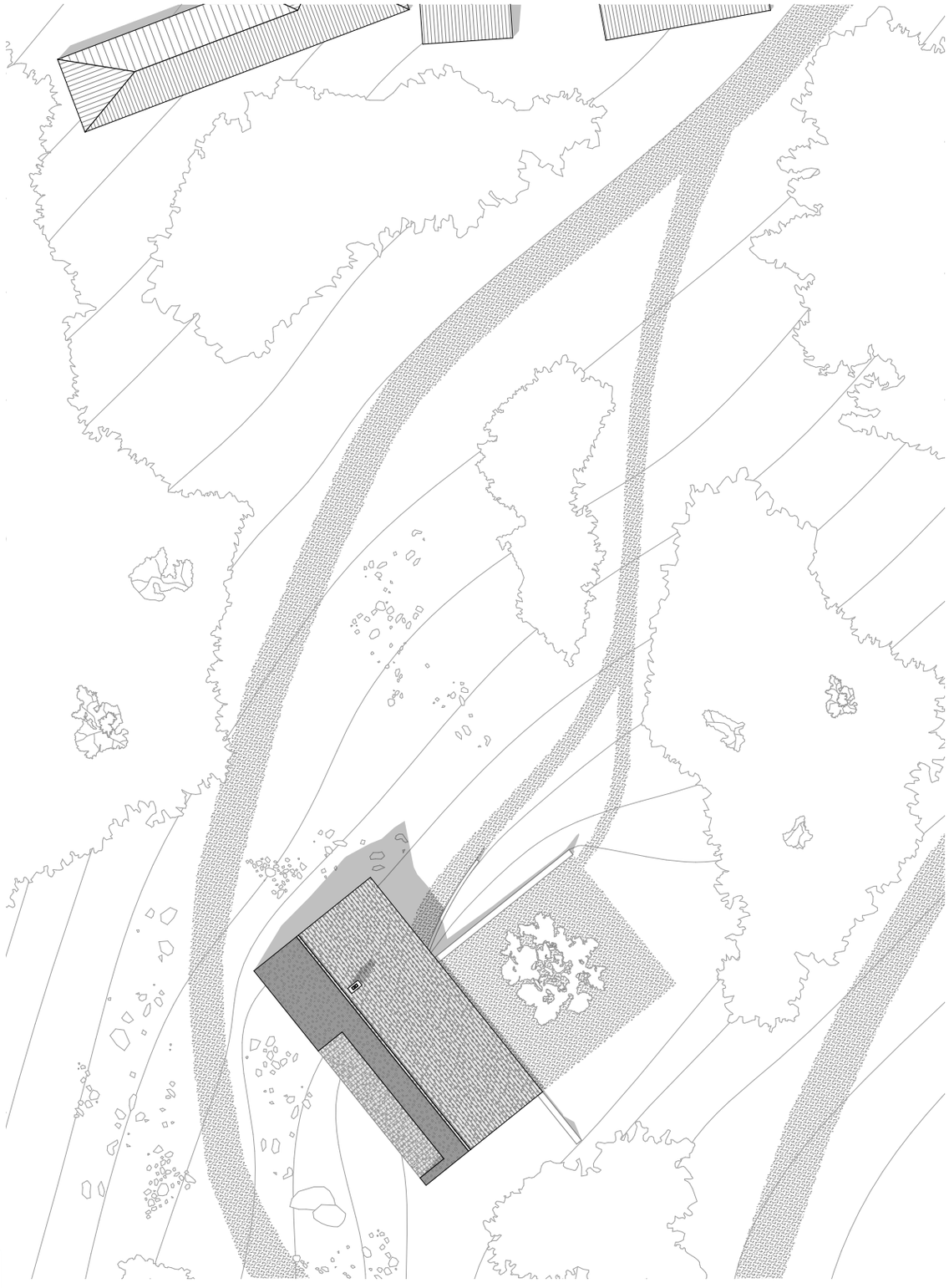
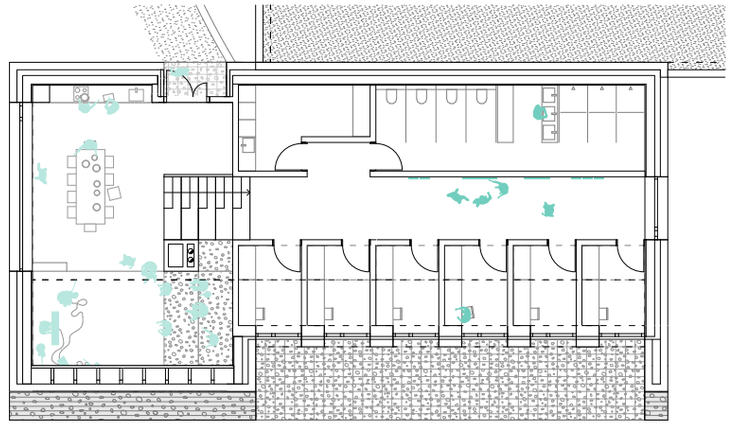
Plans



Site plan
Scale 1:500

Ground floor



1st floor

Floor plans
Scale 1:250

0 2 5

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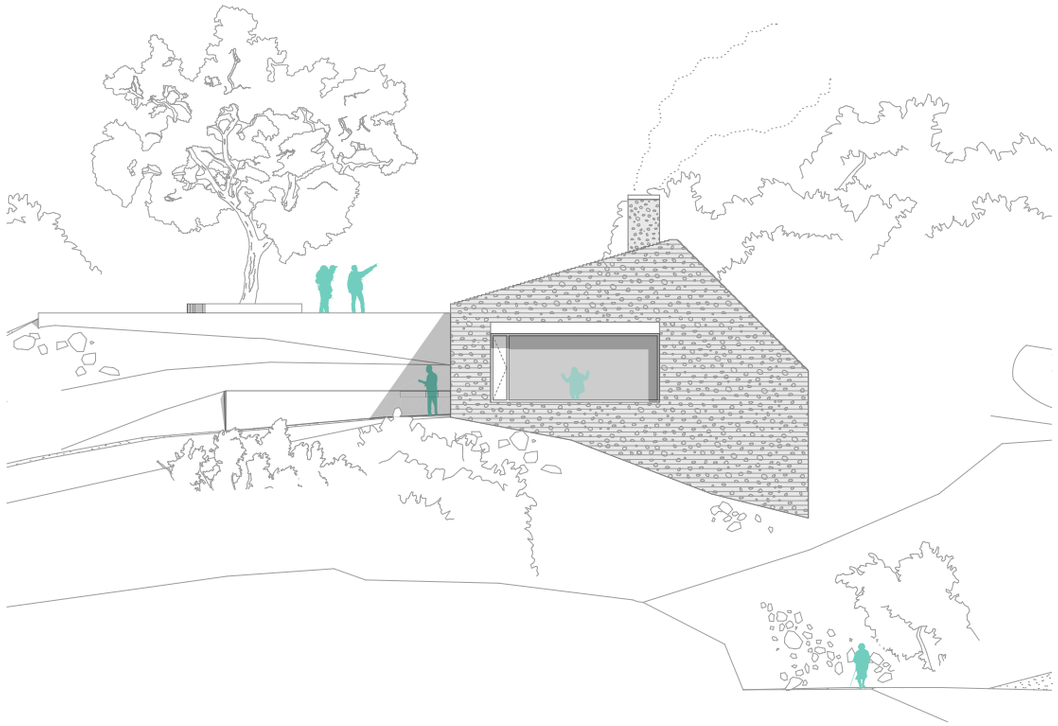
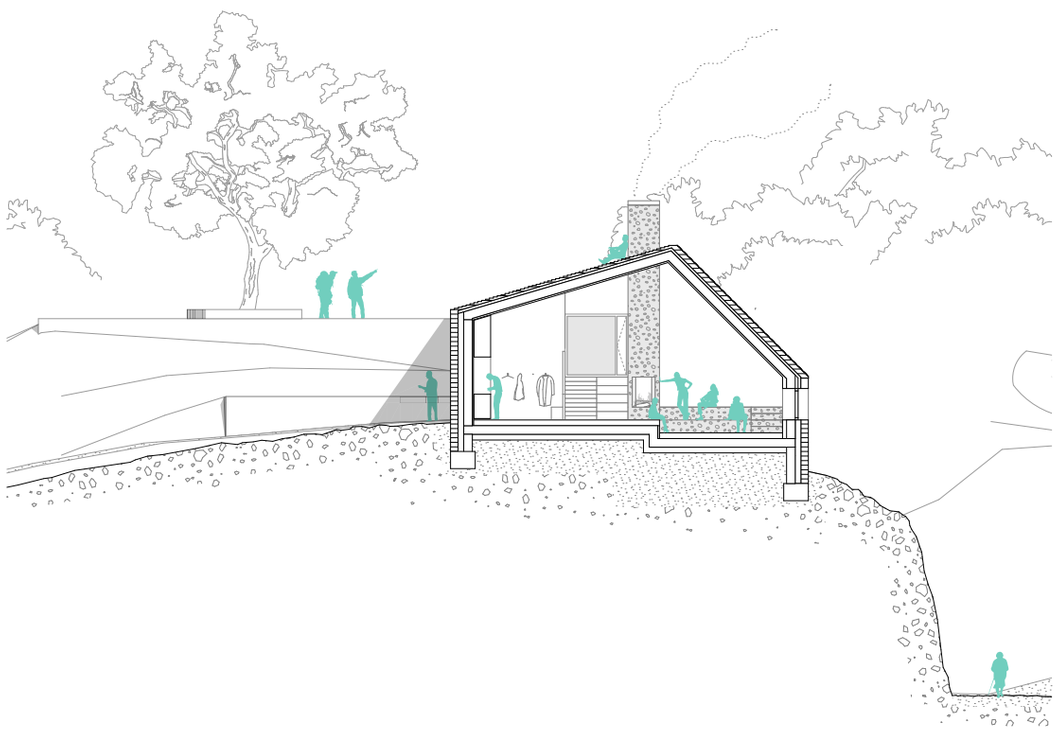
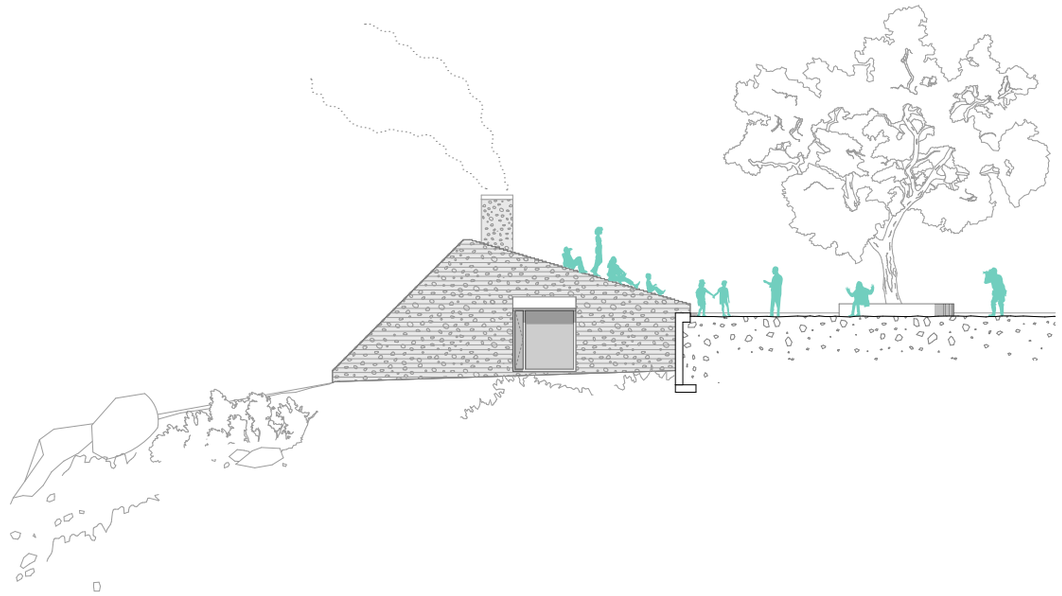
Plans

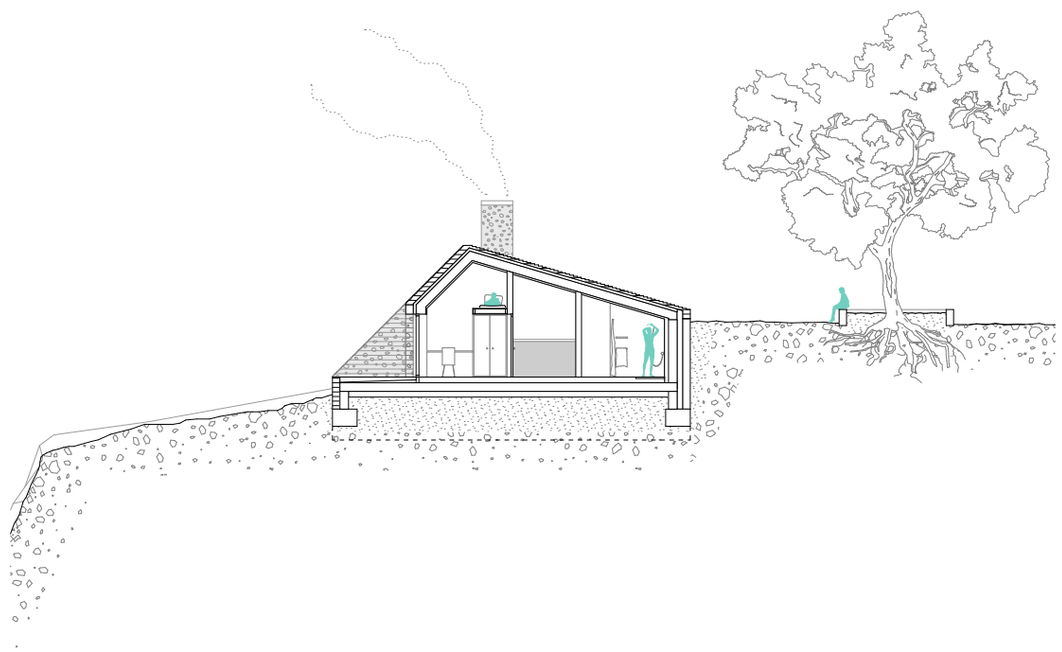




Sections and elevations
Scale 1:250

0 2 5





Sections and elevations
Scale 1:250

0 2 5

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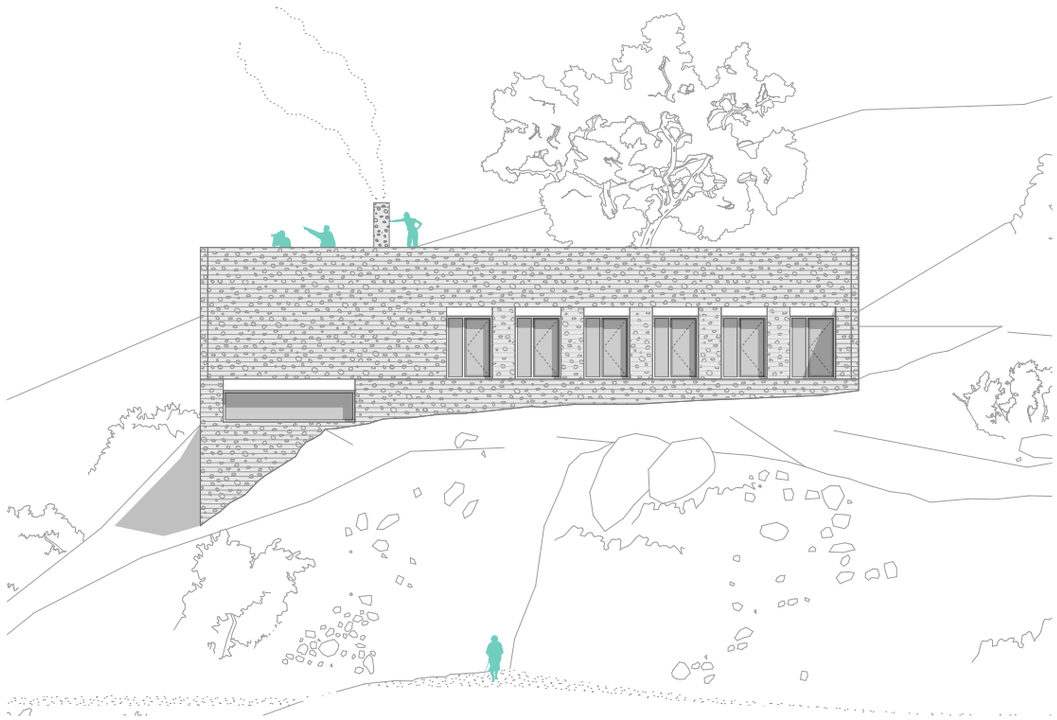
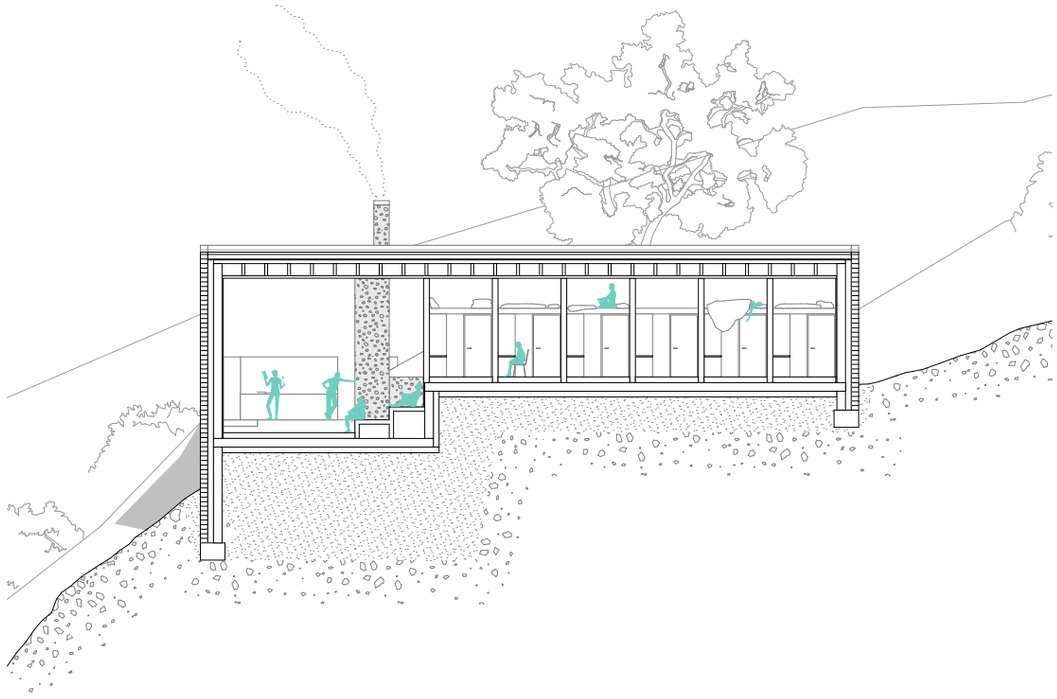
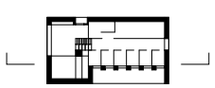
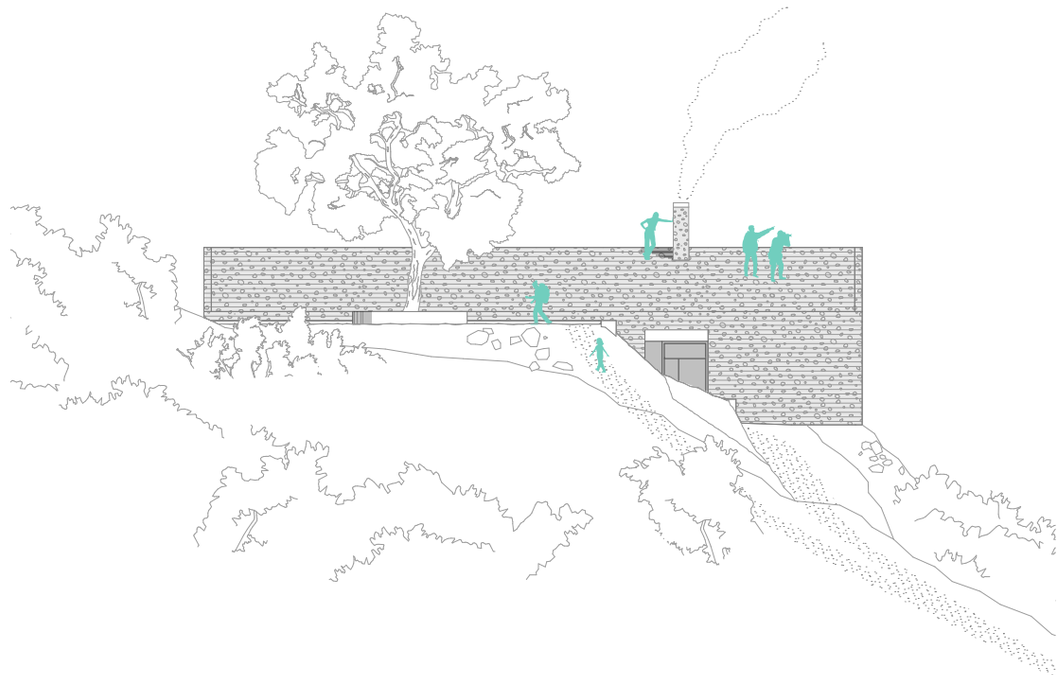
Plans

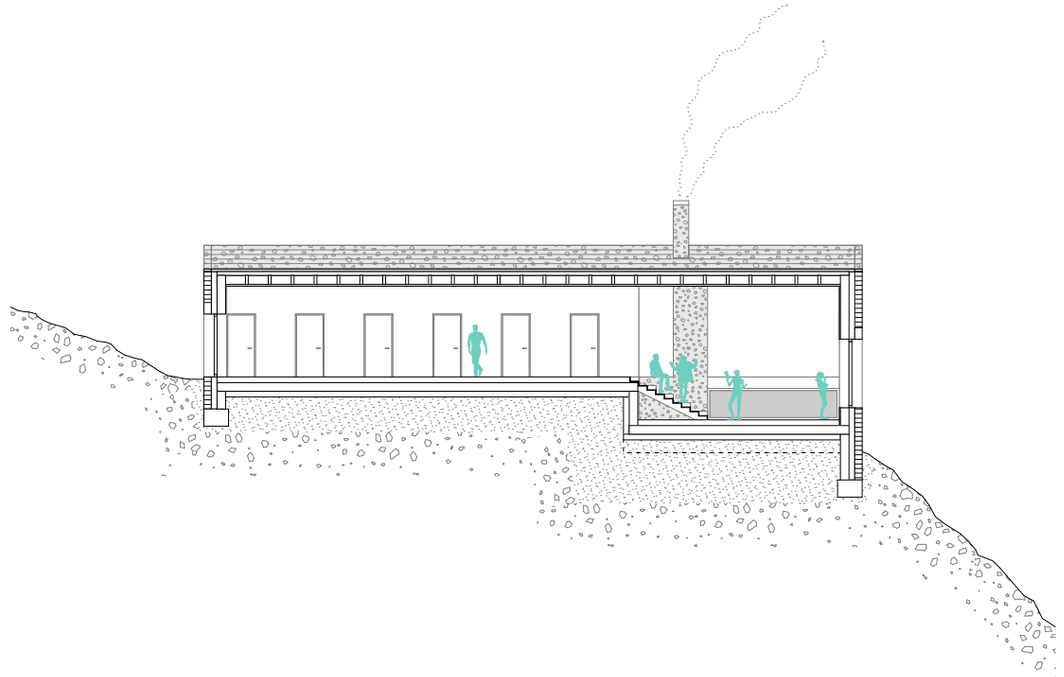


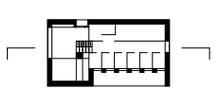




Sections and elevations
Scale 1:250 0 2 5







Sections and elevations
Scale 1:250 0 2 5

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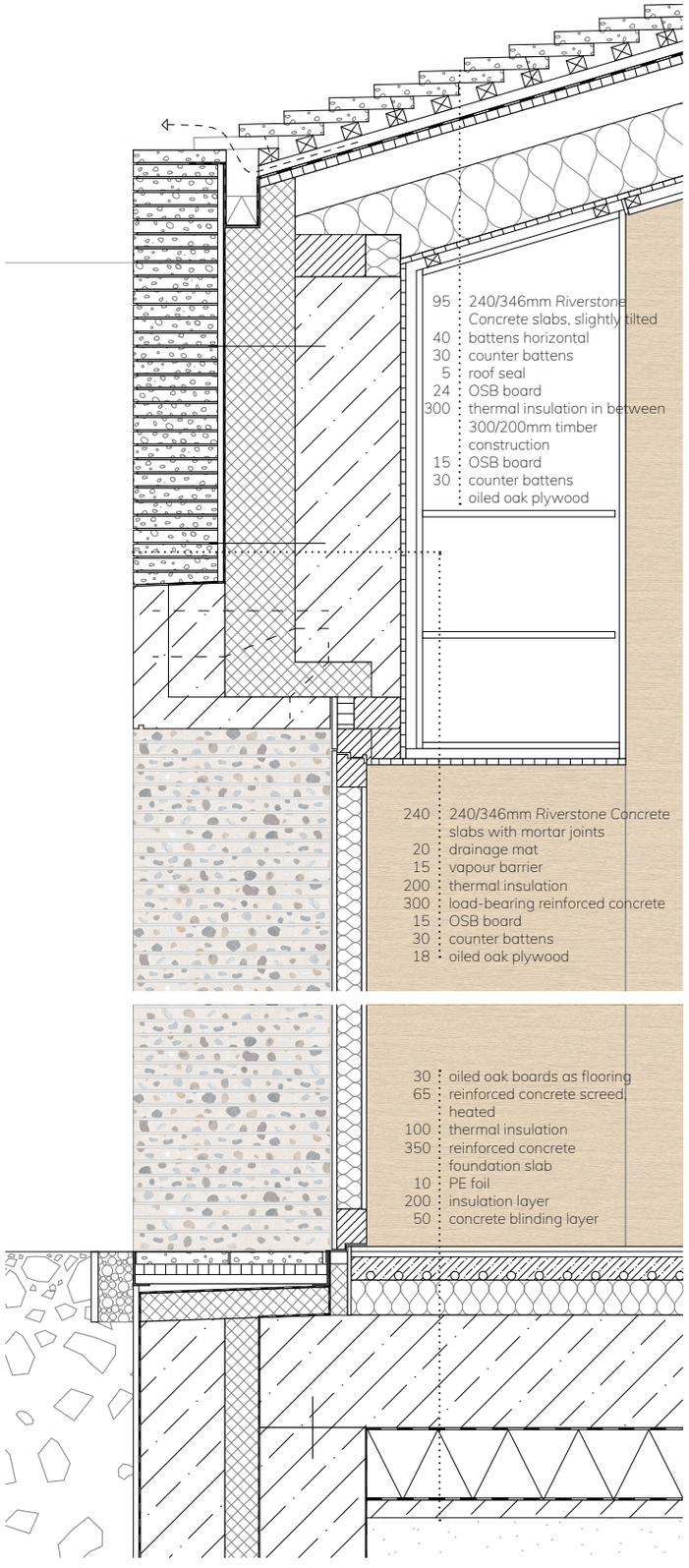
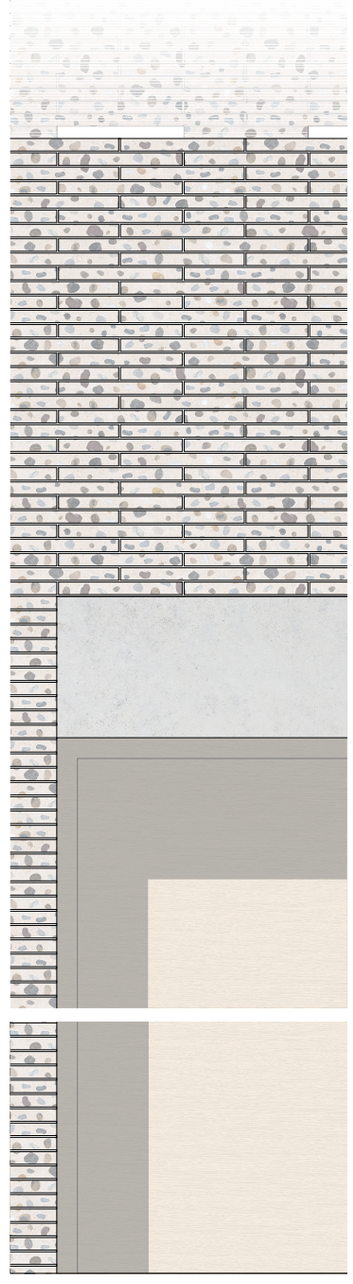
Plans

The outer facade is made out of *Riverstone Concrete* slabs that are cut to size. Due to the abundance of oak in the region, the interior is covered with oiled oak plywood and oak floor boarding



Detail section
Scale 1:20



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Material collage showing the use of the river stone material. Additionally to the bridge, the material appears when opening the window panels –

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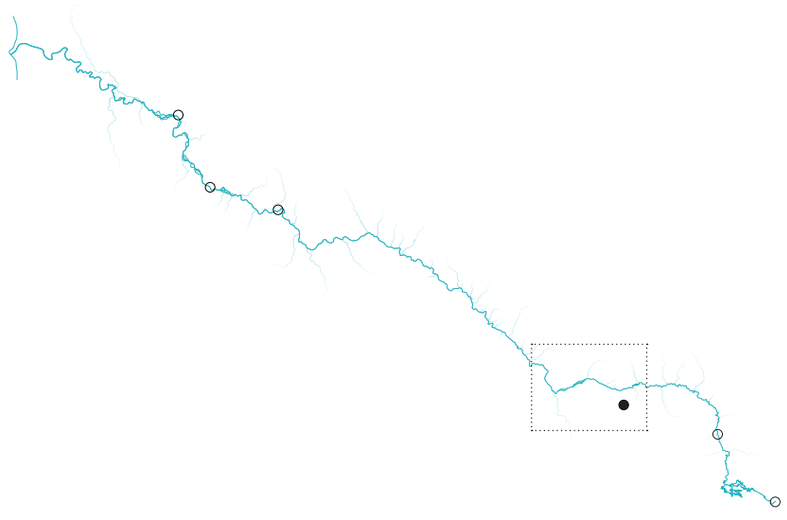
The Refuge

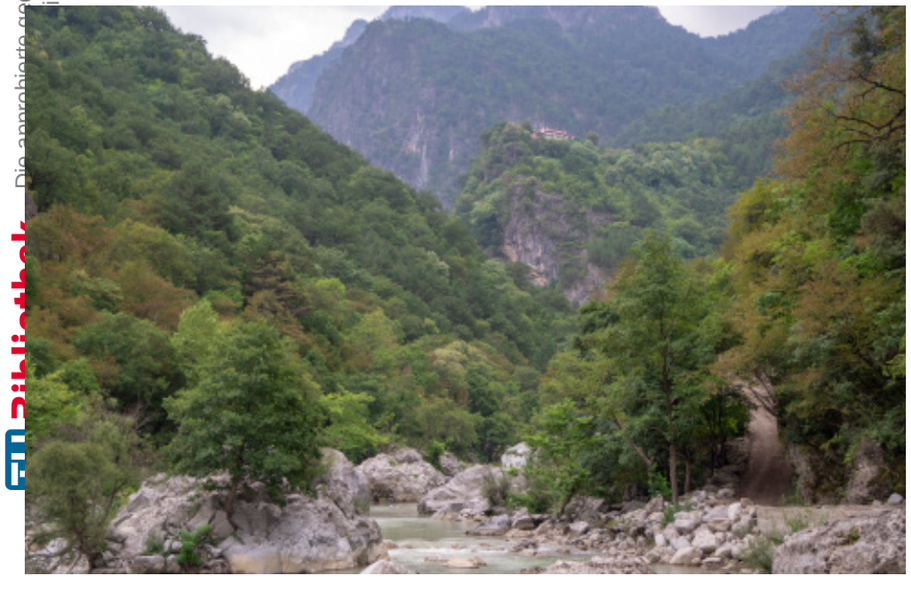
Project 3

Halfway through the Tymfi mountains a small shelter will enable up to five hikers to stop for the night.



Impressions

– The river winds its way through the steep canyon



– Looking back into the gorge on the other side of the mountain after a long descent

– The path towards mount Tymfi

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Konitsa
0.5km | 0.2h
4632

Mazi
6.5km | 1.5h
304

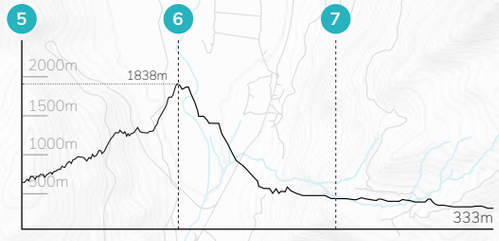
Paleoselli
7.2km | 2.0h
45

Aoos

Papingo
15.8km | 7.0h
267

The Refuge

Vrysochori
5.0km | 1.0h
90



Stage 5
13.4km | 6.5h
▲1378 ▼204

Stage 6
12.8km | 5.0h
▲307 ▼1710

Stage 7
21.7km | 5.5h
▲76 ▼167

lodging
bridge
church
view
bus stop
shop
restaurant
landmark

Hiking map
Scale 1:70.000
0 1km 2km

Mount Tymfi

Close to the small village of Vrysochori, the river enters a steep gorge that is very difficult to access. Here, the trail takes a detour over the mountains before descending on the other side close the city of Konitsa.

Mount Tymfi is located at the northern part of the Pindos mountain range, between the valley of the Voidomatis and the Aoos river. The massive limestone rock formation creates a plateau at an altitude of around 2000m that is famous for its lake – the drakolimni, or Dragon Lake.[57] Its highest peak is the Gamila, at 2497m. Although the elevation is moderate, it is known for its quick and harsh weather changes. The landscape is characterized by lush forests and an incredible biodiversity including brown bears and wolves. It is part of the Vikos-Aoos National park, with annual visitor numbers exceeding 100.000. As such, it is a well-established hiking destination and one of the most alpine regions of Greece. In the summer, the small hiking community based around Ioannina organizes the Zagori Mountain Race and other events. Since there are no skiing lifts on Tymfi, winter activity mainly involves ski touring.

There are three main routes that lead up the mountain and connect at the drakolimni. The most important one starts form the village of Mikro Papingo at the southwestern part of the mountain. Being a famous and frequently used trail, it offers many opportunities for rest and even a refuge for overnight stays. Another trail starts on the southern part, near the village of Kipi. The third one starts at Vrysochori, which will be used for the *VA Hiking Trail*.

The series of peaks lining the mountain ridge of Tymfi

57 Tsombos P. (2009).

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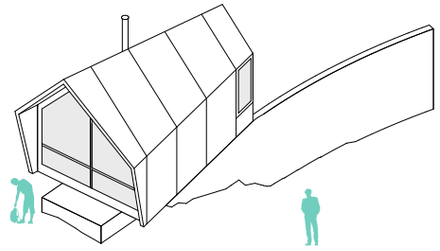
The Refuge

The *VA Hiking Trail* approaches Tymfi from the northern side, passing through Vrysochori. From there a steep ascent of 1600m takes the hiker up the face of the mountain in about six hours. As the descent into the valley on the other side entails another five hours of hiking, a small mountain refuge is placed on the edge of the forest line at an altitude of around 2200m offering shelter and basic accommodation for up to five people.

The building site is located halfway between the two stages, just before the trail starts to descend again. There, a rocky ledge leads straight from the trail to a rock formation that forms a small, steep plateau. Slightly elevated, it offers an impressive view onto the Aoos river valley, allowing the user to observe the part of the river that is otherwise not accessible.

The idea for the *Refuge* and subsequent steps taken to design it, are closely connected to the experience we had when exploring the mountain and locating a possible building site. Although the weather report had predicted no changes in weather until the next day, a sudden and brutal weather front hit us high up close to the peak and forced us to quickly find shelter to hide before a massive thunderstorm. The following hour was hectic, full of dangerous snap decisions. This experience drove us to focus on the approach of the shelter, to enable a hiker to quickly vanish into the safety of the structure without having to worry about opening doors while being hit by strong winds, rain and snow.

The result is a light, prefabricated bivouac structure that can be transported and placed on the building site with a helicopter, on a foundation of in-situ *Riverstone Concrete*. The approach is secured by a wall that marks the entry to the hut and provides protection against wind as well as securing the exposed ledge. A small ladder protruding from the backside allows the visitor to climb into the shelter from underneath, using the buildings volume as a roof. The small entry room is outside of the insulated core, housing a composting toilet. The core offers a small kitchen, storage space and an elevated sleeping platform and also acts as a communal space with an impressive view of the surrounding mountains and the Aoos.



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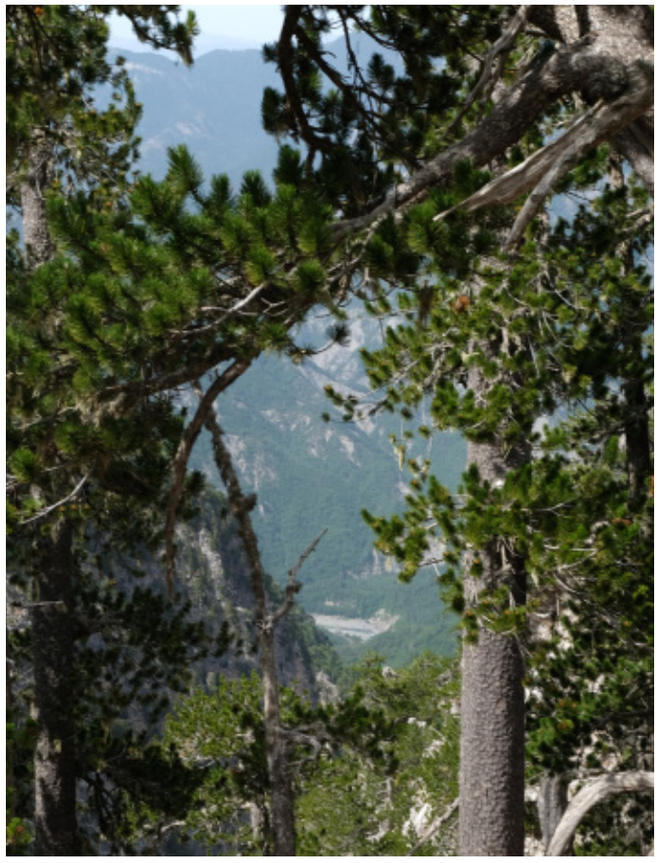

The view onto the river valley from the building site

The clearing on a slightly elevated position offers a spectacular view on the Aoos river valley

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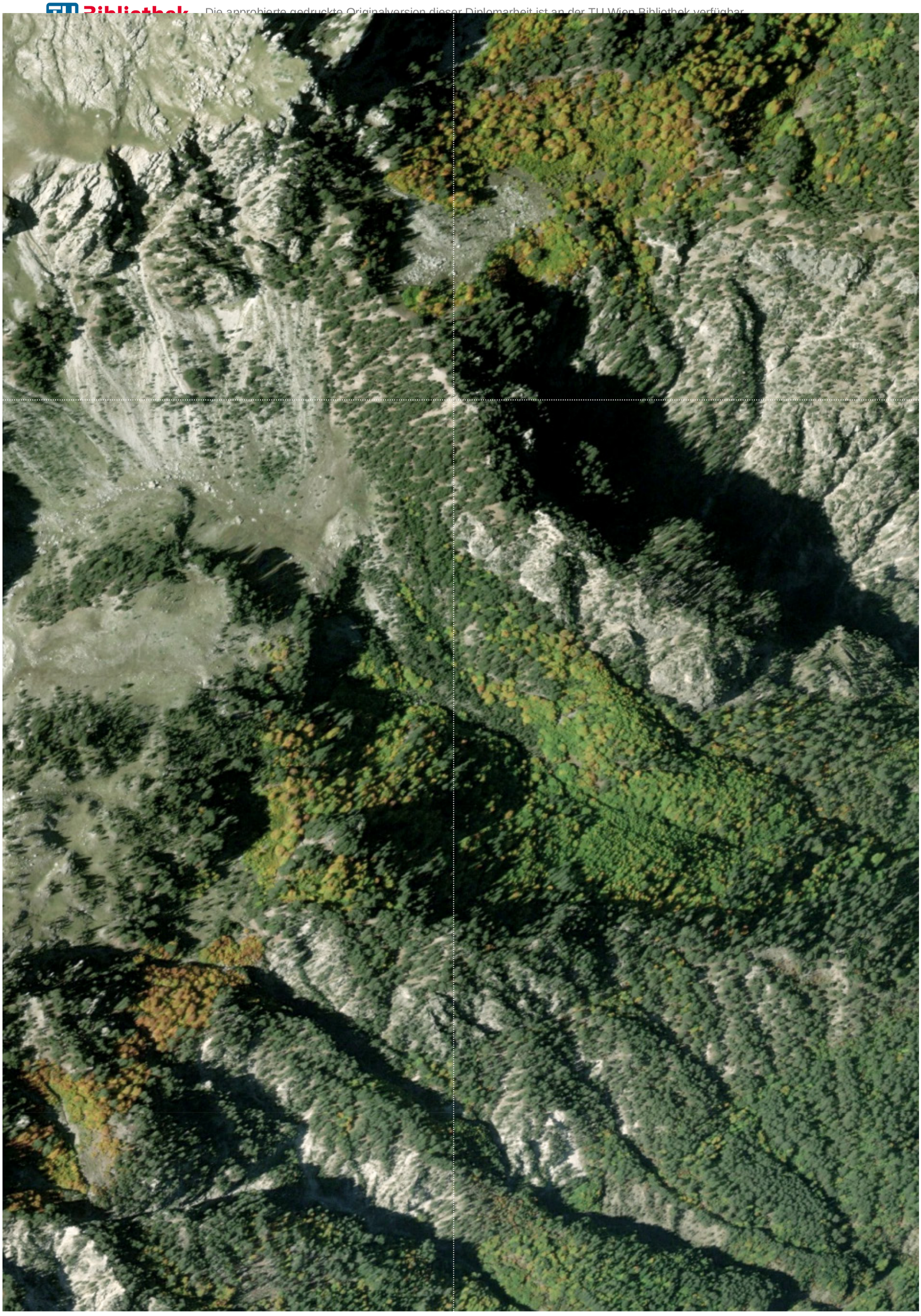
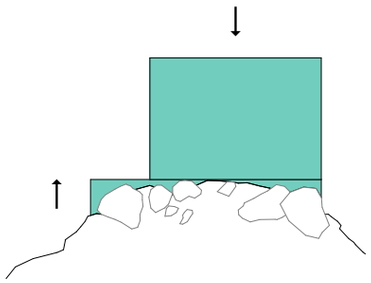
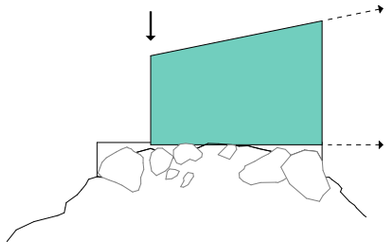


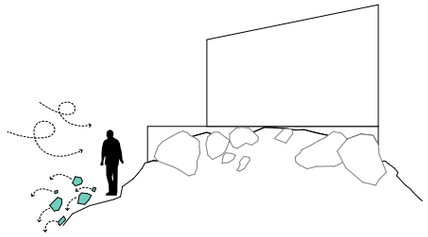
Design Concept



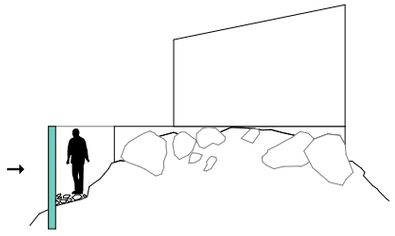
Leveling of rocky ledge and placement of the shelter



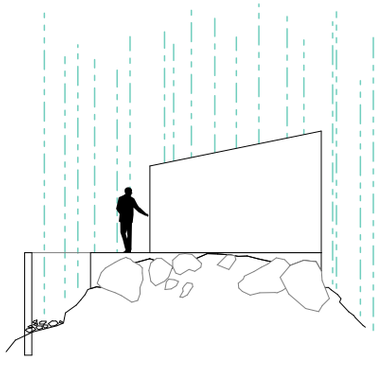
Create a narrower entrance and bigger view



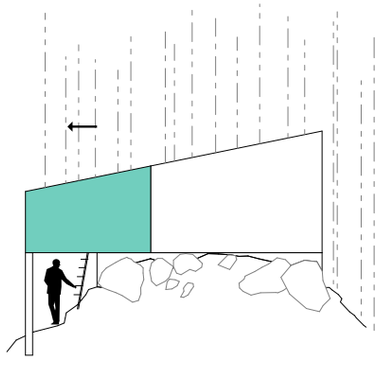
Danger of rocks sliding on the trail and exposure to high winds



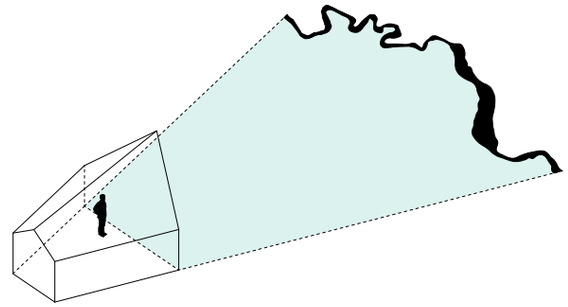
Securing the trail and shielding the hiker



Exposed entrance to rain and thunderstorms



Extend the building volume to create a protected entrance for the hiker



I The volume of the *Refuge* widens towards the view, enabling the user to see the entire part of the river where the trail took a detour through the mountains

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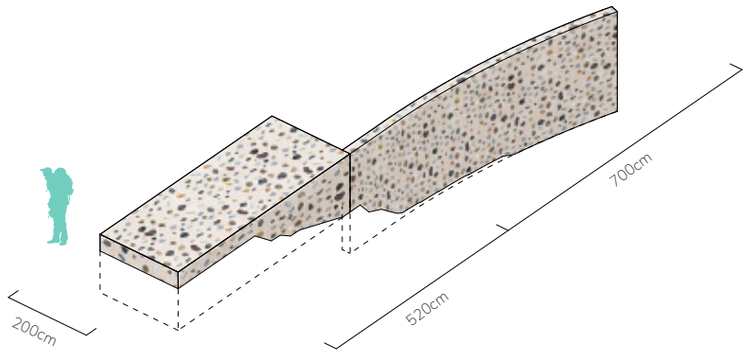
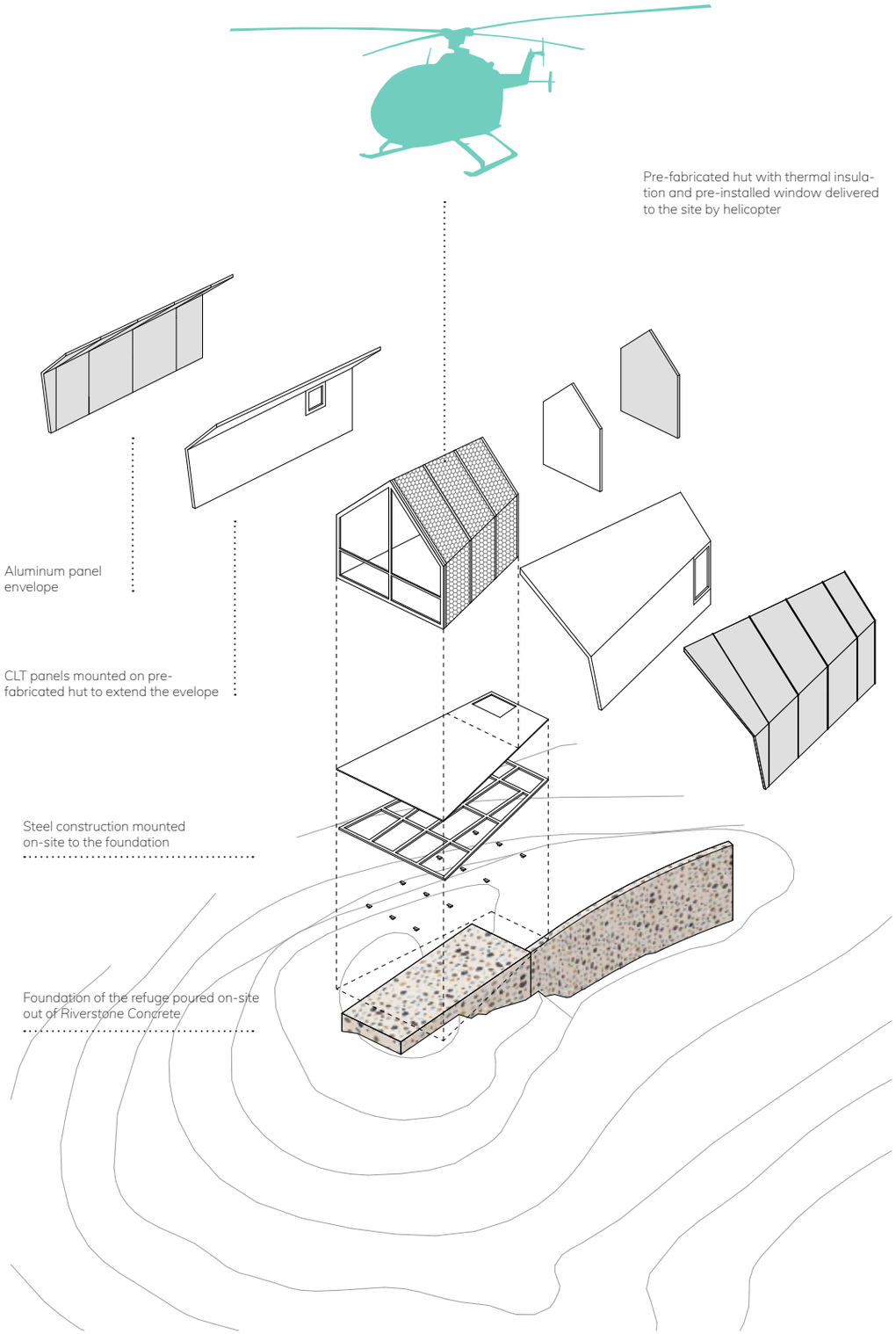
Material Concept



I The entire foundation and protective wall that guides the hiker into the building are made in-situ with *Riverstone Concrete*



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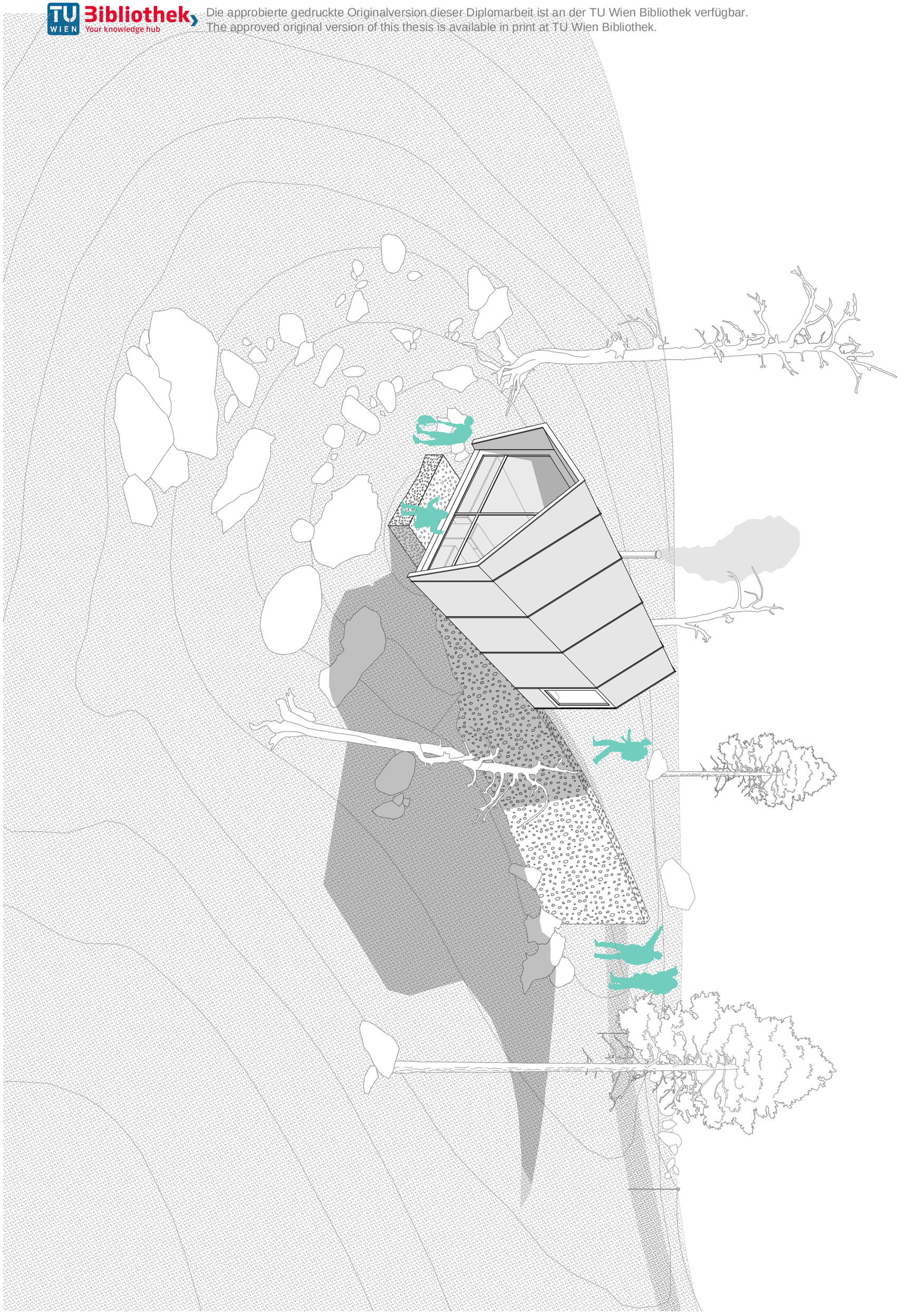
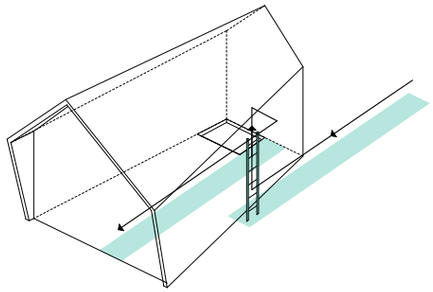
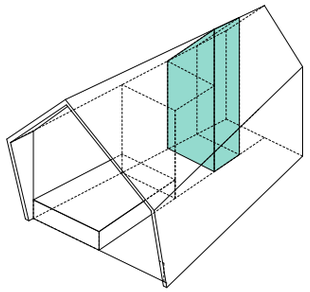


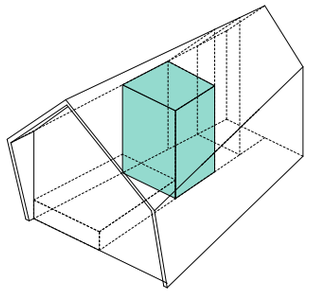
Programme



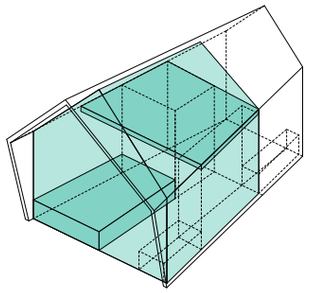
circulation



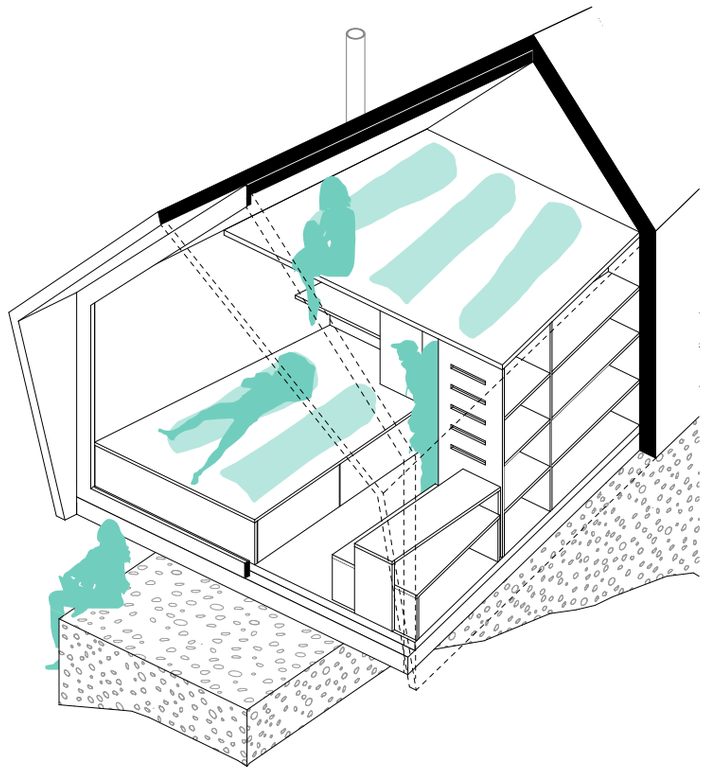
toilet



small kitchen area



community space,
beds for up to 5 people



I Main room of the *Refuge* with the elevated sleeping platform

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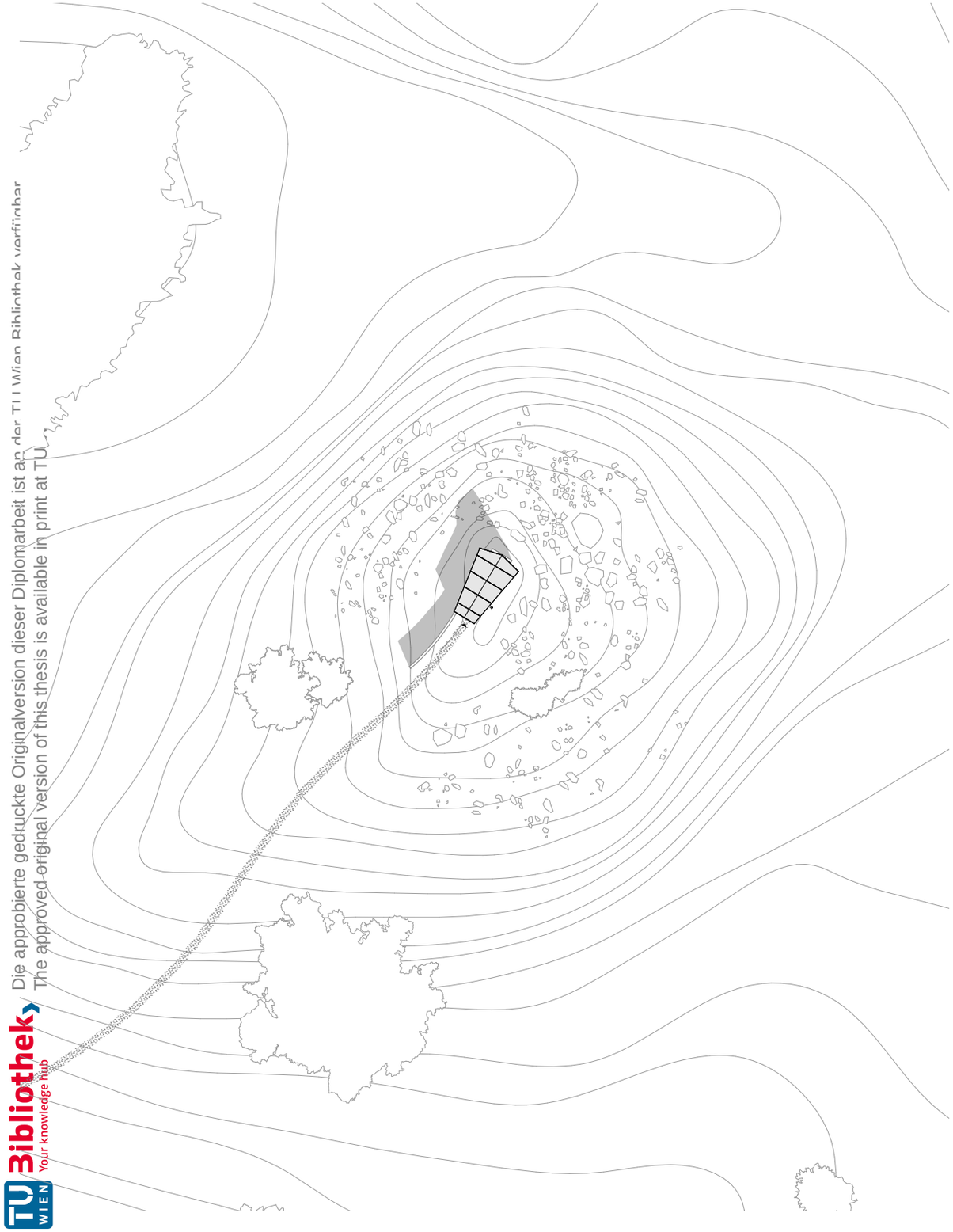
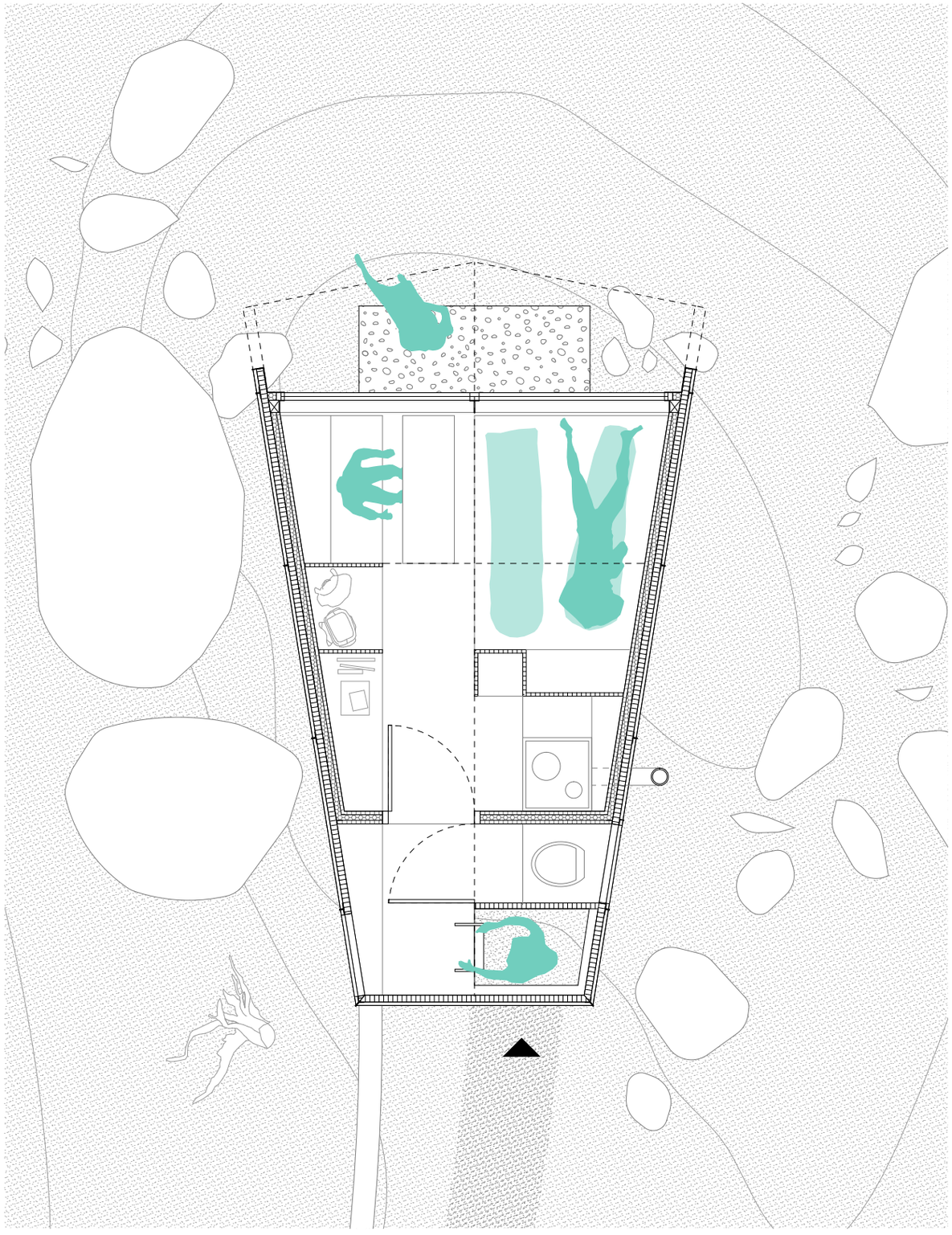
Plans



Site plan
Scale 1:500



Floor plans
Scale 1:50

0 0.5 1

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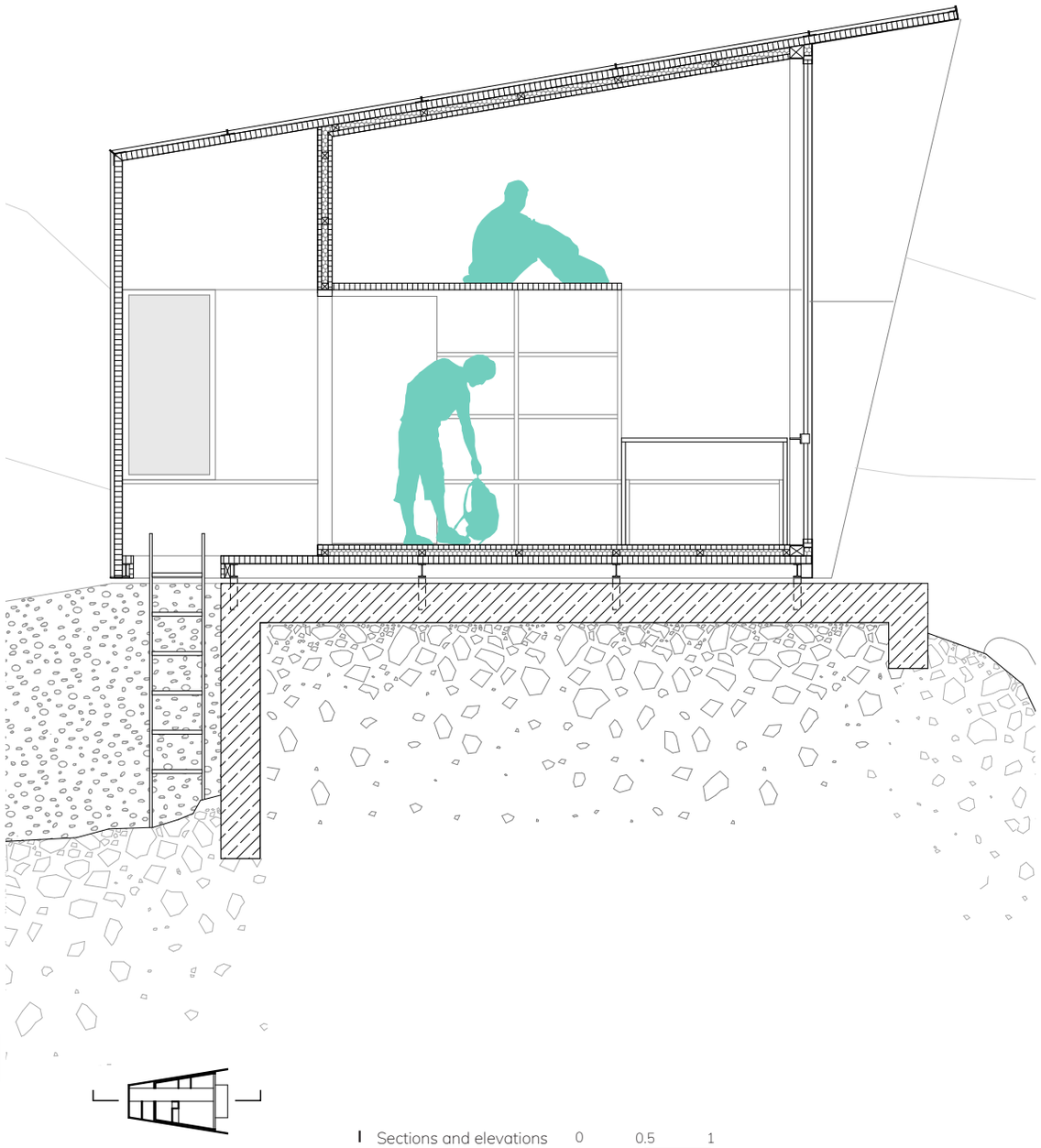
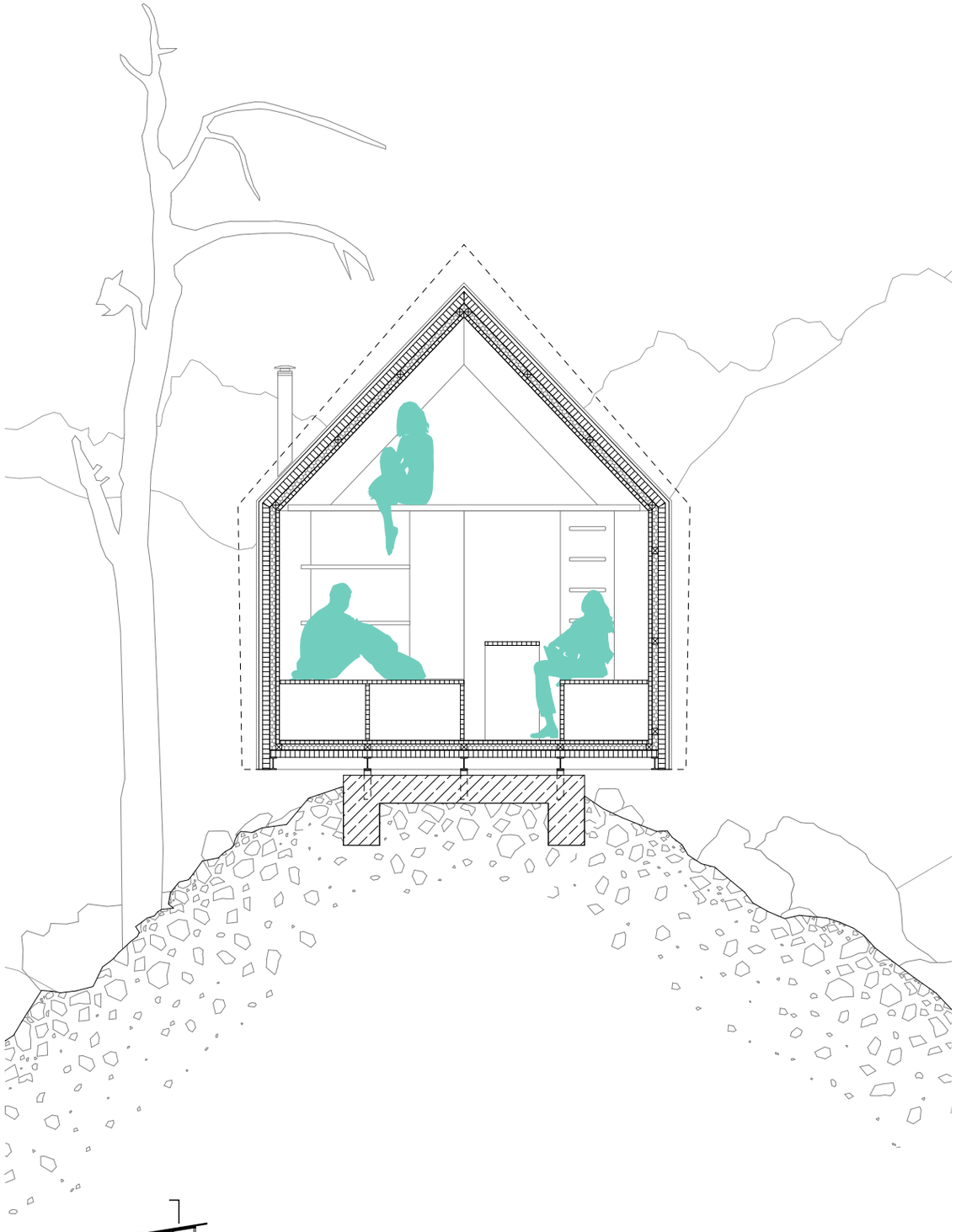
Plans



Sections and elevations
Scale 1:50

0 0.5 1



Sections and elevations
Scale 1:50

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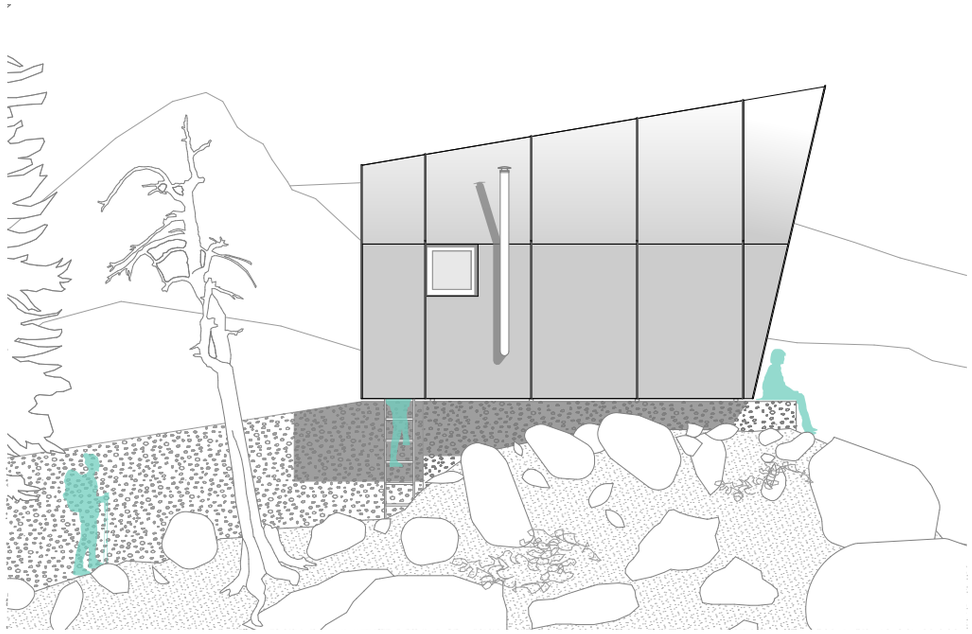

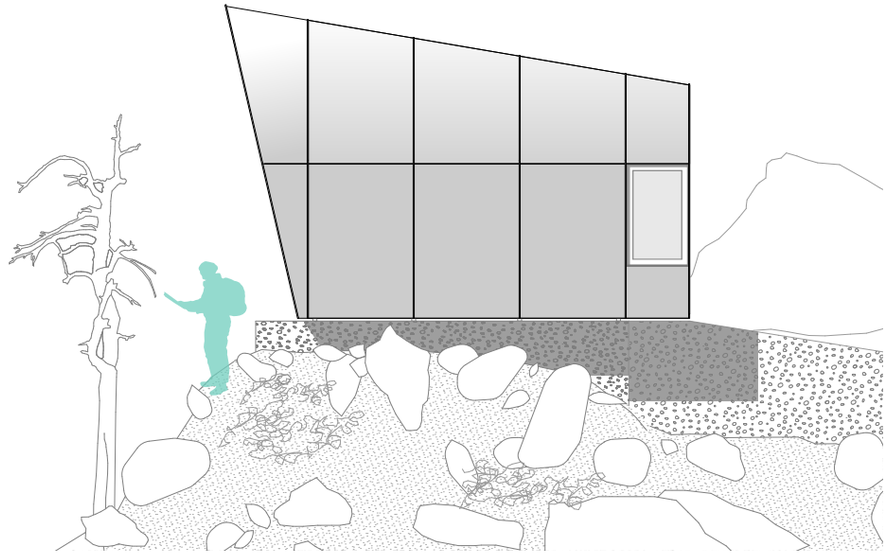

Elevations
Scale 1:100

0 1 2

Elevations
Scale 1:100

0 1 2

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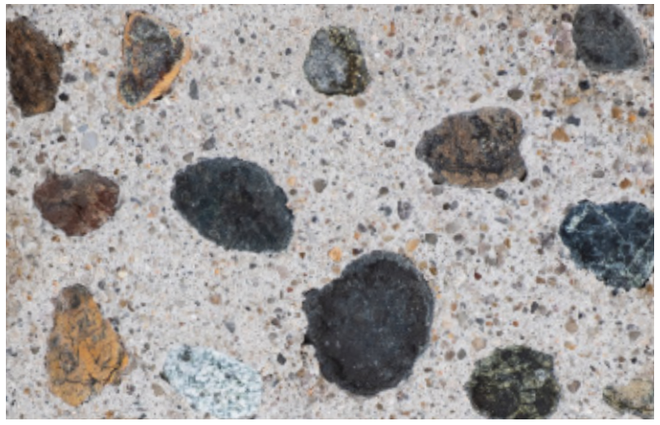
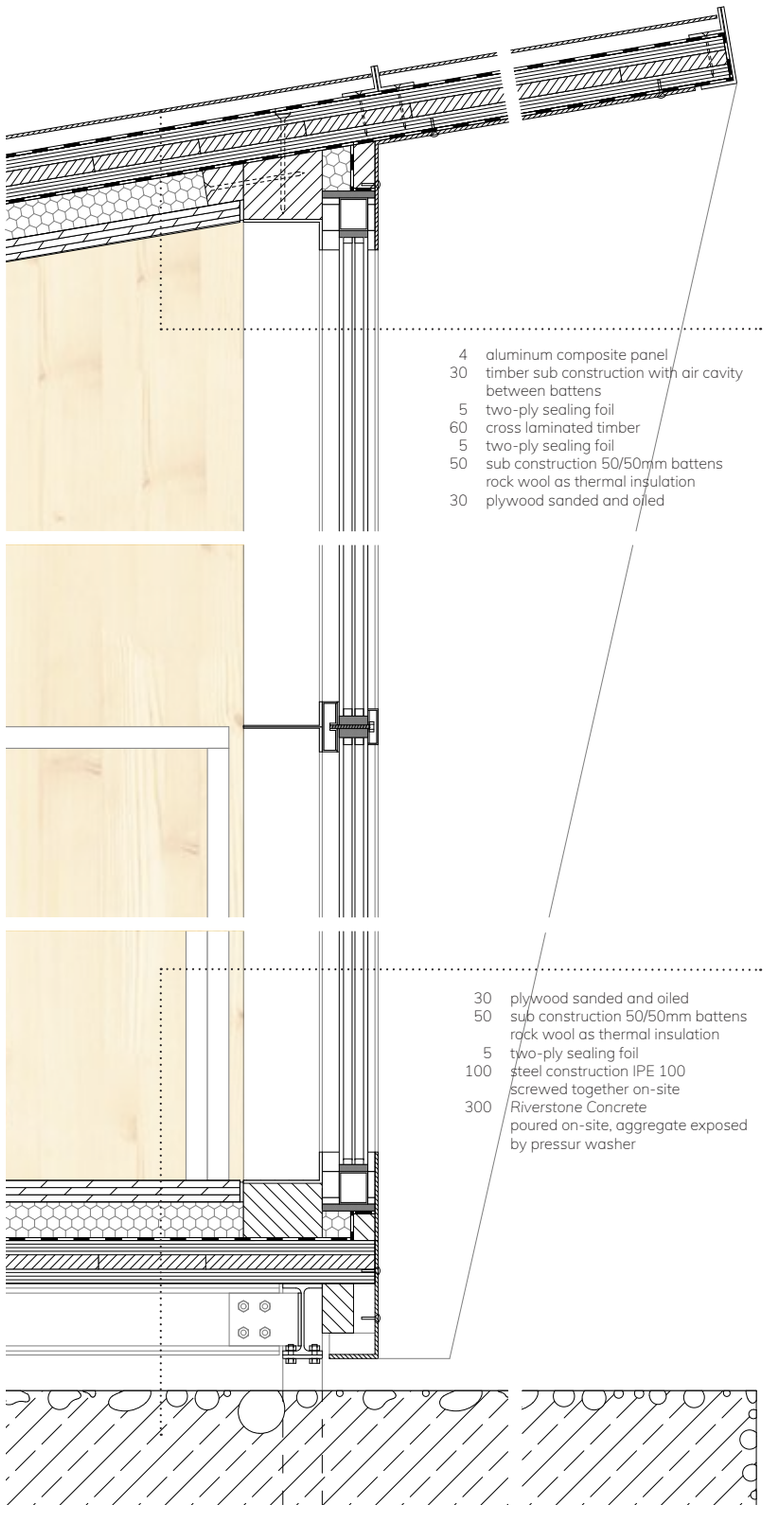
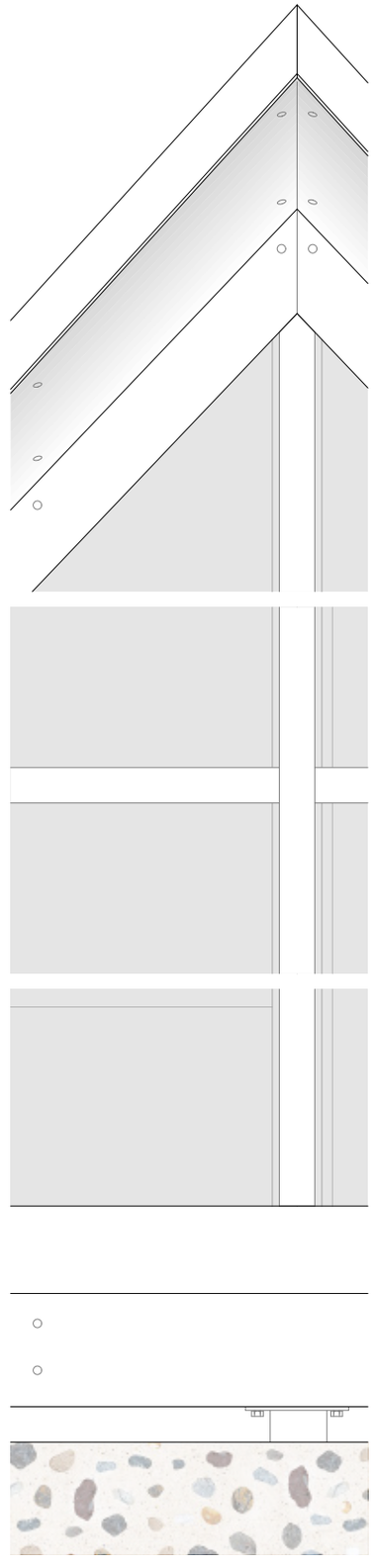
Plans

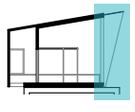


I Exposed aggregate concrete is used for the foundation. The interior is covered with sanded and oiled spruce plywood





I Detail section
Scale 1:20



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The extending foundation offers a place to sit and enjoy the view onto the river valley without entering the *Refuge*

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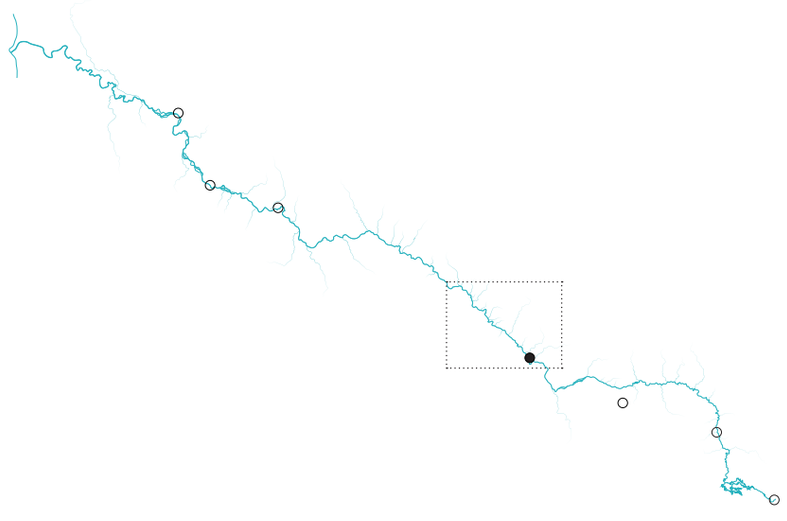
The Border

Two *Milestones* are placed on either side of the border, connected by a visual axis.



Impressions

– Conglomerate canyon on the Greek side of the border

– After the border, the valley widens and agricultural use intensifies

– The Vjosa and the Nemercka mountain range in Albania

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8

500m
400m
300m
200m
392m
244m

Stage 8
29,7km | 8h
▲143 ▼260

- lodging
- bridge
- church
- view
- bus stop
- shop
- restaurant
- landmark

Zhepë
12.9km | 3.0h
779

Çarçovë
9.3km | 2.0h
918

Melissopetra
6.5km | 1.5h
115

Molivdoskepasto
4.5km | 1.0h
173

Mazi
6.5km | 1.5h
304

Aoos

Hiking map
Scale 1:70.000
0 1km 2km

The Border

After descending from the mountains, the trail continues through the flat valley just after Konitsa and continues to follow the river. The Aoos emerges again out of the canyon into a wide plane, developing a braided typology for the first time. Winding its way onward, it reaches the border close to the small village of Melissopetra. At this point it joins the Sarantaporos river, which forms the border for a few kilometers, and becomes the Vjosa.

The trail reaches an outlook point, marked by a station, overlooking the riverbed at the conjunction, with an impressive view of the river and the other side. Much like the Aoos itself, the trail ends at this point, but continues on the other side of the border in Albania. From the end point the hiker has to take an hour detour through the border station and can continue the trail. Again, a station marks the beginning of the Albanian part of the trail.

Tre Urat (three bridges) is the smallest of the border crossings between Albania and Greece and even though it represents a Schengen external border, the situation is rather relaxed as the main border crossing is located further to the south. From Tre Urat, an asphalt road in very bad shape continues towards Permet and Tepelena.

I Confluence of Sarantaporos to the left and Aoos to the right

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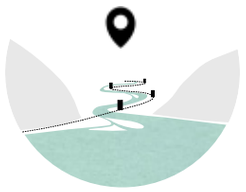
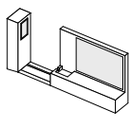
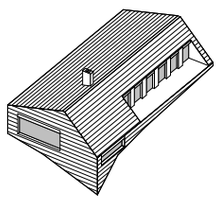
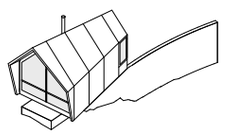
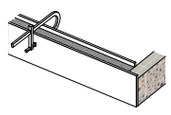
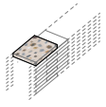
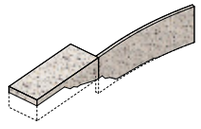
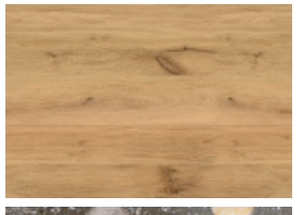
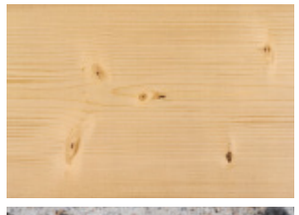
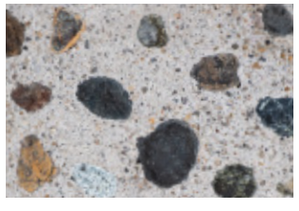
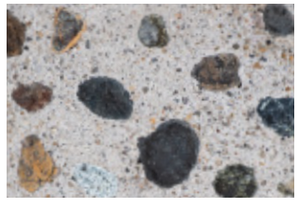
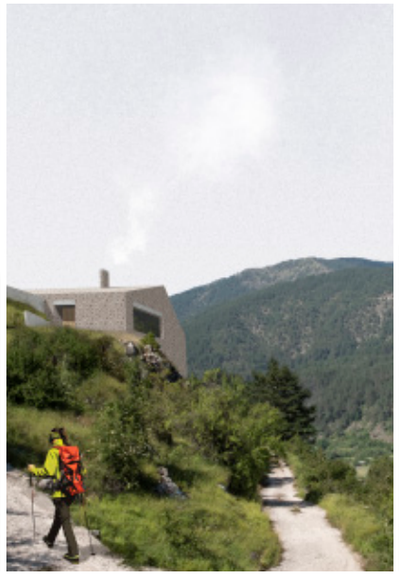
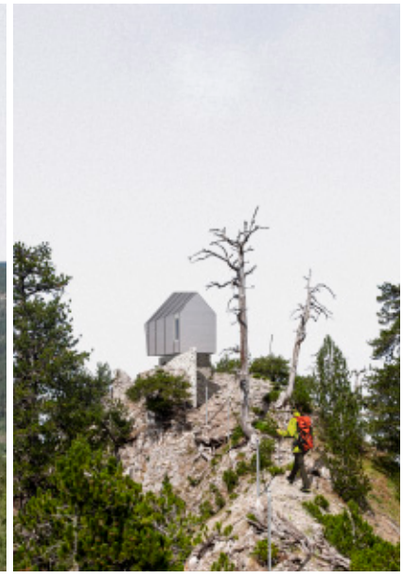
VI.

Conclusion

Project Comparison

The Milestone	The Cultural Convent	The Refuge
		
		
		
		
		





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Conclusion

In the past years, global warming has become one of the major issues and biggest challenges of our time. The debate about climate change has been gaining momentum, sparking discussions about renewable energy and the sustainable use of resources available to society in general, thus challenging western society's way of life. In the wake of this development, the future of the Balkan rivers and of the Vjosa/Aoos has become tremendously relevant. It represents something that has been lost all over Europe and is thus of European and International importance.

The topicality of this issue means that the future of the river is continuously being debated by environmental organisations like Riverwatch, academic institutions or Albanian and Greek government agencies and as such new insights into the state of affairs surface frequently. In 2017 the European Parliament advised the Albanian government to consider the establishment of a national park along the whole length of the river.[58] Subsequently, while working on our diploma thesis, plans for the implementation of a Vjosa/Aoos National Park have been brought forward by Riverwatch and have been included in Albania's territorial plan for 2030.[59] [60] Although it remains to be seen what form the national park will take and how it will be implemented, it represents an important step in acknowledging that an alternative to the planned dam projects can be found.

Our proposal for the VA River Region can be seen as the visualisation of these alternatives. The resulting projects mirror the complexity and diversity of the region surrounding the Vjosa/Aoos. They take specific needs and potentials into consideration in an attempt to tackle local topics which affect the river, residents, visitors and the future development of the region. They are based on extensive research and initial input gathered during our travels. As the situation is constantly changing, it was important that our designs remain flexible enough to leave room for further development. The Hiking Trail was conceived with that in mind, as it allows the addition of new concepts and ideas along its way. Such additions can be identified, mapped and incorporated through a bottom-up planning process that ideally involves local stakeholders, municipalities and residents.

Similarly relevant for the implementation of our vision is the question of financing. Funding could be achieved through existing EU cross-border programmes between Greece and Albania as well as government initiatives directed towards sustaining national parks and protected areas. GIZ, the German agency for international cooperation, has been funding projects that promote tourism and hiking in Albania since 2006, creating a precedent for financing trails and infrastructure.[61] Additionally, many of the projects work in accordance to Albania's 2030 territorial plan and could try to receive funding within this framework.

In the context of this evolving environment, this thesis was conceived with the purpose of adding useful input to the discourse from an architectural perspective. It represents a foundation, upon which further discussion and development can be based.

58 Riverwatch and EuroNatur (2017).
59 Gjermeni E. (2017). p.91
60 Riverwatch (2019). 'A vision for the Vjosa: Europe's first Wild River National Park'
61 Jeska A. (2018).

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VII.

Imprint

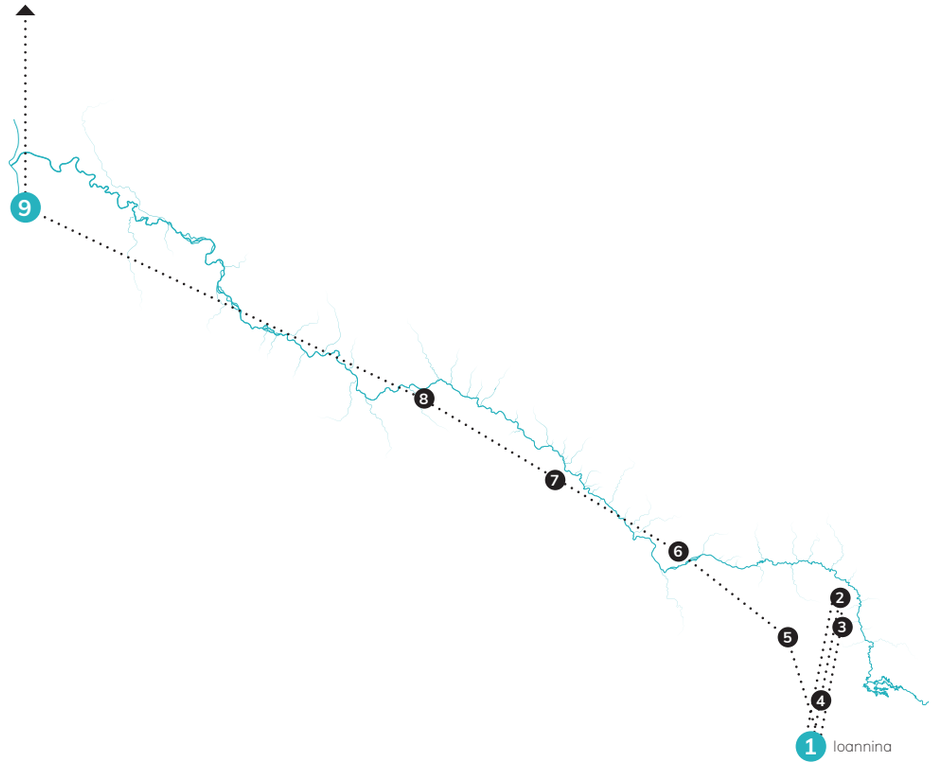
Trip I

A personal travel diary

The first visit was in late October, fall had just settled into the mountains and the region was ablaze with autumn colors. Travelling by car due to a tight time schedule, we completely underestimated the rough terrain of the Pindos mountains. Pushing the four-wheel-drive to the limit, we got stuck high up in the mountains where the towing car couldn't access and ended up ripping the underside of our car apart with the help of a local lumberjack, a hammer and a metal wedge to get to the emergency tire. For every day on the road we spent one day at the closest mechanic, fixing our tires and mending parts of the car.

Visiting in the off-season, the local residents mostly had time to spare and shared their stories and experiences with us. An older woman in the little town of Tsepelovo, left alone by her sons who were forced to leave to find work in the bigger cities of Greece, joined us for breakfast to talk about the catastrophic economic situation in Greece. At the same time, a whole class of the Department of Architecture at the Metsovian University of Athens flocked into the mountains to conduct a thorough analysis of the rich stone architecture and the history of masonry in the area. Helping them out by creating aerial photos with our drone, we in turn received access to their research. At the local hostel in Vovousa, the head of Pindos Perivalontiki connected us to an acquaintance in Permet where were able to stay for the night. Arriving there, we were spontaneously invited to a business dinner with a group of very hospitable business partners, sharing their insight into the local politics and the future of hydropower in the Vjosa/Aoos river basin. Continuing along the river, we decided to stop at a hotel near Kelcyra, where the owners shared their story, homemade tsipouro and an old goat for dinner. Further downstream Joni Mehmetaj, the owner of a roadside kiosk, known to everyone around the area as DJ Aragosta, told us of his big plans to turn his kiosk into a permanent café with an attached camping. Reaching the delta of the river, we were able to give some of the hospitality and kindness back by helping two local fishermen dig their car out of the sand.

After 10 days on the road, all the while sleeping in the back of our van on a makeshift MDF bed with the regions map printed on it, we returned home with a lot of ideas, stories and a huge amounts of river stones, sand and water samples.



I For every day on the road we had to spend one day at the mechanic in Ioannina to fix tires

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Trip I

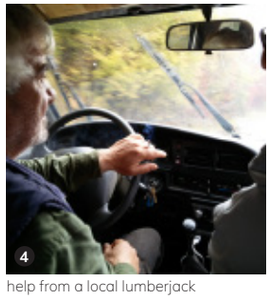
Travel impressions

campfire close to Vovousa

first stop at Aoos artificial lake

bridge at Kipoi

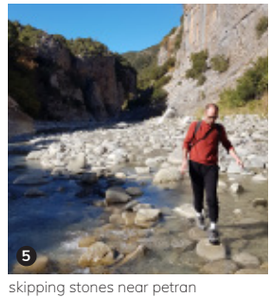
hotel in Vovousa



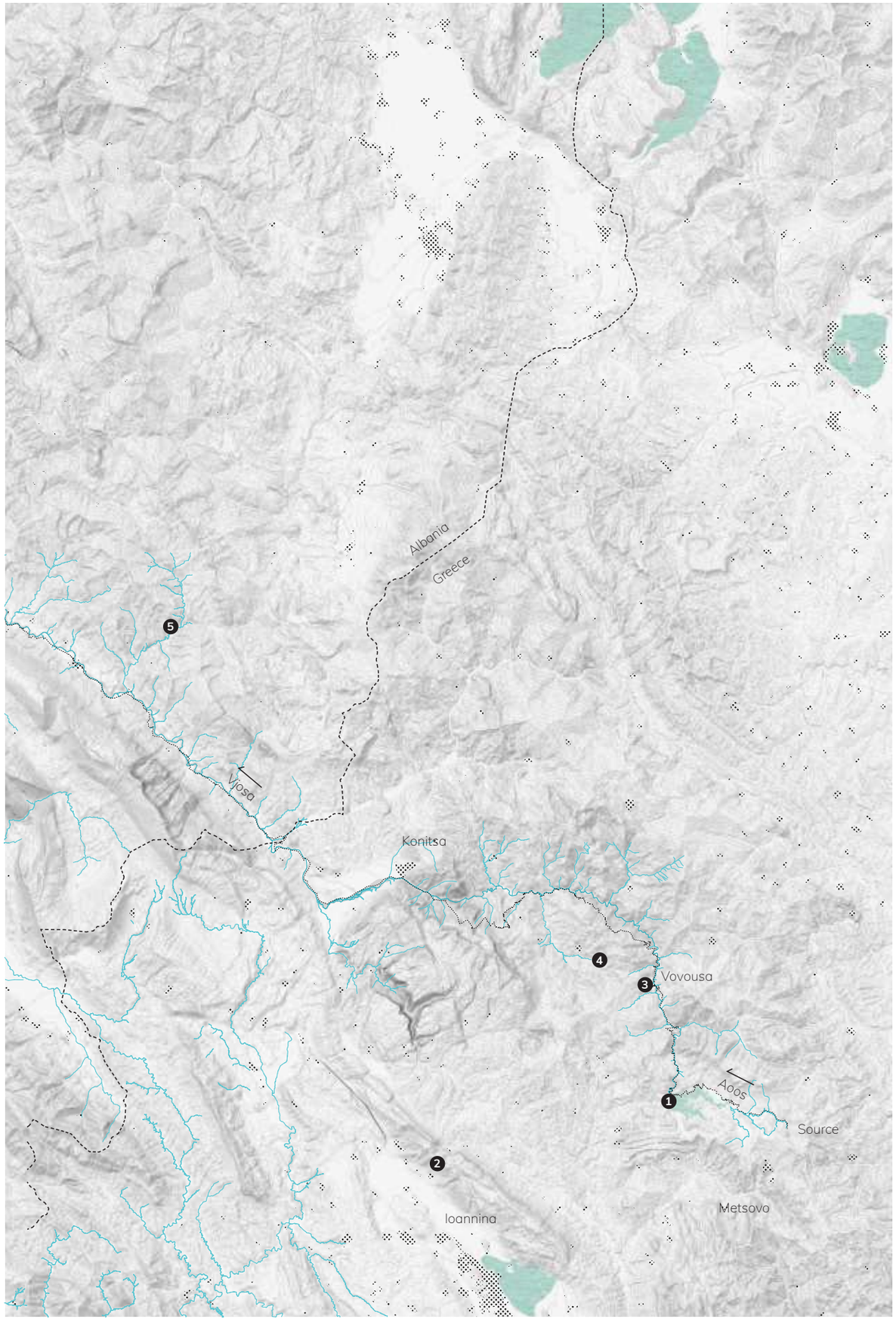
help from a local lumberjack

car breakdown in the mountains

exploring the canyon of the hot springs



skipping stones near petran



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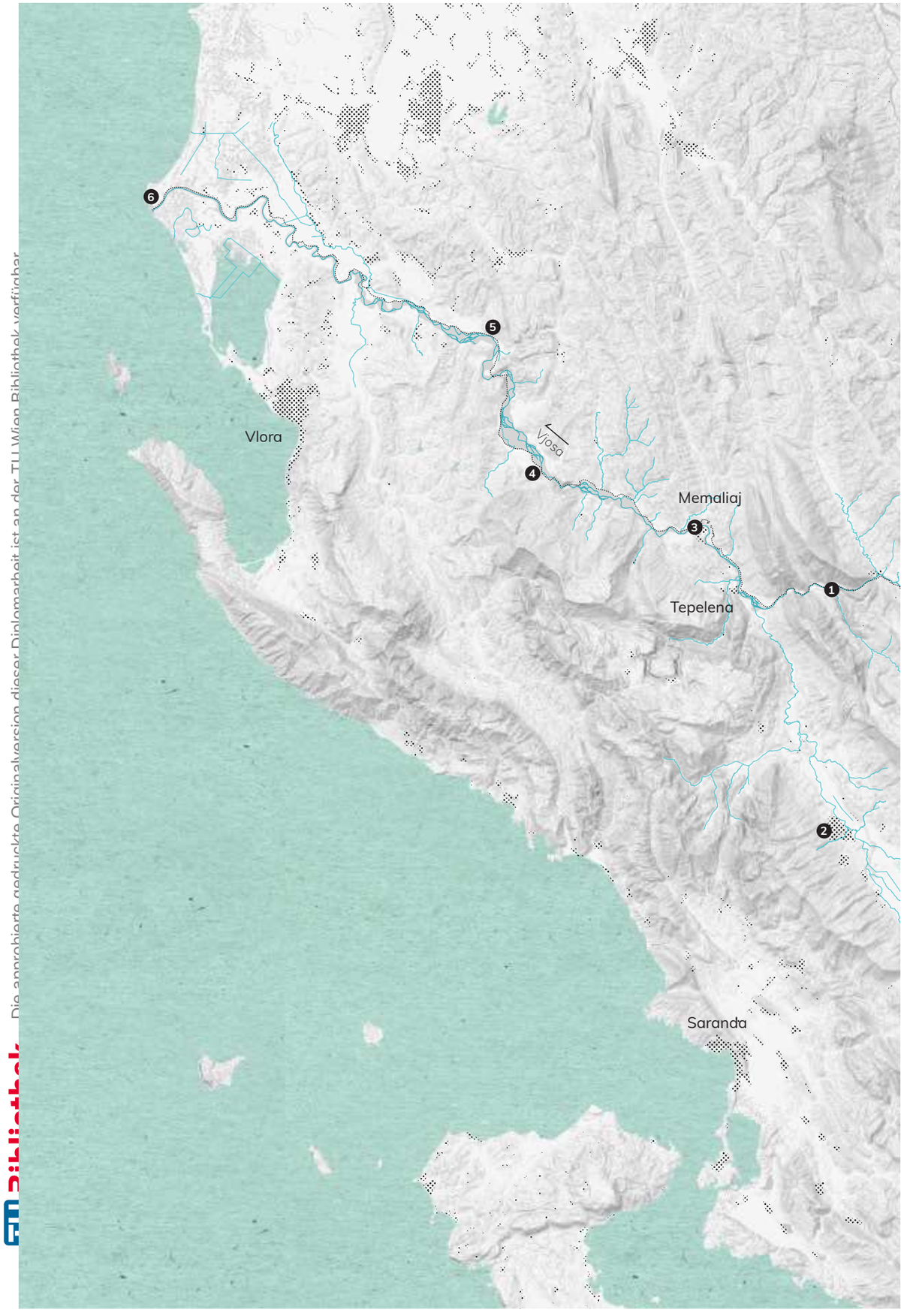
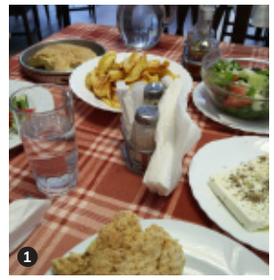


Trip I

Travel impressions


Albanian hospitality


fly fishing at the river

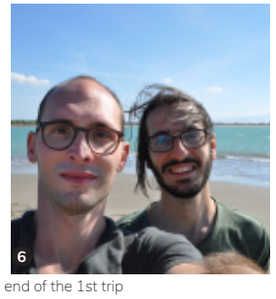

the factory at Memaliaj


visiting Gjirokastra


meeting Johny at his shack


visiting the dam at Kalivac


river meeting the Adriatic Sea


end of the 1st trip

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Trip II

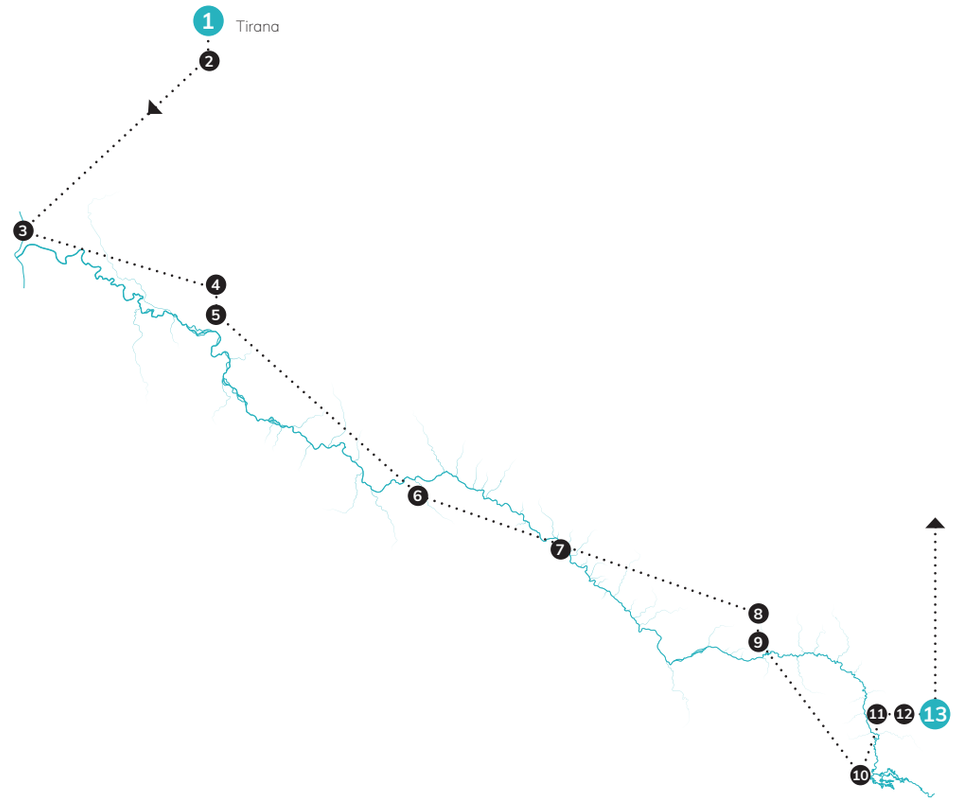
A personal travel diary

Our second visit was in July. Tourist season was fully under way, with many locals taking advantage of school holidays and visiting their own country. After a visit to the Department of Urban Planning at the Polis University in Tirana, the first stop was in the Vjosa delta. Approaching the river mouth from a different direction, we were able to talk to the fishermen of the Vjosa, who used a technique of lowering huge nets with a pulley system powered by old tractor engines into the river to catch fish. Ending up with a bag of fish, we cooked the fish over our campfire by the river for dinner before being forced to retreat into our car by the howling of roaming dogs. Further upstream, we had to politely refuse the advances of a fruit merchant who persistently tried to sell us ancient works of art found in the local Illyrian and Greek ruins and continued on with our figs. At Aragosta Muzik, we were surprised to find Gjoni in the middle of giving orders to a building crew he hired to build the toilets for his camping. We finished the day with dinner and polyphonic singing with a group of men who regularly met at Aragosta to practice their singing and fell into our hammocks right on the shores of the river. Visiting Kalivac to document a possible building site we spent the day by the river with an Albanian family, swimming in the fast currents and exchanging our stories in a mix of broken Greek, German and English.

WContinuing upstream, we spontaneously decided to try out rafting, spending the late afternoon with two tourists from Sweden in a tight rubber boat. After the trip we were taken back to the camping that offered the water sport activities, only to find out that the owners, Donna and Robert were actively involved in the protection of the Vjosa and offered their support for our project.

After crossing the border to Greece, we tried to explore the more wild and inaccessible parts of the Aoos on foot. Our first stop was close to Vrysoxori, where we started our hike up an infrequently used hiking trail towards Tymfi mountain. Six hours later we were reminded of the fact that mountain weather is really unpredictable and had some time to think on it while holding onto our tent poles during a thunderstorm. Abolishing our plans to stay for the night above 2000 meter altitude we returned to the car to wait out one of the worst thunderstorms in the past decade in the relative safety of our van. With the weather drastically changed, we spent the next day in Vovousa, where the Vovousa festival was in full motion. Experiencing the festival first hand, we were astounded by what a small group of artists can achieve. During a photo exhibition we met and extensively talked with an American photographer who had published a collection of photos of the Vjosa as his contribution to save the last free-flowing river.

The last location on our list was the river source. Stumbling through the underbrush close to Metsovo, we were reminded of the fact that the source of a river is not easily found and GPS coordinates found in the internet can be highly inaccurate. After finally finding the little trickle and following it for a little while, we only barely escaped the charge of four shepherd's dogs with the help of loud curses from their Albanian shepherd.
With a lot of life lessons learned and hundreds of new experiences, we returned home with new inspiration for our project.



Arriving from Tirana we decided to start in the river delta and follow the watershed upstream, finishing the trip at the Vovousa Festival in Greece

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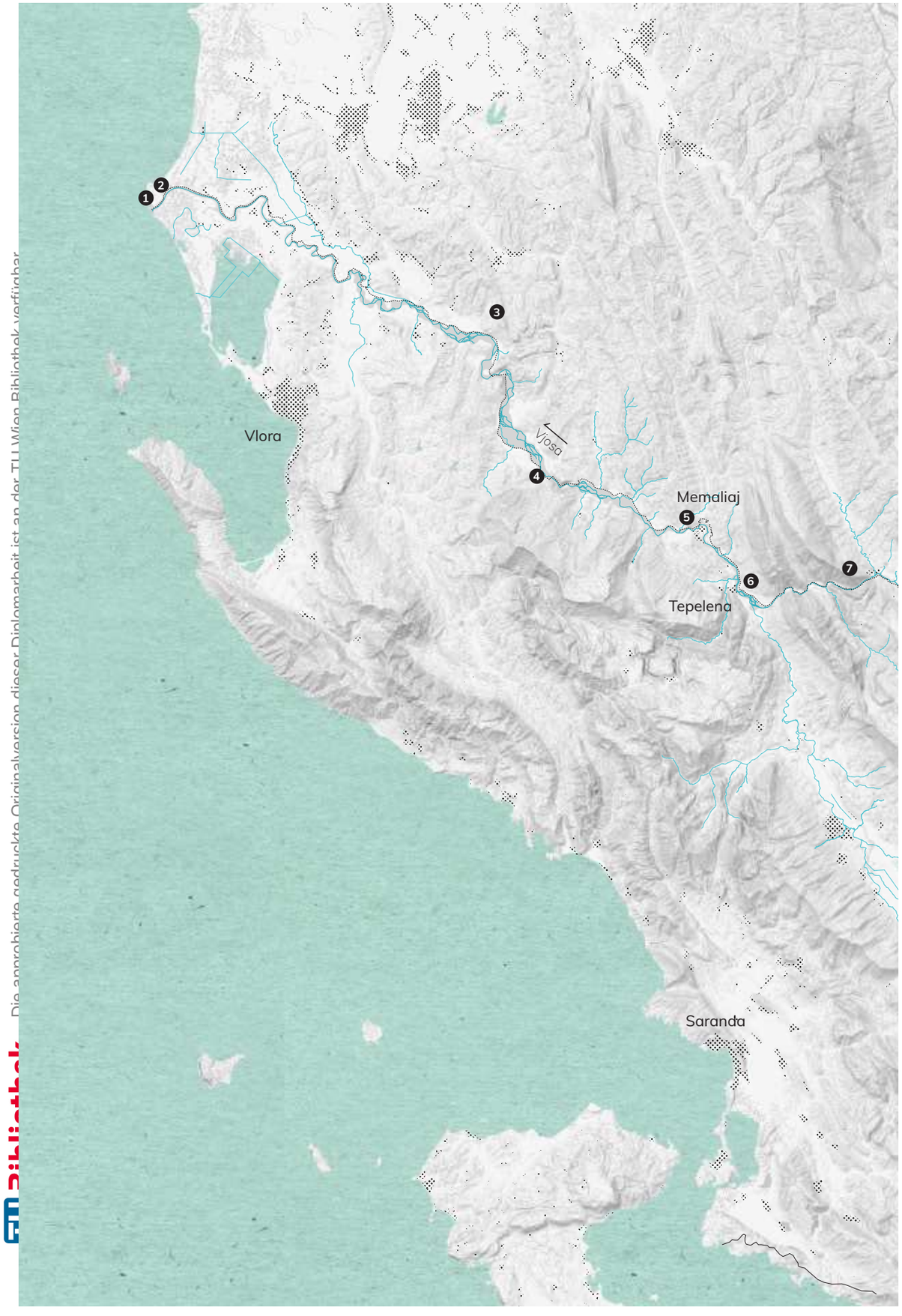


Trip II

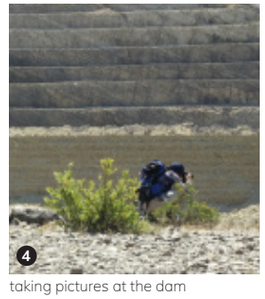
Travel impressions


1
hiking in the delta


2
camping close to the river mouth

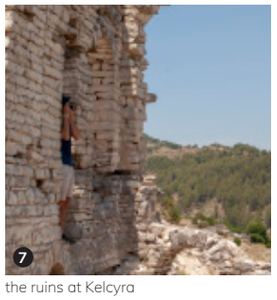

3
view from Byllis


3
making camp close to Byllis


4
taking pictures at the dam


5
talking to Memaliaj residents


6
arriving late at Tepelena


7
the ruins at Kelcyra

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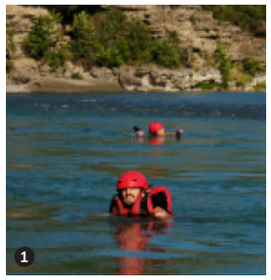
Trip II

Travel impressions

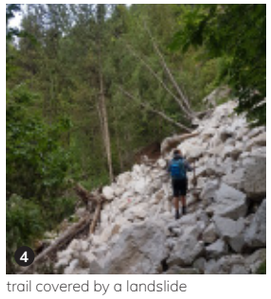


floating in the river

rafting on the Vjosa

homebase in the mountains

confluence at the border

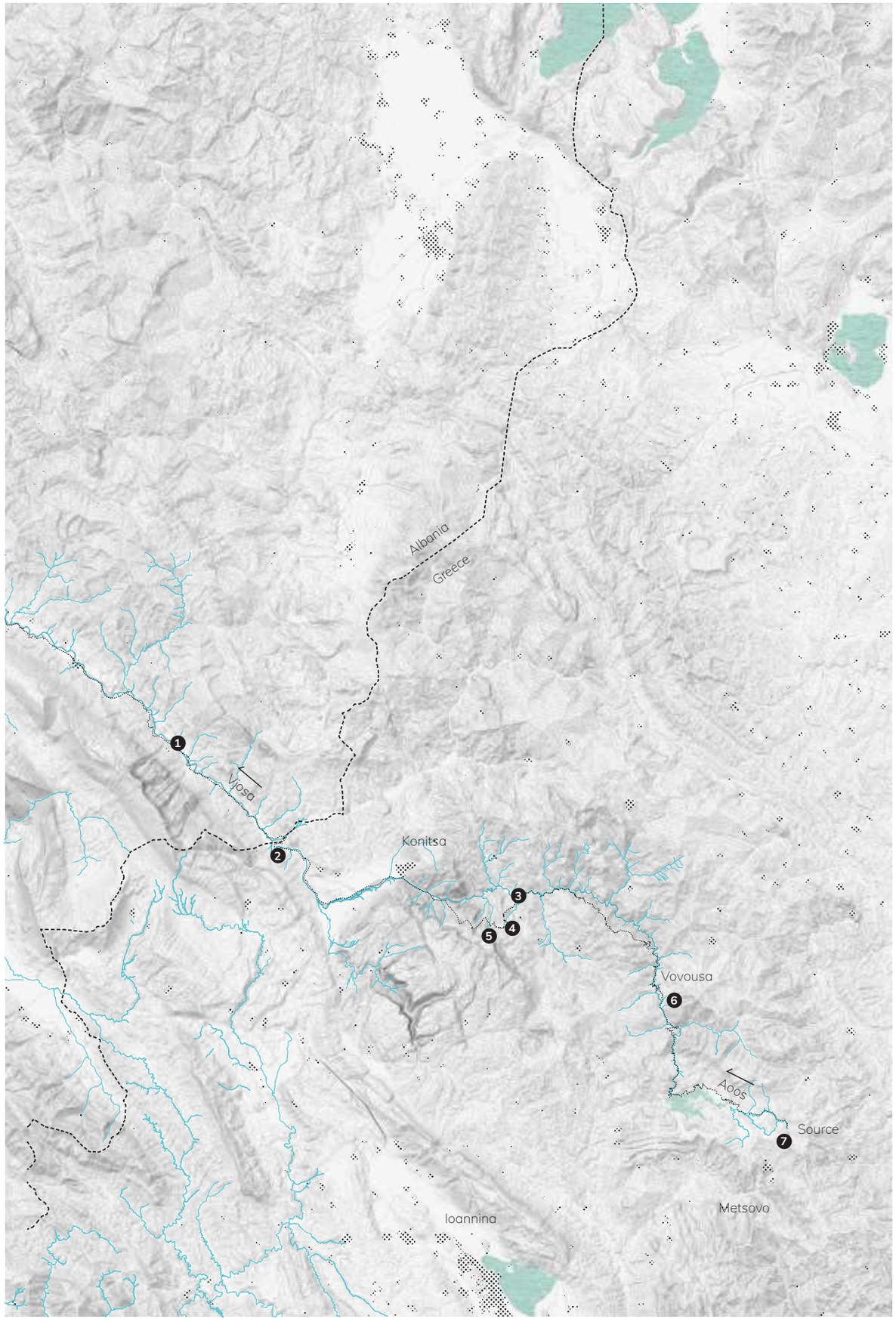


trail covered by a landslide

hiking after a thunderstorm at mount Tymfi

taking pictures in Vovousa

collecting water at the source



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THANK YOU

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Basilis ... for being such a good driver

Joana ... for your goodness