

Contested Valleys

Reclaiming the Common Landscape in Bisri, Lebanon

by

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Bachelor of Landscape Architecture  
American University of Beirut, 2016

Submitted to the  
Department of Architecture  
in Partial Fulfillment of the Requirements for the Degree of

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## ABSTRACT

Failed infrastructure initiatives have been at the forefront of Lebanon's 2019 October Revolution, a nationwide movement born from the frustrations of unjust laws and misuses of public funds. The uprising has put the government's corrupt plans in the spotlight, one of which is a national strategy of dam construction spanning the entirety of the country. This thesis re-examines how large-scale water infrastructure in Lebanon has disrupted ecologies and uprooted local communities, exacerbating existing social tensions for political gain. Visualizing river valleys as contested landscapes, this thesis explores the transition of these valleys from a constant state of destruction to places where people can reclaim their rights to the landscape.

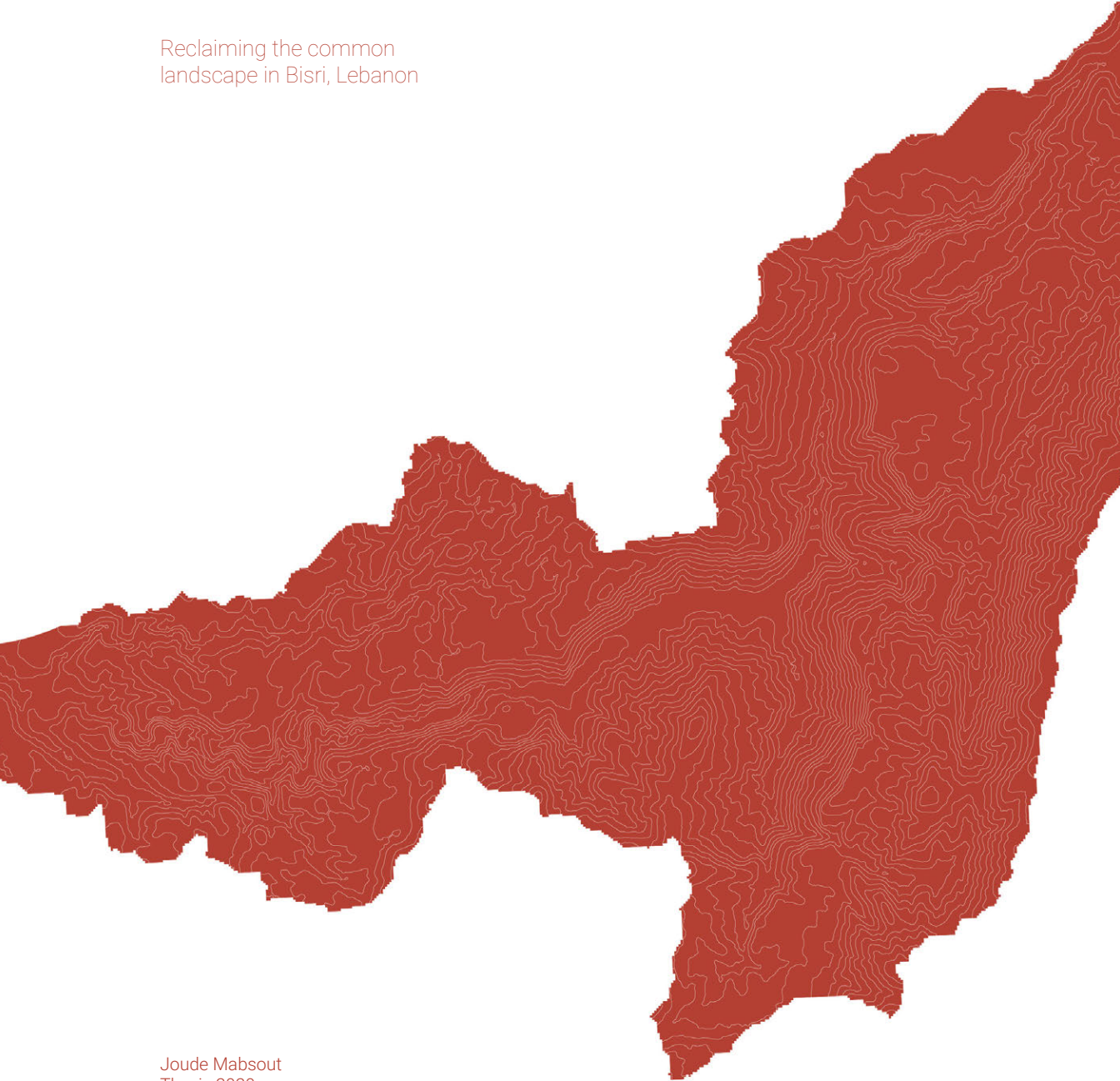
Taking the case of the Bisri Valley, where a highly contested Dam mega-project is in the process of being built, this thesis proposes an alternative future for the valley, transforming it from a politically contested dam reservoir, to an environmentally and socio-culturally preserved collective landscape. Through sectional studies, design strategies are proposed as a way to both protest the continuous threat on the landscape and offer a toolkit for action. This toolkit presents a set of interventions that allow for the activation and preservation of existing landscape ecologies and communities, amounting to a constant act of reclaiming and protecting the land. This project reimagines the landscape as a new *hima*, a locally rooted meaning for the commons. The proposed design operations aim to act as a prototype for collective actions of preservation and engagement, re-anchoring people with their landscape in the face of divisive projects.

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Title: Associate Professor of Architecture and Urbanism

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Joude Mabsout  
Thesis 2020  
MIT SMArchS Urbanism

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On November 16, 2019, a dozen tents were set up in the pine forest of the Bisri Valley. A group of civilians gathered to form a “sit-in” overnight in the contested landscape of the river valley. The banner “Save the Bisri Valley” was hung between the trees, and had been carried by protesters since February 2019, when the construction of the Bisri Dam began. The actors countering the project ranged from civilian activists, environmentalists, scientists, to other politicians. They took different modes of action and one of the predominant ones was protesting on the ground by mobilizing groups to hike through the pine forest in the valley, camping overnight and forming spaces for discussion, where experts gave public lectures that shed light on the negative repercussions of building the dam.

The 2019 Lebanese revolution is the result of an accumulated frustration among citizens who live with the consequences of a corrupt political elite. Of them, is an inadequate infrastructure system, which has worsened urban and environmental conditions rather than ameliorate the living conditions of people. Today, there is a long-term national strategy for the creation of dams spanning the entirety of the country. While the implemented dams were planned

in the name of economic growth and prosperity, they fell short of their stated objectives, causing destruction and displacement instead. As such, these projects symbolize a trend of continuous environmental deterioration, becoming one of the main reasons driving Lebanese protesters to the streets, as they reclaimed their right to landscape.

In Lebanon, infrastructure has been used to fragment the landscape and detach people from their land, in order to benefit sectarian political factions. As a consequence, ecosystems have been interrupted, through the exploitation of natural resources and the uprooting of local communities. This has exacerbated social divides, as landscape is now used as a tool to gain power, giving each patch a particular political identity. Since the revolution emerged, the Bisri dam has been at the forefront of such projects. First proposed in 1953, the Lebanese Council for Development and Reconstruction (CDR), in collaboration with the World Bank, re-launched it in 2014, as a supposed solution to Greater Beirut’s water needs. The plan was met with skepticism by the general public and activists as revelations of a large number of negative repercussions intensified.

This thesis argues that the Bisri Dam is not solely an infrastructural project, but also a political maneuver to entrench existing powers and exacerbate societal rifts. By exploring politics of water infrastructure in Lebanon, this thesis draws on how water evolved over time from being a shared resource among citizens, into a privatized tool within political sects.

I specifically look at the relationship between corrupt dam infrastructure projects and river valleys, studying the tension between the concrete mega-projects represented by political groups and the hybrid landscapes represented by the landscape itself, activists and local citizens. The process of endless ecological and cultural destruction paralleled with a continuous state of protest, can be seen as a two sided fight with the landscape in between; a battle for different worlds of the landscape.

The Bisri project is not an anomaly to the trend of infrastructure projects that erase the landscape at a territorial scale. Since the end of the Civil War in the 1990s and with emergence of neoliberal politics, Lebanon witnessed a fast trend in privatized and polluted landscapes across the territory (Makhzoumi, 2011). Privatized coastlines, erasure of cultural heritage, a polluted Mediterranean

Sea, garbage crises, quarried mountains, and dammed rivers; this image, almost a dystopian landscape mosaic, draws on how corruption and sectarianism manifests spatially. The political structure of post-war Lebanon is an extension of the structure during the war, where war militias turned into religious-political organizations, which exacerbated Lebanon's neoliberal policies (Abou Akar, 2018).

The political decisions being made have direct implications on the natural environment and socio-cultural landscapes, which begs the question of how urbanists and designers can contribute to fight for 'the right to landscape'. Shifting the narrative from a political one to an environmental and socio-cultural one becomes crucial in order to use landscape and other spatial tools to create resilient spaces for protection. Within these contested landscape territories, this thesis focuses on the 'couple' of dam infrastructure and river valleys as a case of contestation.

**Protest**  
**top right image**

Protest in Lebanon 2019 Revolution, Image Source; Walid El Khoury, Open Democracy

**Infrastructure Crisis**  
**bottom right image**

Article from The New York Times, 2019



The New York Times

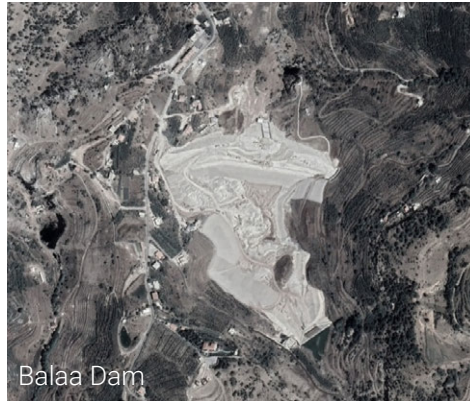
**To Make Sense of Lebanon's  
Protests, Follow the Garbage**

The country's perpetual refuse crisis is just one example of the government corruption and dysfunction that have brought protesters into the streets.



A beach strewn with refuse on the outskirts of Beirut. Lebanon's perpetual garbage crisis is just one example of the country's dysfunction. Diego Ibarra Sanchez for The New York Times





Balaa Dam



Boqaata Dam



Chabrouh Dam



Jannah Dam



Qaysamani Dam

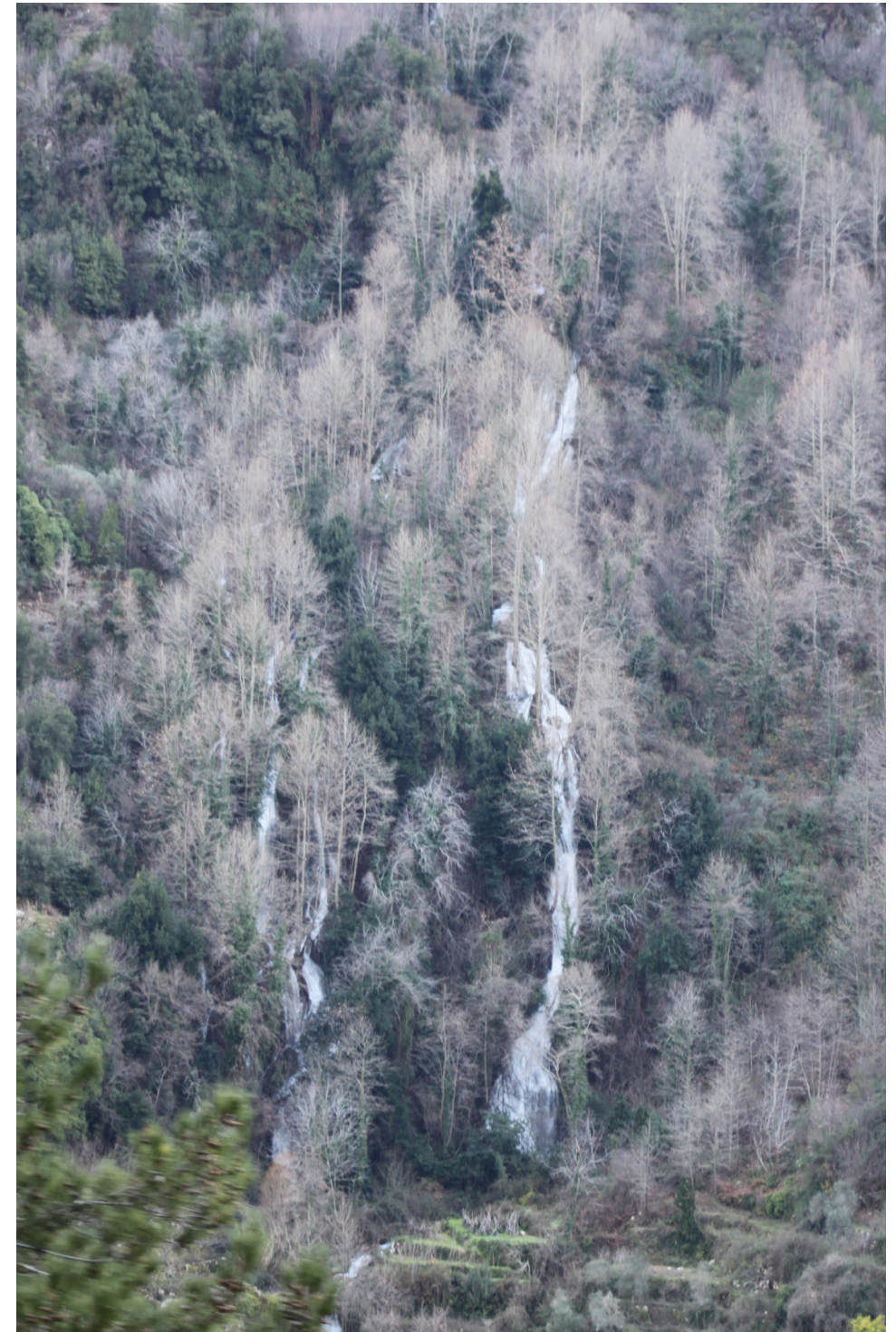


**Dam Construction in Lebanon**  
Source: Google Earth and Photography by author

**Moving from a purely political dispute over territory, to a socio-environmental narrative, how can landscape be used as a tool to reclaim itself?**

**Valley Profile**  
*right image*

Photograph: by author



The mountains, river valleys, the coast and the Mediterranean Sea represent a linear landscape sequence of the Lebanese territory. As the river systems drain Mount Lebanon into the sea as part of their hydrological lifelines, they recharge the aquifers. Dating back to the fifteenth century, the rivers took a socioeconomic role, where watermills enabled the processing of grains into flour, which became commercial hubs. In the mid-twentieth century, the rivers became borders acting as physical limits to administrative boundaries (Frem 2017).

The current condition of these river valleys has been transforming from an unwanted landscape to being coveted for extraction processes and urban water needs. Visualizing river valleys as contested landscapes, this thesis explores the transition of these valleys from a constant state of destruction to places where people can reclaim their rights to the landscape.

Taking the case of the Bisri Valley, where a highly contested Dam mega-project is in the process of being built, this thesis proposes an alternative future for the valley, transforming it from a politically contested dam reservoir, to an environmentally and socio-culturally preserved collective landscape.

In Chapter 1, I focus on how the evolution of water politics led to the loss of public water rights, also leading to infrastructure planning that is detached from environmental systems. This resulted in contested valleys, where I focus on in Chapter 2. River valleys across the country are threatened by loss of natural habitat and the erasure of cultural landscapes. I focus on three Dam cases within contested valleys that are at different phases of construction (implemented, in process of construction, and in process of protest).

After zooming into the process of protesting the Bisri Dam, I move on to Chapter 3, where I propose an alternative vision for the valley, a process of reclaiming, protecting and collectively sustaining the landscape. Through sectional studies, design strategies are proposed as a way to both protest the continuous threat on the landscape and offer a toolkit for action.

This thesis borrows W.J.T. Mitchell's idea in *Landscape and Power*, where he proposes to "change 'landscape; from a noun to a verb". Here, landscape becomes a medium to form and anchor socio-cultural identities.

*"Landscape, not as an object to be seen or a text to be read, but as a process by which social and subjective identities are formed"* (Mitchell, 2002).

Chapter 4 brings us to the Collective Design Operations, where a toolkit presents a set of interventions that allow for the activation and preservation of existing landscape ecologies and communities, amounting to a constant act of reclaiming and protecting the land. Finally, this project reimagines the landscape as a new *hima*, a locally rooted meaning for the commons. The proposed design operations aim to act as a prototype for collective actions of preservation and engagement, re-anchoring people with their landscape in the face of divisive projects.

**Nature Preserve/Dam Reservoir right image**

Juxtaposing signs at the entrance of the Bisri Dam project. Green sign says "Welcome to the Bisri Preserve", set up by activists. Yellow sign is the Bisri Dam Project information sign.

Photograph: by author



**Dam projects symbolize a trend of continuous environmental deterioration, becoming one of the main reasons driving Lebanese protesters to the streets, as they reclaimed their right to landscape.**



Protesting the Bisri Dam  
Source: [ejatlas.org](http://ejatlas.org)

Protesting the Bisri Dam  
by re-occupying the  
threatened pine forest.



### Evolution of Water Infrastructure in Lebanon

The first water laws in Lebanon date back to the Ottoman Empire (1516-1917), and were later amended during the French Mandate (1920-1943), and after the emergence of the Republic of Lebanon (1943-present). The evolution of water legal framework from the 16th century until now depicts a trend of water access moving from groundwater supply to surface water collection.

The process of shifting from groundwater to above ground was affected by three main factors; the change in political structure, mismanagement of well drilling, and aquifer depletion. The shift from Levantine customs to modern legal framework was paralleled with an incremental damage of the environment. Current water laws in Lebanon are outdated, since the "laws governing water use in Lebanon are based on practices and rules that evolved according to historical land regimes, directly related to political power in specific historical moments" (Riachi, 2016). Under the Shariaa Rule in the Pre-Tanzimat (1516-1839), the Sunni Hanafi School recognized that God owns water but there were two water entitlements: the *Mubah* (sovereign waters of sea, rivers, etc...) and the *Mulk* (private canals, wells). The idea of privatized water possession was passed on within family fiefs. Mount-Lebanon was among the

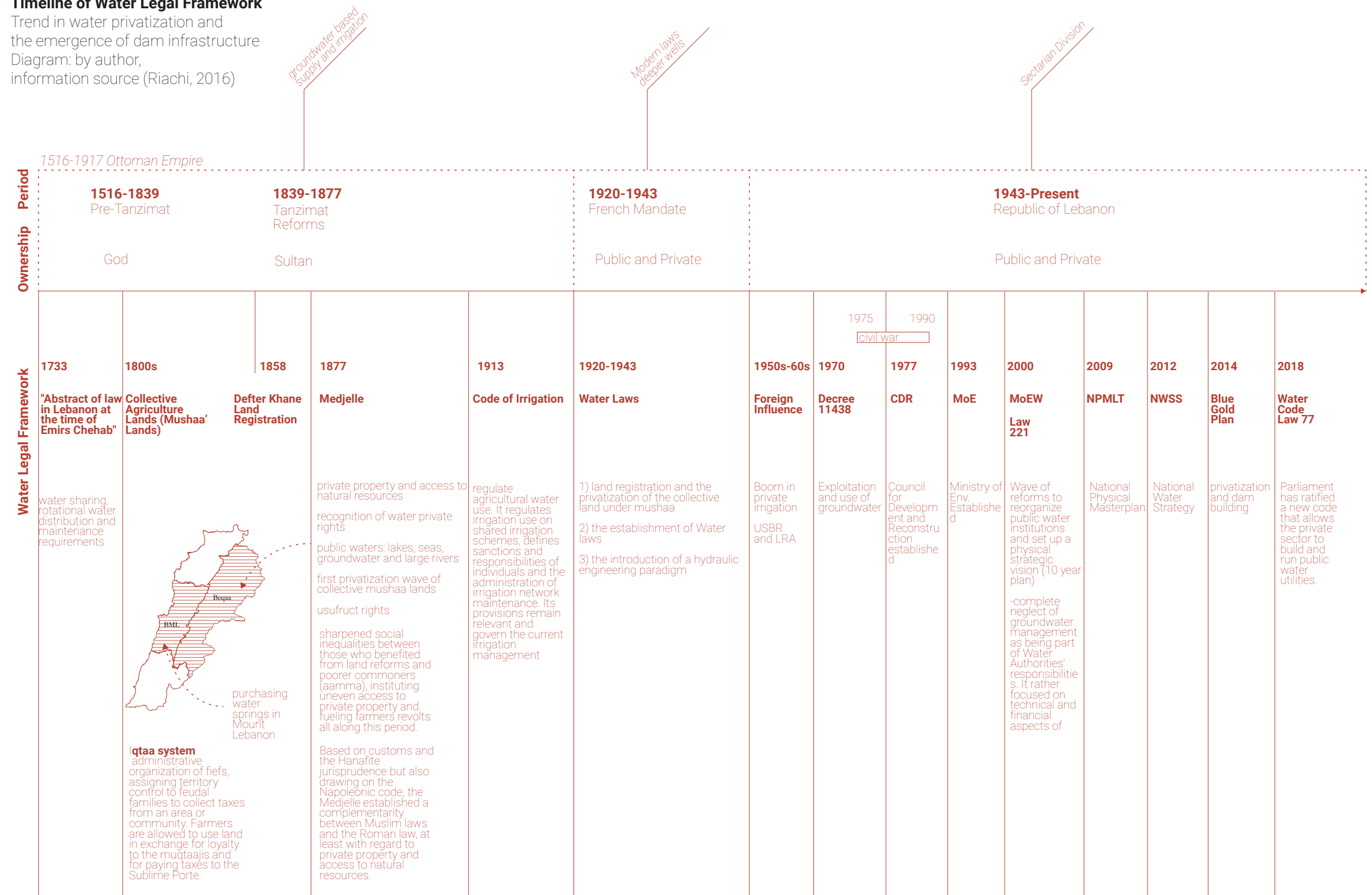
first regions in the Ottoman Empire that had an early development of private land property. A prominent family in Mt. Lebanon, the Jumblatt family, is currently still in power and possession of water springs and preserved areas. During the Tanzimat period (1839-1877), the 1858 Deftter Khane and 1877 Medjelle were two rules of water reform that allowed for more privatization rights over water, which increased the amount of wells that were drilled across the territory.

The ownership of water moved from a God, or a Sultan ownership type to a Public-Private framework during the French Mandate and national construction. Modern laws and deeper wells emerged, and a new hydraulic paradigm was introduced. In the 1950s, the influence of the USBR (US Bureau of Reclamation), through one of its funds from the World Bank led a mission to build dams, influenced by the (TVA) Tennessee Valley Authority. The first dam, the Qaraoun dam was constructed in the Bekaa Valley.

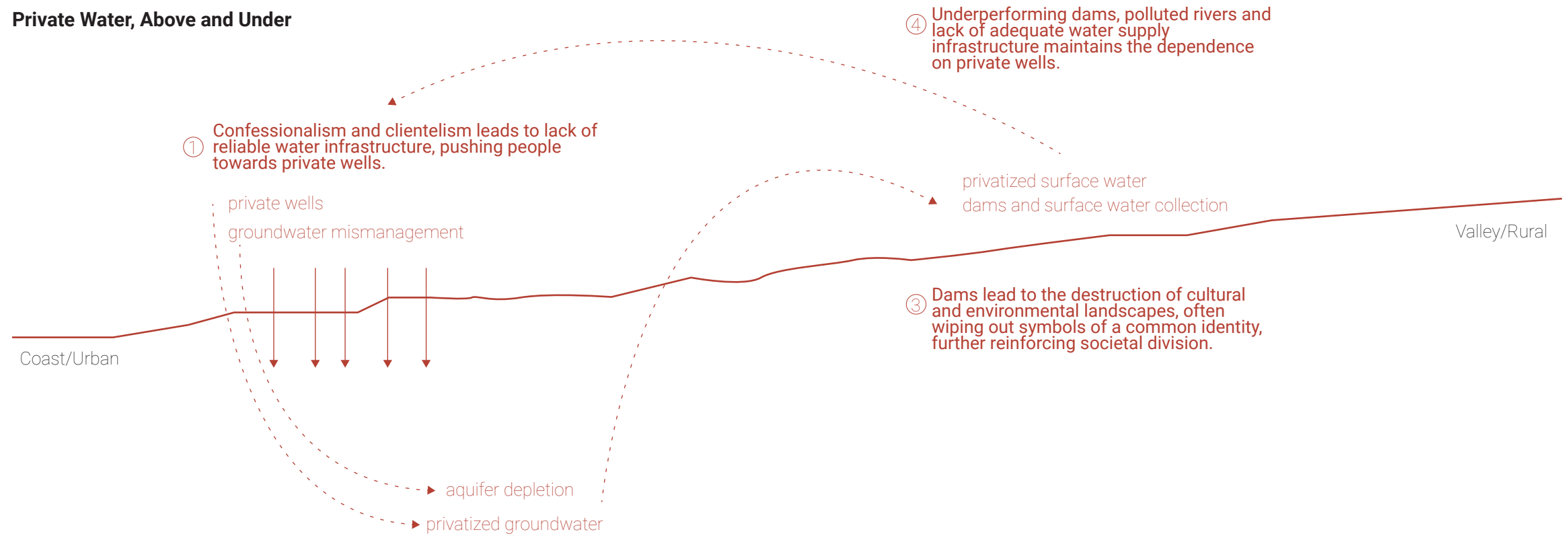
The post-civil war period (1990s) brought back projects that were on hold, such as the dams. The pace of dam construction was slow, and accelerated in 2013 after international loans were accepted for the Lebanese Government.

## Timeline of Water Legal Framework

Trend in water privatization and the emergence of dam infrastructure  
Diagram: by author, information source (Riachi, 2016)



## Private Water, Above and Under



### Water Infrastructure Loop

Diagram: by author,

② This encourages the government to search for alternative water resources.

The linear evolution of acquiring water from groundwater sources, coupled with usufruct rights to groundwater (one can own and dig up a well outside their property), into a supply-side vision focusing on dam building, has obstructed the chance of having public-policies regarding the public rights of water and groundwater conservation. Water has been privatized under and above ground as the large water projects in the Lebanese context are influenced by territorial and political power issues

maintained by the confessional system. Confessionalism, a unique political regime for Lebanon where the government is formed by a grand coalition consensus among different politicians, proportionally allocating political power among the country's community sectarian lines (Riachi, 2016). Dams become projects for land grab and territorial expansion, where at least every single political party has one dam project on its agenda. Also, the geographical boundaries of Cazas/districts are along rivers,

overlapping with different basins. The Awali River, the river that passes through the Bisri Valley, is a boundary between the Chouf and Jezzine Districts, making the Bisri project a highly contested one.

The right to water, whether it is the right to acquire water as an urban dweller, or in a rural setting, groundwater mismanagement, and the lack of attention to rework the existing water infrastructure in the urban settings, coupled with the dependence on river valleys for

bringing water to cities, leads to a loss of the right to landscape at a territorial scale. While aquifers are depleted and polluted, there is not enough action among politicians to distribute even access to water, as they continue to profit from large-scale water investments and targeting international organization's development loans to their electoral constituencies. As a result, not only is the aquifer being depleted, but valleys and mountains are being destroyed.



## Current Water Sector Actors

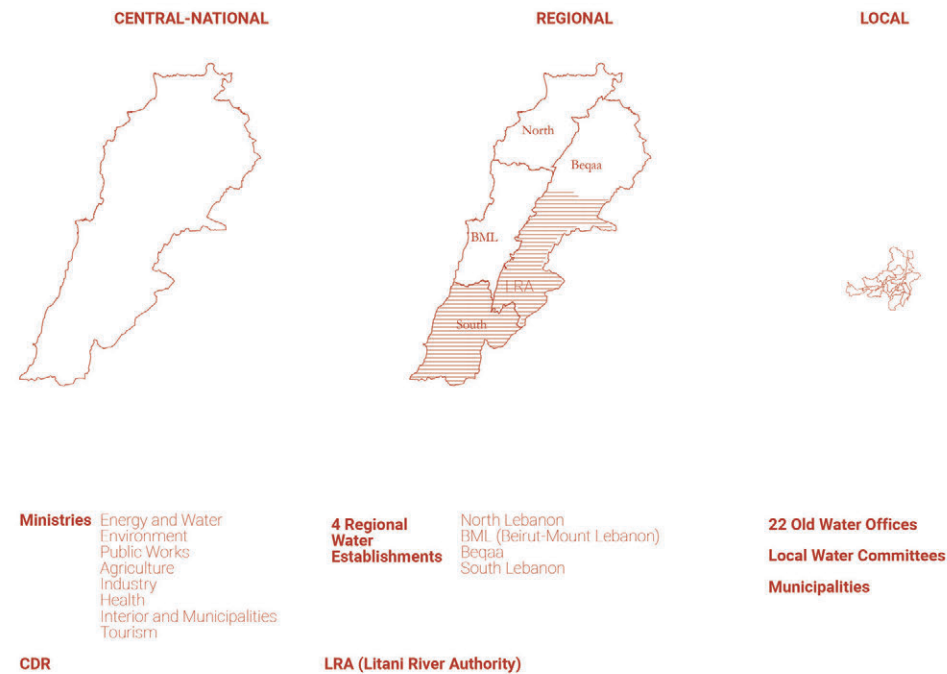


Diagram: by author

There are three scales for water management in Lebanon, at the national scale, the Ministry of Energy and Water is the main entity involved with water infrastructure projects, along with the CDR (Center for Construction and Redevelopment), which is a main governmental body responsible for tendering and managing large-scale investment projects. The Ministry of Environment has involvement to assess the implications of the infrastructure projects. CDR was created in 1977 and replaced

the Ministry of Planning to boost reconstruction efforts after the Civil War. In the regional 4 water establishments, the Mohafez (governor- there are 8 Mohafazas) and Qaimaqam (prefect of a Caza- there are 25 Cazas) approve public work plans of municipalities. The LRA (Litani River Authority) is an establishment for the Litani River watershed. At the local level, municipalities are responsible for public works, and may have begun to merge to form joint water networks.

## Institutional Structure for the Bisri Dam Management

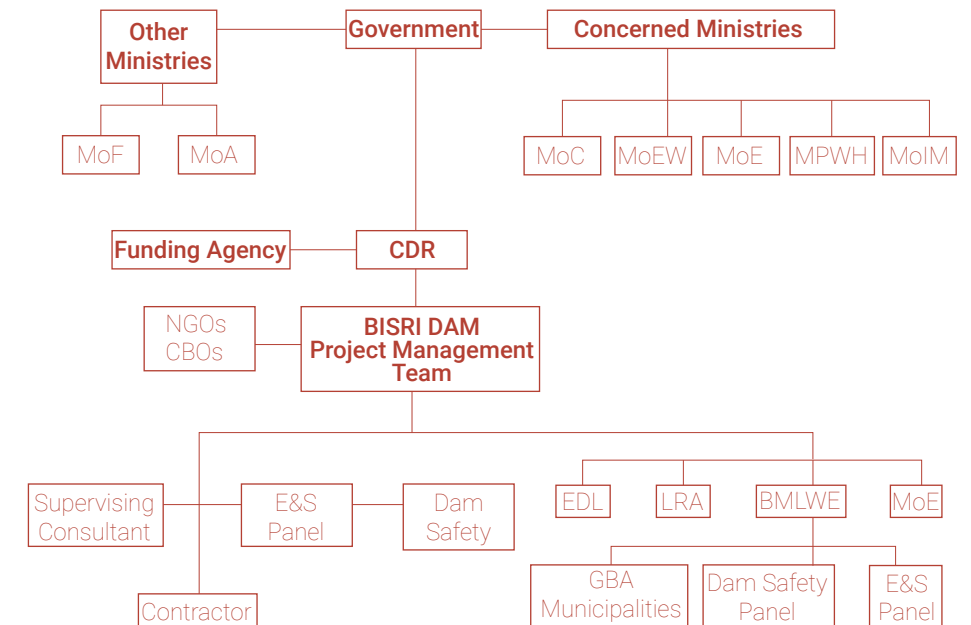


Diagram: by author, Information Source (Dar Al-Handasah, 2014)

The stakeholders concerned with the Bisri Dam project, as shown in the chart above, have different responsibilities intervening at different stages of the project. As the project aims to bring water form the South of Lebanon towards Beirut, the involvement of the municipalities within the valley are only being considered during the land expropriation process, and not in the management of the dam, which removes the possibility of allowing- if the dam were to be built- the local residents to benefit

from the projected water collection. The main groups being questioned by activists and people opposing the project are the Center of Construction and Redevelopment (CDR), the funding agency (World Bank) and the Ministry of Energy and Water. At the local level, municipalities within the Bisri Valley have condemned the project from happening.

## The Bisri Dam and Greater Beirut Water Supply Project

Understanding the history of the Bisri Dam is crucial in order to contextualize the project based on time, but also investigate the multi-scalar actors that contribute to the political framing

The Bisri Dam was initially proposed in 1953 by the U.S. Bureau of Reclamation (USBR) as part of a series of river basin development plans for developing areas in the latter half of the twentieth century. During that time, The Tennessee Valley Authority TVA introduced the idea of “modern” river development. While it claimed to promote economic growth and ‘grass roots’ democracy, a number of people critiqued the fact that TVA officials and local power brokers monopolized many areas of the valley. TVA-style basin development constituted an important part of foreign policy objectives from the 1950s into the 1970s.

While the Bisri Dam had not materialized since then, the proposal re-emerged in the early 2000s, by the Council for Development and Reconstruction (CDR), a governmental organization in Lebanon established in 1977 during the Civil War with the aim to assess infrastructural needs and allocate international and Lebanese aid for rebuilding the country. The Bisri Dam began to materialize

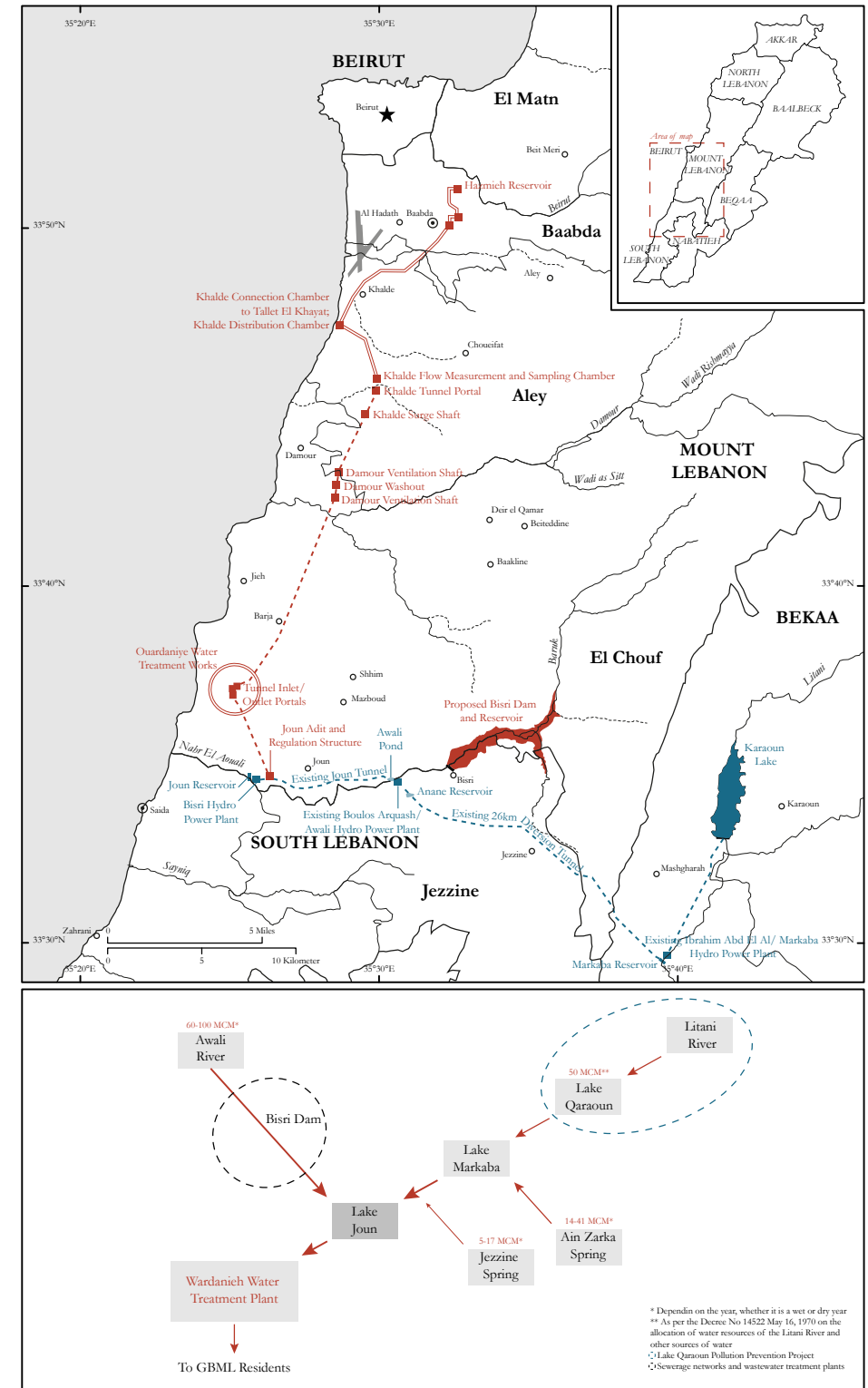
after the World Bank approved the funding in September 2014.

The Bisri Dam is part of the World Bank Greater Beirut Water Supply Project (GBWSP), which aims to tackle water scarcity for people living in Greater Beirut Area (GBA), due to the “limited water resources, infrastructure deficit and suboptimal water resources management”, the large-scale project encompasses the construction of a dam, reservoirs and water conveyors, and is expected to bring potable water from the Litani river, a toxic and polluted river that would meet the reservoir of the Bisri Dam, to over 1.6 million residents of GBA.

### GBWSP Project *right image*

Map and Strategy of the Bisri Dam proposal.

Image reworked by author from the World Bank



## Bisri Dam as a Political Maneuver

With the sectarian distribution of governmental posts, the ministries involved with the dams can be directly linked to specific political parties that have a variety of motives, other than using the dam as a water source for citizens.

**First, the dam represents political ambition.** The main ministries involved, the ministry of Energy and Water, Environment, and Foreign Affairs are all headed by one political party, the Free Patriotic Movement (FPM). The Bisri Dam is also located at the border between two districts with a violent history involving this political party. The FPM leader has presidential aspirations, uses these mega-projects to portray the image of a strong leader. Through the overlap of these relationships and the geographic location, we can see how the dam advances a narrow political agenda.

**Second, the Dam maintains the ghost of the civil war in people's minds.** The head of the Council of Development and Reconstruction (CDR) is under another political party, the Future Movement. Since its creation, the CDR remained under the control of this party and was supposed to be temporary but remained active as an almost autonomous powerful entity to bring in large funds and implement large projects.

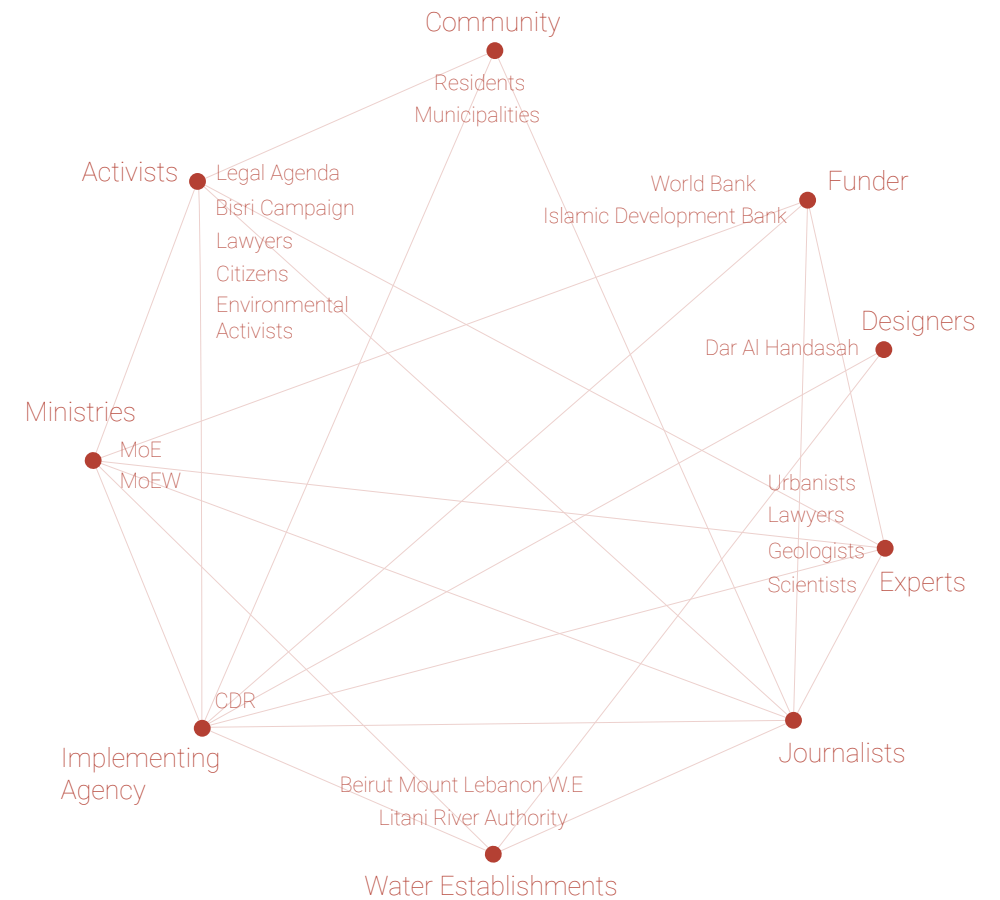
### **Third, it becomes justification for further authoritarian acts.**

The site has become a frontier to the citizens as the Internal Security Forces (ISF) was sent by the Ministry of Interior and Municipalities, also represented by the Future Movement, in order to guard the newly opened construction site. Authoritarian control emerged in the physical space but also through online surveillance. Freedom of expression was also threatened as people were interrogated for voicing out their claims of opposition.

### **Fourth: This dam has a rippling effect that creates economic benefits for the political elites.**

For example, one of the members of the FM movement bought a piece of land with cultural value at the mouth of the river along the coast, further privatizing the river downstream (Jabri, 2020).

These four political motives reveal the intangible consequences of the dam.



### **Actors of the Bisri Project**

Mapping communication between promoters and activists.

Diagram by author

## Infrastructure Independent of Environmental Systems

The relationship between geography and law is missing in Lebanon, where 85% of Lebanese Territory remains unplanned (Public Works, 2018). With the lack of planning, large projects and strategies become implemented in a non-contextual manner, where infrastructure is now devoid of socio-cultural and environmental considerations.

Lebanon has a large water storage capacity, encompassing around 50 phreatic zones. Water Authorities have not yet planned for the conservation and the management of aquifers. Instead, their focus is on restructuring the administration to host PPS (Public-Private-Partnerships) and building dams. The reliance on massive infrastructure that is centralized politically and physically, instead of decentralized networks that are more integrated within local ecologies and communities, is leading to massive erasure of landscapes.

From a geological perspective, two thirds of Lebanon's landscape is karstic, characterized as permeable limestone rock. The dams end up losing water instead of retaining it. For instance, the Chabrouh dam loses about 200 liters per second (Riachi 2016). Similarly, the Janneh dam that is currently being built on the Ibrahim River, scientific studies

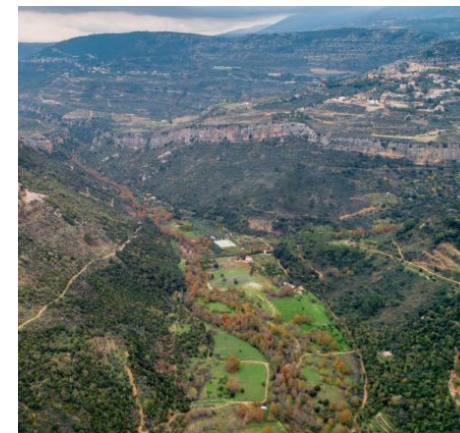


Janneh Dam under construction.  
Photograph: by author

show that there is a 50% chance to retain the water needed. The Bisri Dam is faced with this same conflict, and is also on a seismically active zone (Nemer, 2019). With this reality, the construction of the dam will need an impermeable cement base, which will triple the cost of the project and also need the 'cementation' of an entire valley.

The National Physical Masterplan of the Lebanese Territory (NPMLT), commissioned by CDR and endorsed by the government in 2012, has identified the river valleys, as important landscape areas to be preserved, where the Bisri Valley is considered to be part of the national park. This contradicts the National Water Sector Strategy

world have decreased due to global warming and climate change. The Bisri dam is projected to collect 125 MCM/year, by the World Bank, which opposes the average yearly flow of 80 MCM (Allaw, 2020). The Litani River Authority (LRA) estimated that groundwater storage decreases annually by 70 million m<sup>3</sup> (Amacha 2014). With the decrease of rainwater as well, dam infrastructure is questionable for relying for water collection.



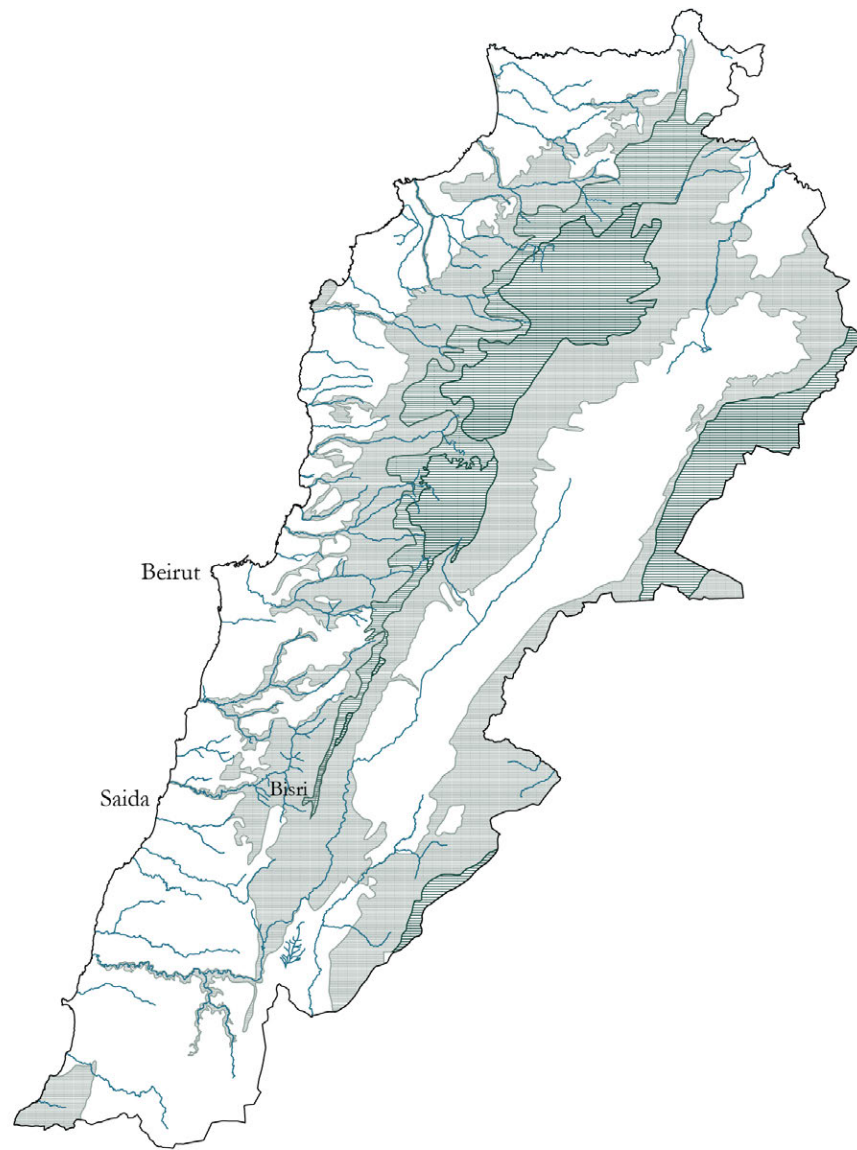
Bisri Valley  
Image Source: Save Bisri Valley

Finally, 'soft' infrastructure is needed that is adaptable to hydrological and ecological systems within the landscape, as well as rearranging existing networks instead of implementing destructive massive infrastructure is needed to sustain resilient landscapes.

(NWSS) which was later proposed 22 dams on the Lebanon's 17 perennial rivers.

The gap between this territorial masterplan and infrastructure projects is due to the lack of planning at the medium scale of districts.

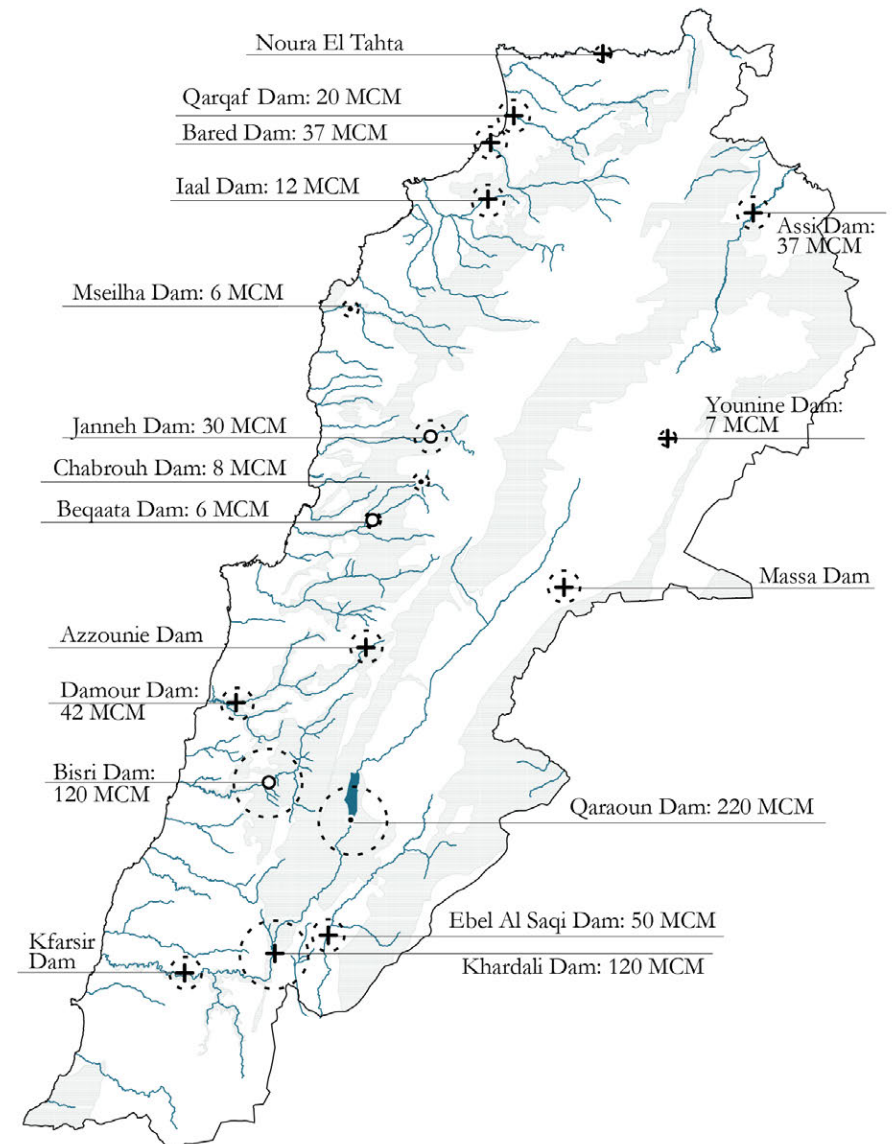
The current dam infrastructure being proposed is a mono-functional design that is not adaptable to the shifting climate. Reservoir filling rates around the



Ecological Corridor of Valleys, Forests    Cedar Forest Corridor    High Mountains

### Landscape sequences across the territory

Map by author, compiled from NPMLT, 2009



**Dam Status**  
 • Completed    ○ Under Construction    + Planned

**MCM Size**  
 ◌ <10    ◌ 10<v<100    ◌ >100

20km

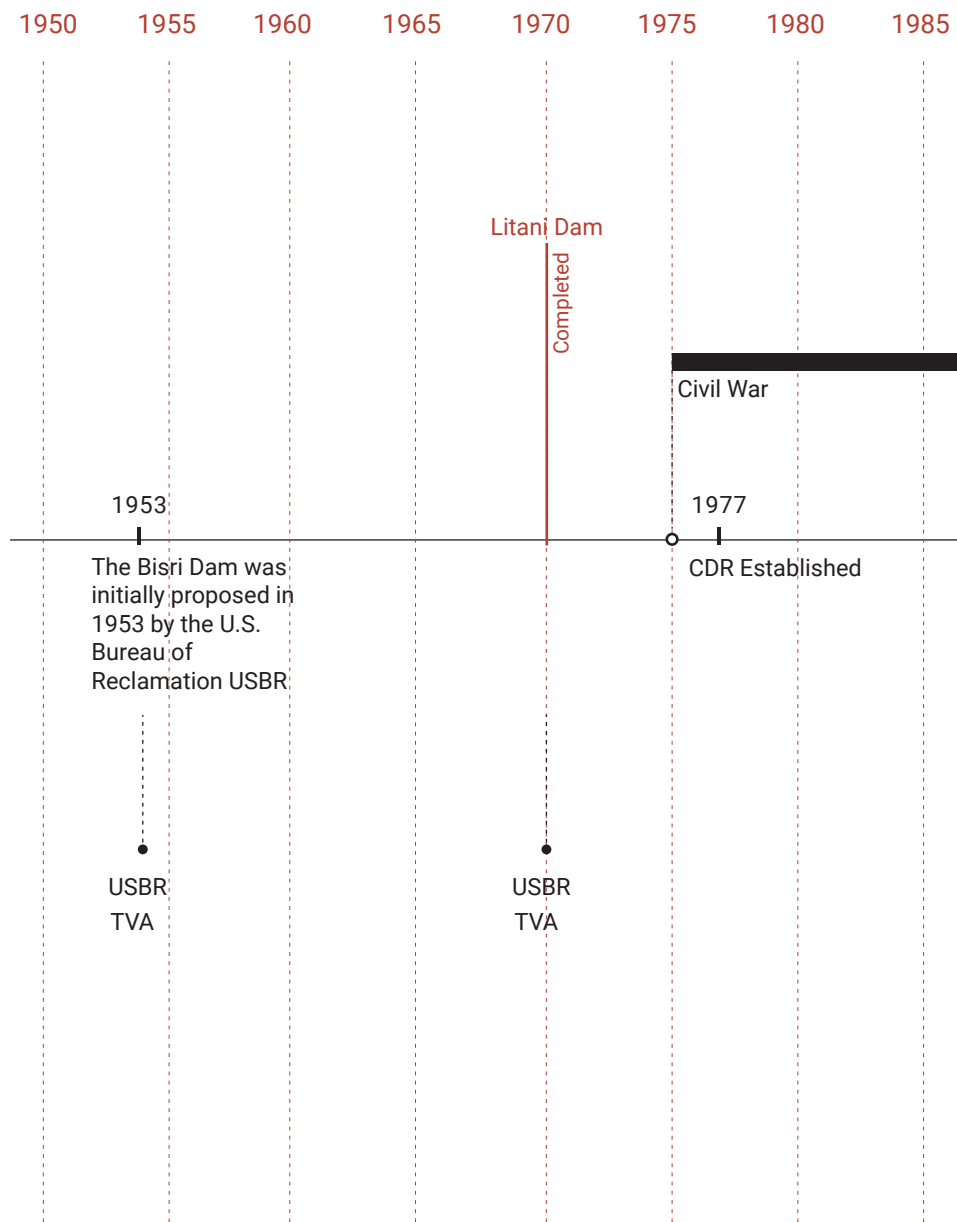
### Planned Dams across the territory

Map by author, compiled from NWSS, 2012

### Dams and Contested Valleys

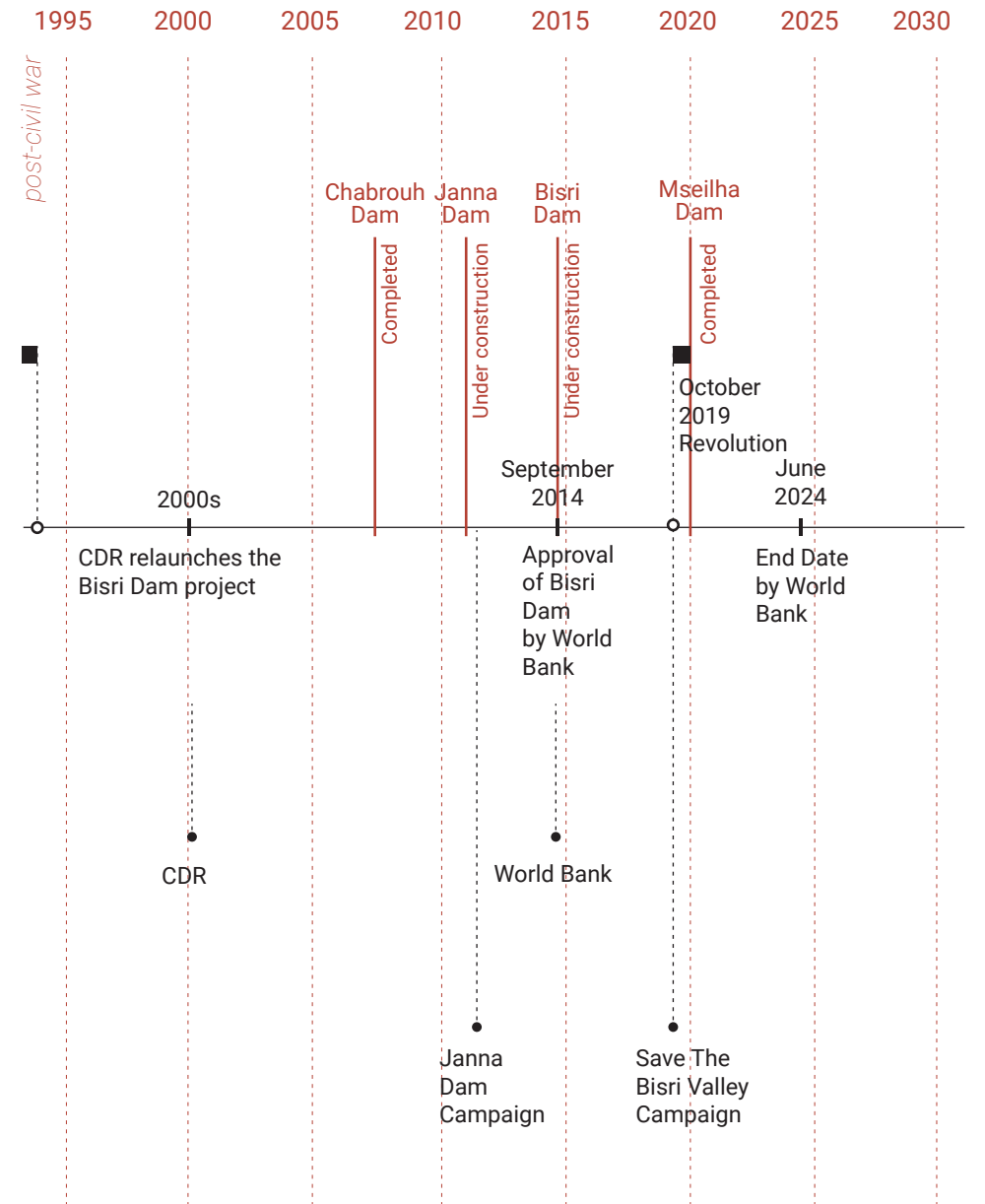
The planning of dams perpetuate existing inequalities and maintain the dominance of the political elite over the landscape. Lebanon's landscape is highly contested as large infrastructural projects are carving out the natural terrain of its river valleys, destroying socio-cultural spaces and agricultural practices that are embedded within these geographies. The process of dam construction is a bordering practice, which further fragments the landscape and communities in the country. The displacement of people, erasure of cultural heritage and environmental assets weakens the aim of preserving a common landscape identity that defies the existing sectarian identity. Dam construction was met with doubt among citizens and environmental activists, especially since a number of built dams have failed in Lebanon. For example, the Qaraoun dam went through its driest time in the Winter of 2013-2014 and its reservoir has only filled 40 mm<sup>3</sup> out of the 220 mm<sup>3</sup> potential. Another example is the Chabrouh Dam completed in 2007, which showed only 1% of its original aim in the 1999 Decennial Plan (Riachi, 2016). The Brissa Dam, completed in 2013 has never been able to fill up due to the Karst landscape. The Janna Dam, currently being constructed is projected to leak, similarly to what is being projected for the Bisri Dam. (BGR 2012).

In this chapter, I will focus on three contested valleys, each threatened by a Dam project at different construction phases: Mseilha Dam (completed in 2020), Janna Dam (under construction), and Bisri Dam (being protested). These dams are part of the National Water Sector Strategy (NWSS), a supply-side vision for water collection dam building across all the rivers in Lebanon. The NWSS is in contradiction with the National Physical Masterplan for the Lebanese Territory (NPMLT, 2009) since the proposed 'blue-green' network, a natural space continuity across the territory, encompasses the protection of the mountain peaks (Lebanon's water tower), rivers, and valleys. All of the proposed dams are juxtaposed with the proposed natural parks and preserved river valleys. The dams under construction are faced with local disapproval, municipalities, citizens across the nation and NGOs. While the Mseilha and Janna Dam were implemented without an environmental and social impact assessment (ESIA), the Bisri Dam, since it is under the World Bank which requires certain guidelines to follow, has had an ESIA. Even with the ESIA being done for the Bisri Dam, the impact of the dam on the valley shows a massive loss of local ecologies and regional ecosystems.



**History of Dams and Actors**

pre-civil war  
Diagram by author

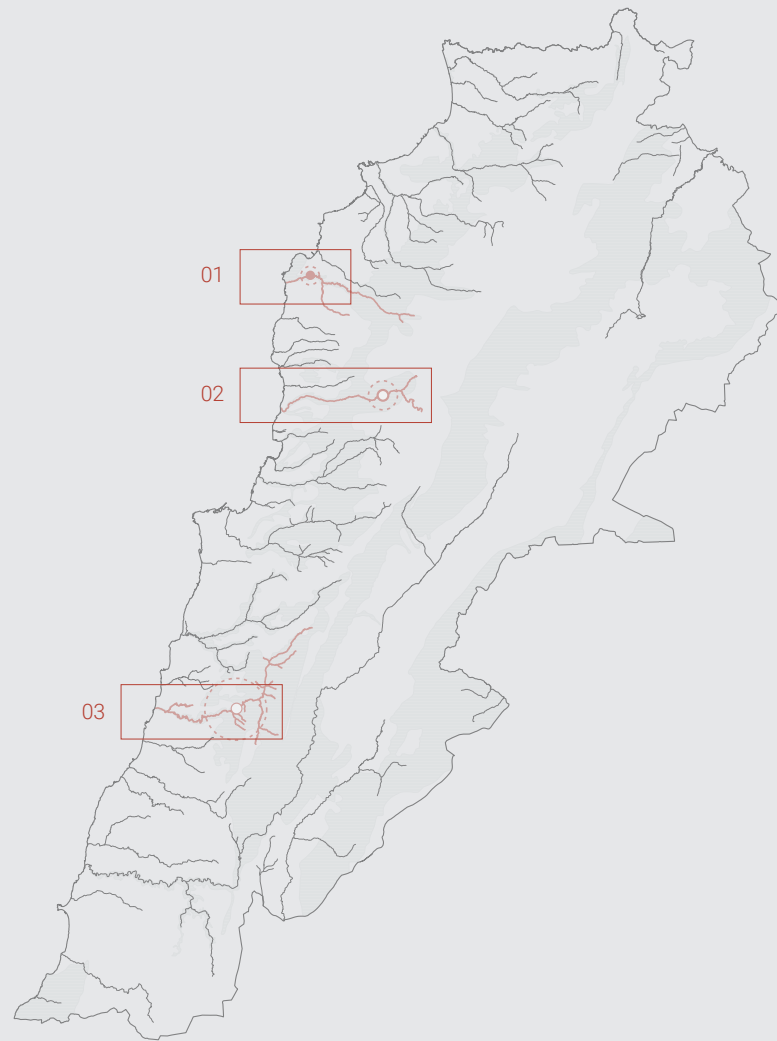


**Emergence of Dam Construction**

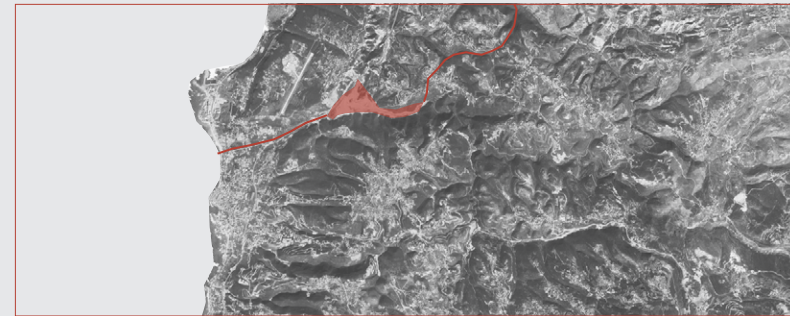
post-civil war  
Diagram by author

## THREE CASES OF CONTESTED VALLEYS

Three Dam projects are investigated and documented in Lebanon. The Mseilha Dam, just completed and located in the North, the Janna Dam which is under construction, and the Bisri Dam, in the South of Lebanon, currently on hold as protesters and activists are calling for it to be halted. The cases were chosen to show a variety of geographic locations, completion status and function. The three dams are catering for urban cities, addressing the water crisis in Lebanon. While the territory is abundant with water, the mismanagement of water infrastructure has led to the targeting of river valleys. These three dam projects also have a common political party being the chief proponent of them, the Future Patriotic Movement (FPM). This investigation series transcends from a territorial mapping of three dams, representing one mega-dam project led by one political sect, to site documentation of the impact of these dams on each river valley.



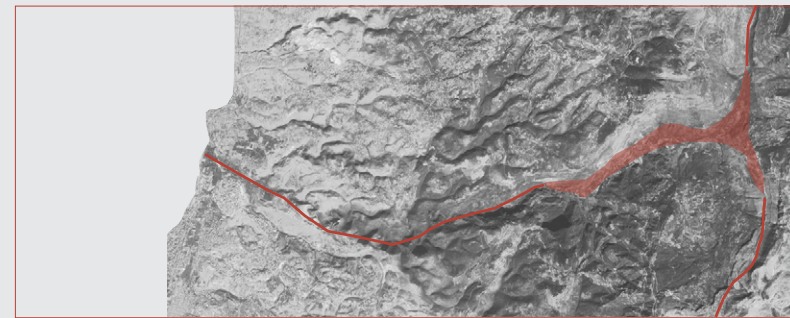
01 Mseilha Dam



02 Janna Dam



03 Bisri Dam



22km



CASE 01	
NAME <b>Mseilha Dam</b>	<p>Lake Mseilha Dam is located on Nahr El-Jawz, upstream of the historical castle of Mseilha in the Caza of Batroun, east of the new Batroun - Chekka road. The objective of this dam is the creation of a reservoir capable of ensuring drinking water of a portion of the localities in the Cazas of Batroun and Koura up to 2030, water supply to certain industries in the region as well as irrigation of agricultural lands located mostly at North of Nahr El-Jawz with 1000 hectares (ha) of exploitable area. The construction of the dam finished in late 2019 after years of implementation problems. Experts confirm that "Mseilha Dam suffers from a fundamental flaw, namely its proximity to the estuary". This will lead to the buildup of large amounts of sediment and sludge behind the dam and impair the flow of the water, necessitating the use of costly pumps.</p>
LOCATION <b>Nahr El Jawz</b>	
USE <b>Potable water for Batroun and irrigation supply</b>	
SIZE MCM <b>6m<sup>3</sup></b>	
CONDITION <b>Completed</b>	
TIMELINE	
<ul style="list-style-type: none"> <li>— 2014 <b>Construction starts</b></li> <li>— 2020 <b>Water gathering begins. Fails to meet expectations.</b></li> </ul>	



## CASE 02

<p>NAME <b>Janna Dam</b></p>	<p>Janna village is located upstream of the Ibrahim River, which runs beneath snowcapped peaks to the Mediterranean Sea. The river passes through the cultural landscape of the Adonis Valley, which is lined with waterfalls and natural springs and home to some 700 animal and plant species. Blocking the river by the dam will require flattening up to 500 acres of hillside forest, and will not only stifle the river flow and destroy natural habitats but endanger a vast underground network of aquifers that feed Beirut's primary water source, the Jeita spring. The spring, 20 miles southwest of Jannah, produces a subterranean river that courses through the Jeita caverns, a major tourist attraction and a symbol of national pride seen on postcards and currency notes (Battah, 2016).</p>
<p>LOCATION <b>Nahr Ibrahim</b></p>	
<p>USE <b>Potable water for Byblos, Beirut and suburbs</b></p>	
<p>SIZE MCM <b>30m<sup>3</sup></b></p>	
<p>CONDITION <b>Under Construction</b></p>	
<p>TIMELINE</p> <ul style="list-style-type: none"> <li>— 2015 Construction begins</li> <li>— 2020 Under construction</li> </ul>	



### CASE 03

NAME <b>Bisri Dam</b>	<p>The World Bank-funded project is planned by the Council for Development and Reconstruction (CDR) in Lebanon and situated on the Awali River in a valley of high ecological, cultural and archaeological significance. As part of the Greater Beirut Water Supply Project (GBWSP), it aims to funnel water to Beirut and its suburbs from the Bisri reservoir through water transmission lines. The GBWSP is part of the National Water Sector Strategy (NWSS) approved by the Lebanese Government in 2012. The Bisri Dam will necessitate the construction of a 73m high structure and the expropriation of 600 hectares of mostly agricultural and natural lands from different municipalities of the Chouf and Jezzine districts. The total cost of the GBWSP and associated projects is around 1.2 billion USD.</p>
LOCATION <b>Awali River</b>	
USE <b>Potable water for Beirut and suburbs</b>	
SIZE MCM <b>120m<sup>3</sup></b>	
CONDITION <b>On Hold</b>	
TIMELINE	
<p>— 2014 <b>Re-launched after WB funding approved</b></p> <p>— 2019 <b>On hold due to protests</b></p>	



photographs by author

**Protecting the St. Sophia  
Monastery with chants and  
education tours along the Bisri  
Valley.**

Photograph: by author



## The Bisri Valley, *Process of Protest*

Protesting against the Bisri Dam project accelerated during the October 2019 revolution in Lebanon. A few campaigns, against other dam projects, mainly emerging from local residents in threatened river valleys and environmental activists, were active prior to the revolution. However, the national scale of protests against corruption in Lebanon heightened the awareness of citizens towards the Bisri Dam. The Bisri case became a symbol for corrupt infrastructure in Lebanon, representing all of the contested river valleys, and other landscapes across the territory. The process of protest takes many scales and forms; from hiking/camping in the valley, to marching in the streets of Beirut, from news coverage, to social media sharing, from sending lobbying letters to the World Bank, CDR, MoEW, to reaching out to international organizations. Landscape became a framework to address human rights; the right to protect socio-cultural landscapes, and ecological systems (Makhzoumi, 2011).

### Protesting the Bisri Dam

On January 12 2020, I joined a protest in the Bisri Valley along with the "Save Bisri Valley Campaign". The series of pictures portray the process of protesting through marching, hiking, chanting and experiencing the landscape.

Photographs: by author



# Forests, agricultural fields, rocky slopes across the Bisri Valley

rocky slopes

pine forest

agriculture plain

conifers

orchards

03

## Transitioning to a Landscape Common

An alternative vision for the Bisri Valley begins by shifting the political dispute to an environmental and socio-cultural concern.

As Bruno Latour addresses the ecological crisis by proposing a shift **from matters of fact to matters of concern** (Latour 2004),

the process of reclaiming the contested valleys starts with shifting the narrative from one that perceives nature and society as incongruent body parts, to **common narratives** of complex systems.

The process of reclaiming, protecting and collectively sustaining the landscape,

is a state of constant action to reclaim and maintain the right to landscape.

## Political Borders Overlapping River Systems



### Mohafaza Boundaries, Territory

Political boundaries of governorates overlapping with rivers  
Map by author

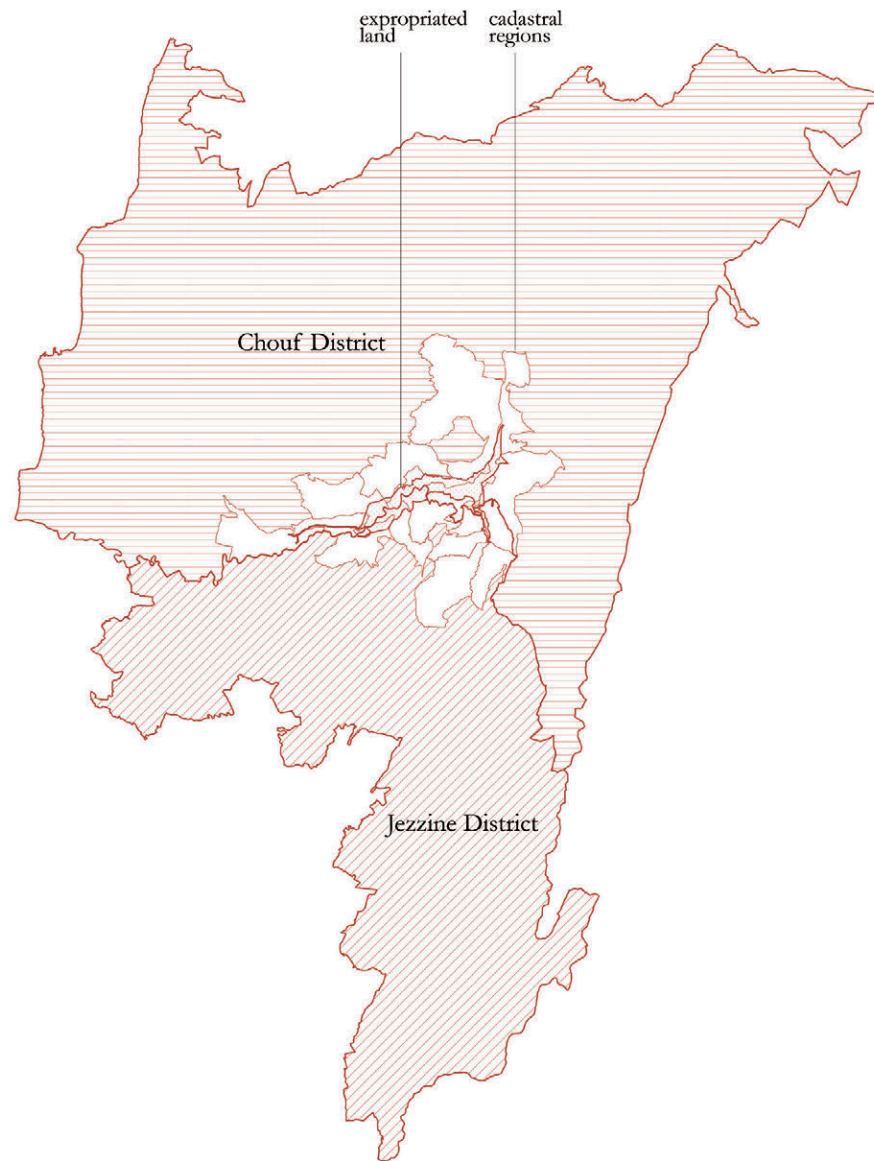


### Caza and Water Establishments

Bisri Valley sits at the border two WEs and two Districts (Chouf and Jezzine)  
Map by author



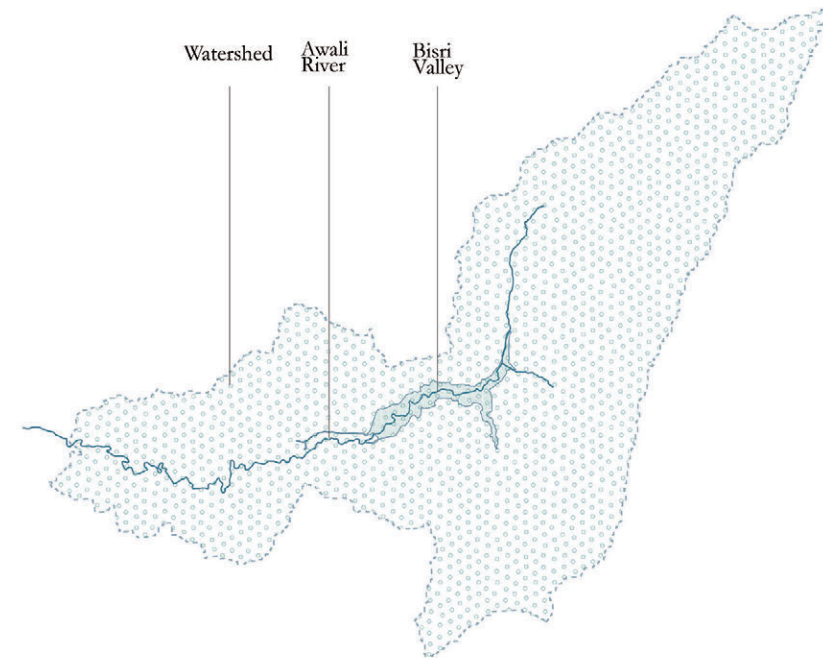
## Political and Landscape Narratives in the Bisri Valley



### Political Narrative

The Bisri valley is represented as an expropriated land from surrounding cadastral regions, situated at the border of the Chouf and Jezzine districts.

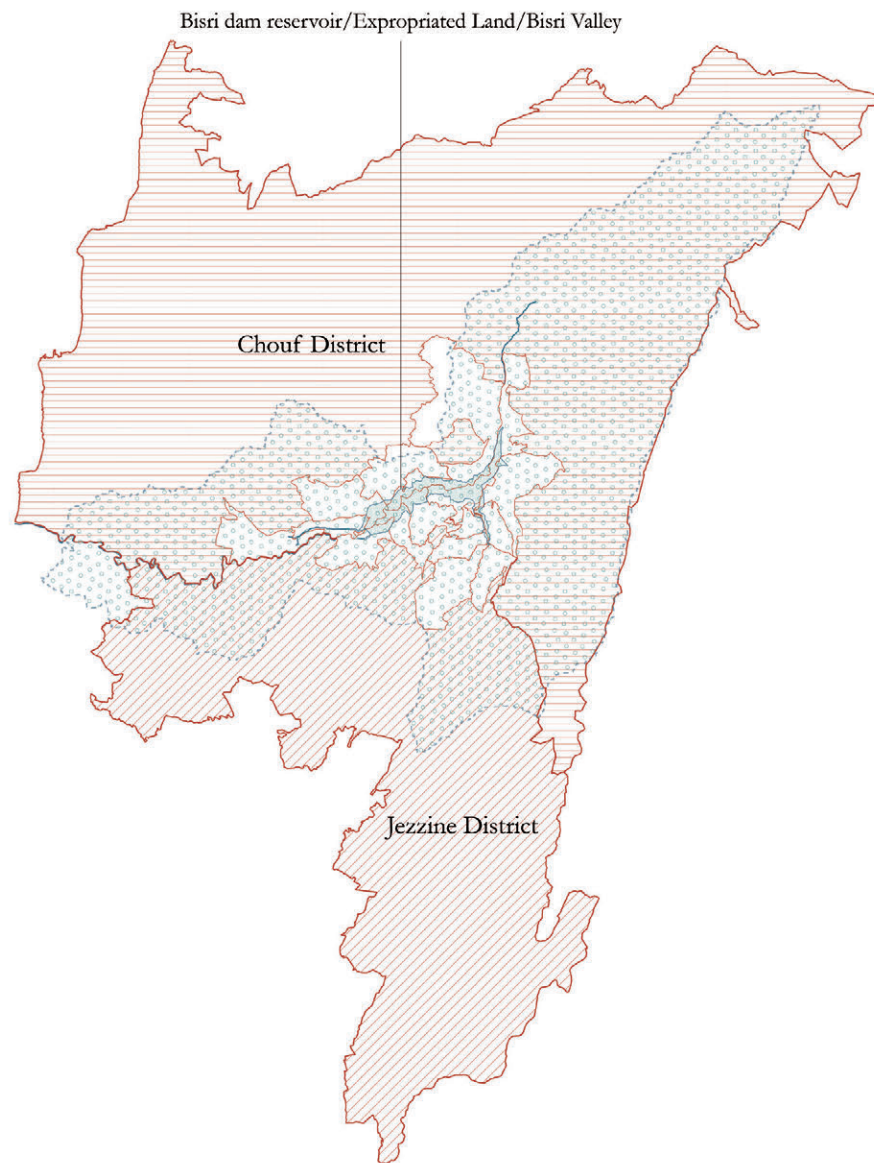
The ongoing disputes over the Bisri Dam Reservoir are over issues of appropriation and territorial expansion for different political groups.  
Map by author



### Landscape Narrative

The watershed boundaries of the Awali river passing through the Bisri valley, create a new meaning for the proposed dam reservoir of the Bisri Dam.

From the perspective of the natural landscape, the borders of the reservoir signify the a topographic meaning; the plain of the Bisri Valley.  
Map by author

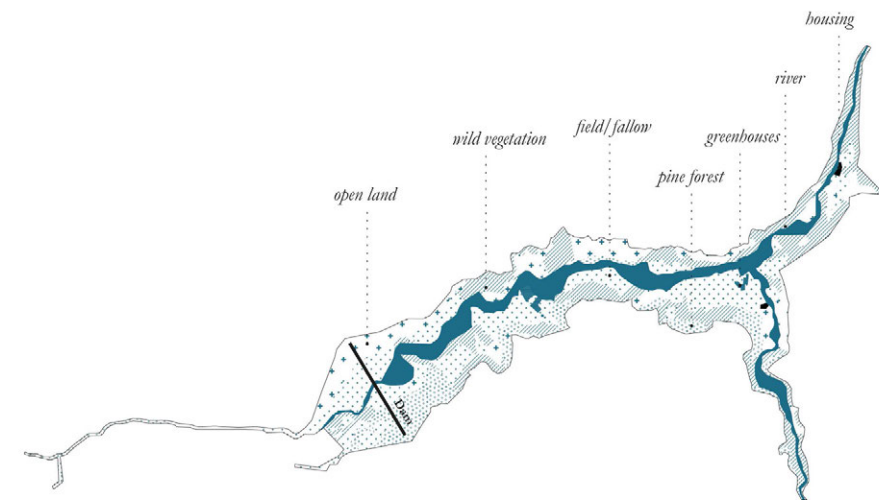


**Overlapping Borders**

With the overlapping political and landscape borders, different worlds of the valley emerge; the borders of the Bisri Valley can be defined as an

expropriated land, a dam reservoir, or a natural valley with an agricultural plain.

Map by author



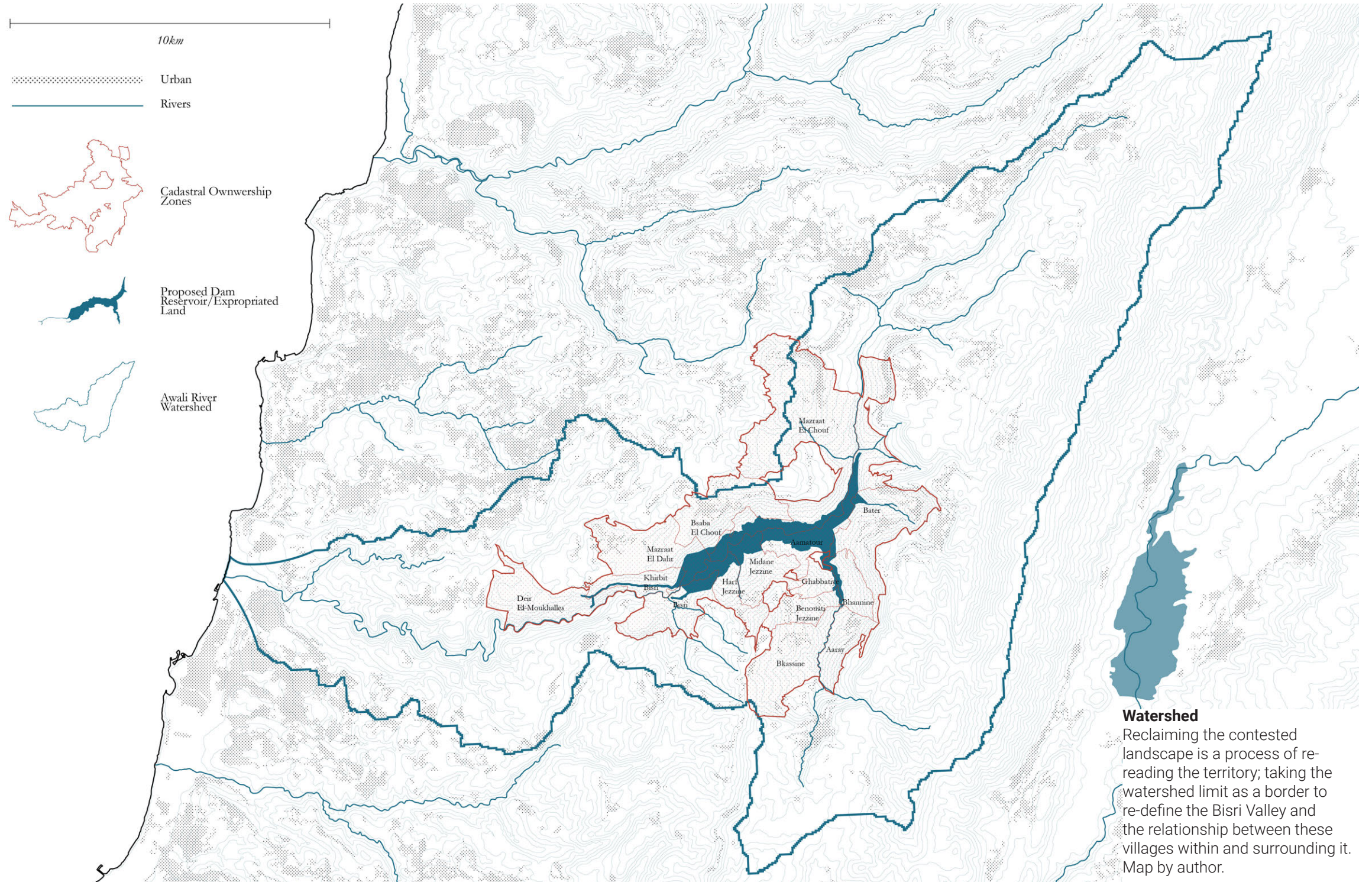
**Three Worlds of the Valley**

The borders of the dam reservoir define the limit of expropriated land that became state-owned, which brings a possibility to design a new type of

common landscape opposing the mega-infrastructure dam.






Map by author

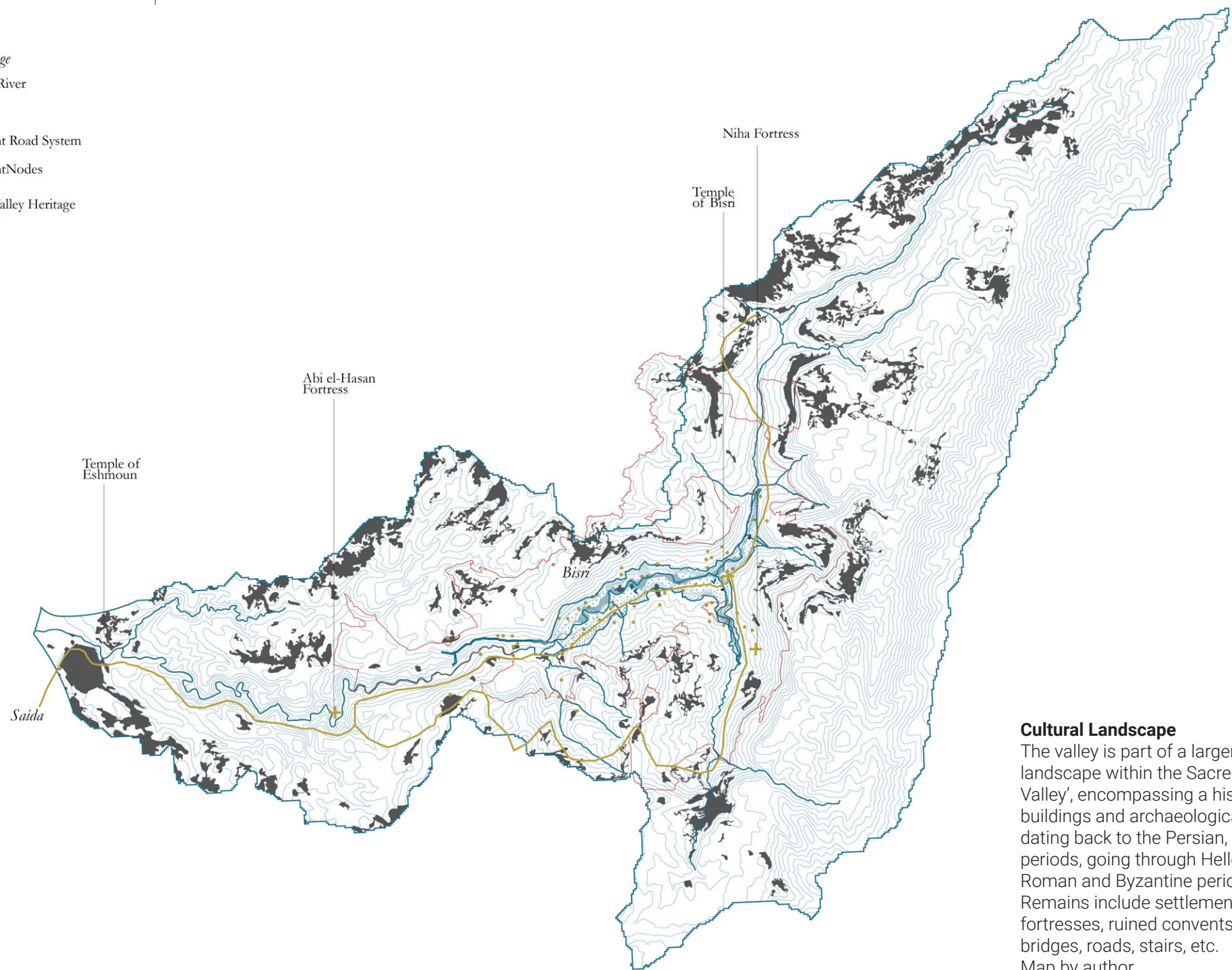
## Transitioning to the Watershed Narrative



10km

*Heritage*

-  Awali River
-  Urban
-  Ancient Road System
-  AncientNodes
-  Bisri Valley Heritage Nodes



**Cultural Landscape**

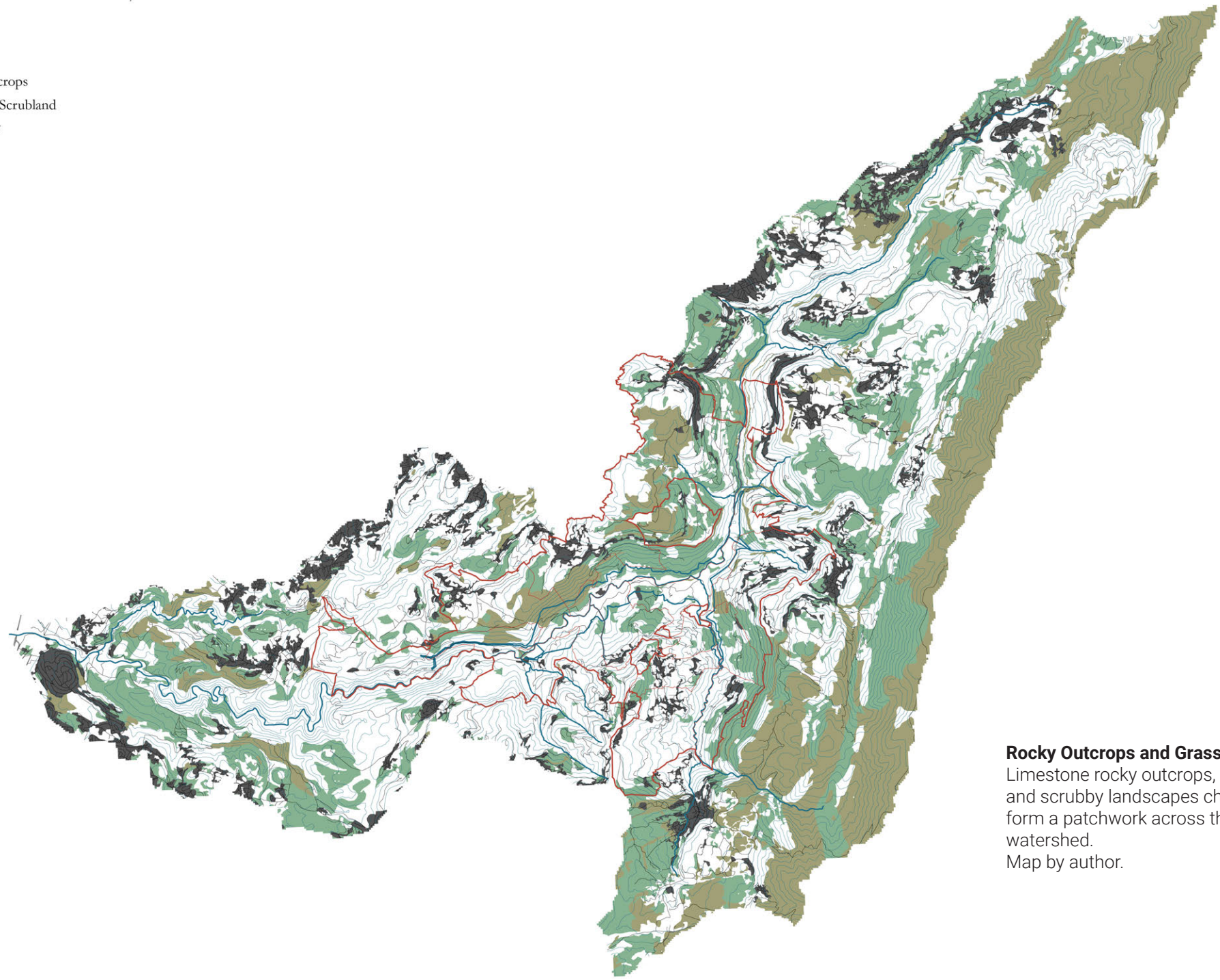
The valley is part of a larger cultural landscape within the Sacred 'Eshmoun Valley', encompassing a historical buildings and archaeological remains dating back to the Persian, Ottoman periods, going through Hellenistic, Roman and Byzantine periods.

Remains include settlements, tombs, fortresses, ruined convents, a temple, bridges, roads, stairs, etc.

Map by author.

10km

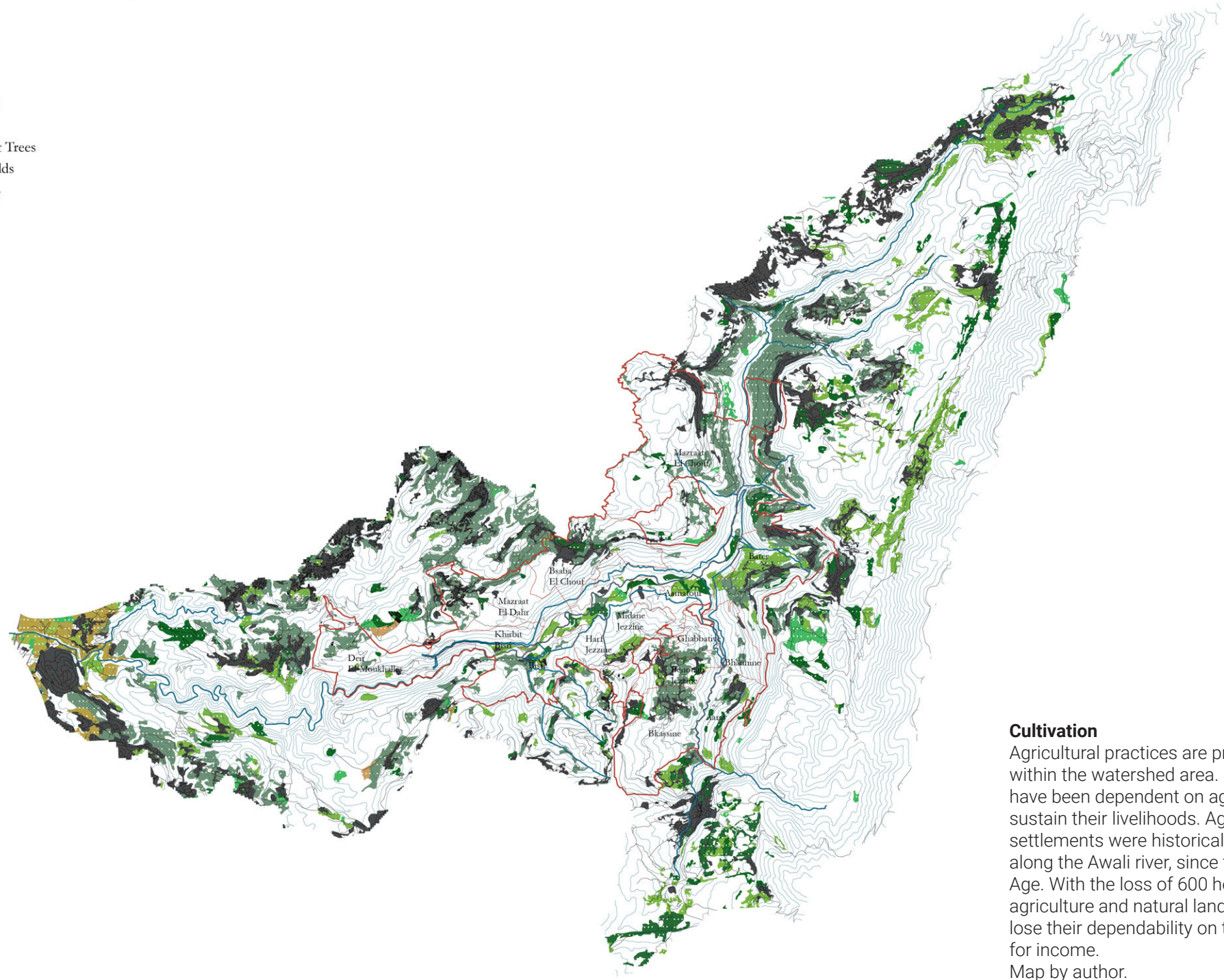
- Ground*
- Rocky Outcrops
  - Grassland/Scrubland
  - Awali River



**Rocky Outcrops and Grasslands**  
Limestone rocky outcrops, grasslands and scrubby landscapes characterize form a patchwork across the watershed.  
Map by author.

10km

- Agriculture*
- Terraces
  - Olive Trees
  - Fruit Trees
  - Citrus Fruit Trees
  - Banana Fields
  - Awali River



**Cultivation**  
Agricultural practices are prominent within the watershed area. Locals have been dependent on agriculture to sustain their livelihoods. Agricultural settlements were historically located along the Awali river, since the Bronze Age. With the loss of 600 hectares of agriculture and natural lands, locals will lose their dependability on their lands for income.  
Map by author.

10km

- Forest*
-  Oak Trees
  -  Pine Trees
  -  other
  -  Awali River



**Forests**

In decree No. 131/1, 1/9/1998 of the Ministry of Environment, the entire course of the Awali/Bisri river is designated a protected natural site under direct surveillance of the Ministry, from its sources in the Chouf, to the Sea in Saida. This includes the entire length of the Bisri Valley which falls under the same designation and level of protection.  
Map by author.

## Contested Landscapes in the Bisri Valley

The Bisri Valley has unique characteristics of being low in elevation and wide and flat to create a fertile agricultural plain. As the Bisri river meanders on the flat terrain through sand banks, forming alluvial silt. The valley is also characterized by steep stone limestone cliffs and sandstone slopes. With the multiple types of terrain allowed for more biodiversity in fauna and flora. The contrasting dry northern slopes with the lush southern slope covered with pine and oak forests. Terraced olive groves align with the topography along the slopes, and fields and orchards cover the bottom of the valley, near the reeds and poplars along the river. The Bisri valley is also a hotspot for migrating birds. The ecological importance of the valley was recognized in the National Physical Masterplan of the Lebanese Territory, where the valley was classified as a protected natural area by the Ministry of Environment.

With the threat of the Bisri reservoir in submerging agricultural lands, forest areas and riparian habitats, the project will lead to the irreversible destruction of 570 ha, a significant area for Mount Lebanon, 2/3 of which are natural habitats, (natural 'vegetation' 131 ha (23%), river bed and bankside vegetation 105 ha (18%) pine

woodland 82 ha (14%), open land 99 ha (17%) (Dar Al-Handasah, 2014).

Besides the richness in natural habitats, the valley has witnessed incremental threats to the landscape through illegal quarrying and cleared fields when the dam was initiated.

Three types of *contestation* are identified from several degrees of threats; (1) threatened cultural landscapes holding archaeological heritage and pine/oak forests, (2) threatened agricultural plains, and finally (3) excavated landscapes due to illegal practices.







The Bisri Valley is zoned as a **protected regional environmental area** by the National Physical Master Plan of the Lebanese Territory (NPMLT), as well as a natural site to be protected by the Ministry of Environment (Article 131/1998).


**irreversible  
destruction of  
82 ha pine forest**



The St. Sophia Monastery has partially collapsed due to the unfinished excavation process done by the Ministry of Culture.

Archaeological and historical sites that date back to the **Bronze Age** as well as the **Persian, Hellenistic, Roman, Byzantine, Mamluk and Ottoman** Periods.


**inundation of archaeological remains by the proposed dam**



The Bisri Dam will not only submerge agricultural lands and arable fertile soils within the valley,

It will also **affect agriculture downstream** by causing an increase in soil salinity.

**irreversible  
destruction of 150  
ha agriculture land**



Sandstone quarries  
have carved up  
pine and oak  
forests.

More than 3,000  
quarries have  
wiped out forests in  
Lebanon.

20 illegal  
quarries in the  
Bisri Valley

Photograph: by author

## Three Themes of Contested Landscapes

### Contestation 01: Excavated Lands

bottom map

- ① Cleared fields
- ② Illegal quarries

### Contestation 02: Cultivation at Risk

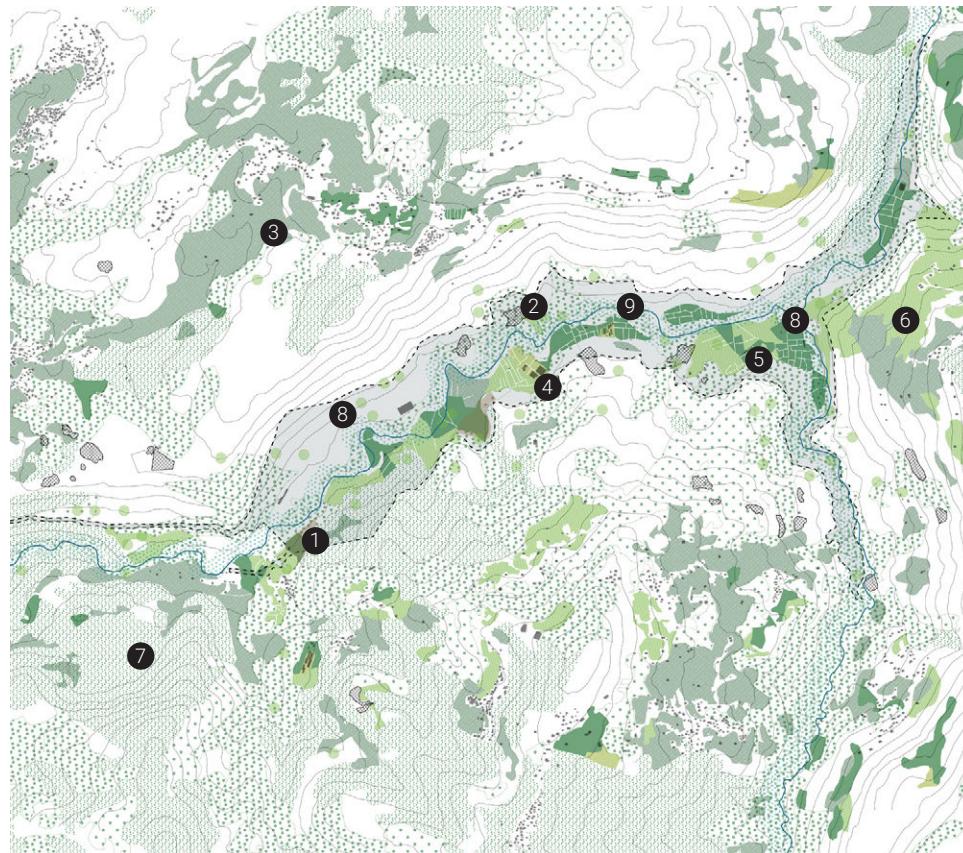
top right map

- ③ Olive groves
- ④ Orchards
- ⑤ Agri fields
- ⑥ Agri terraces

### Contestation 03: Threatened Forests and Archaeology

bottom right map

- ⑦ Pine/oak forests
- ⑧ Archaeological remains
- ⑨ Riparian corridor



## Reclaiming the Landscape through a new *Hima*

The current dam reservoir proposal is threatening ecosystems and leading to a loss of cultural heritage within the Bisri site. It is also causing the abandonment of agricultural lands, hence a loss of income for the local people. The proliferation of illegal quarries is also adding to the loss landscape identity. As a reaction to the three main threats (contestations) on landscape, an alternative vision for the valley is crucial. Can the landscape be re-imagined from a politically contested space into a common land for living? How can the community, the people living and cultivating the land have the tools to protect the landscape?

The concept of *Hima* emerges as a historical concept that stemmed from the collective land use in rural areas. *Hima*, a term that signifies a common land that is managed by the community, breaks the extreme idea of a fully preserved landscape. Where the relationship between people and the landscape is maintained.

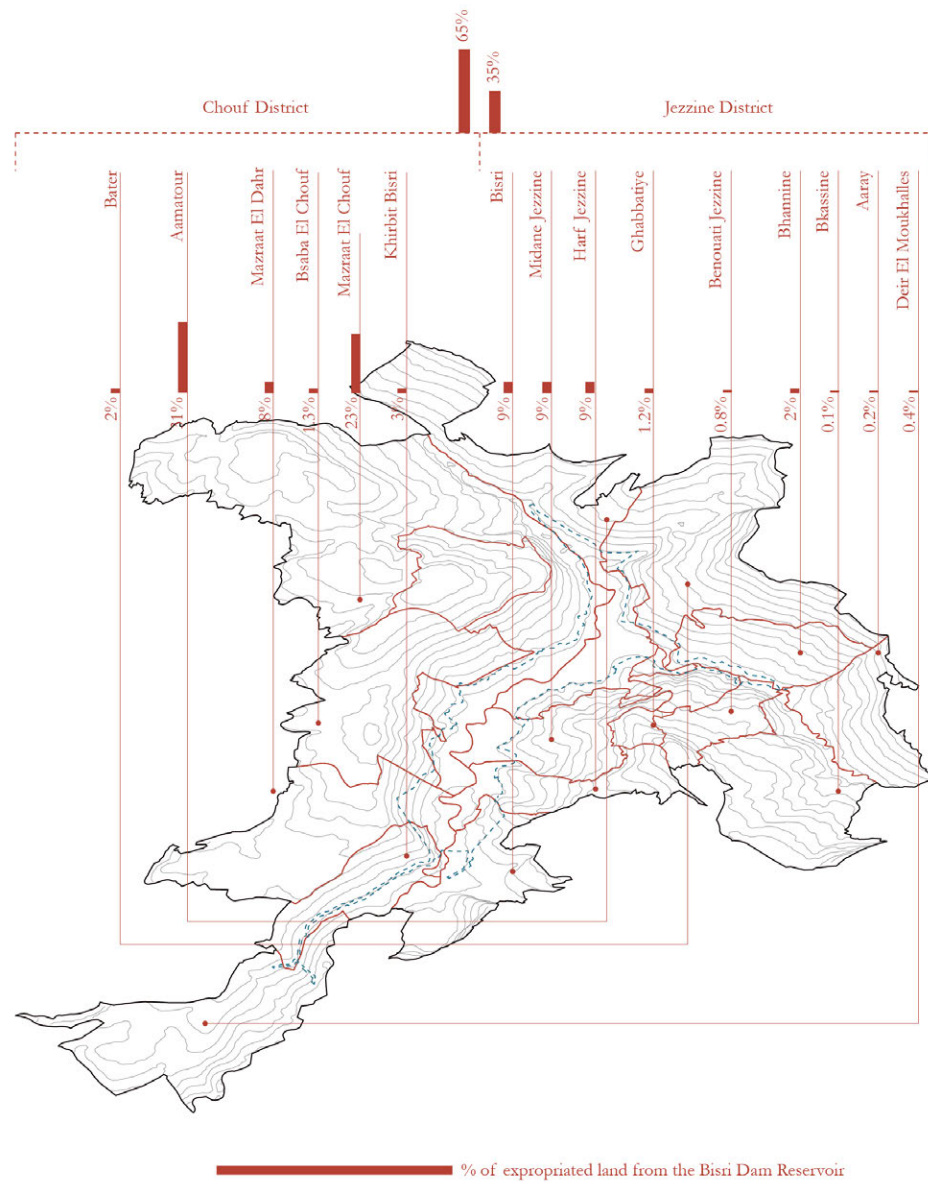
The idea of a *Hima* differs from a *Muhmiyya* (a preservation in Arabic), where protection is addressed in a spectrum, rather than painting a green shield over the landscape and portraying it as an untouchable area.

The *Hima* becomes a tool to reclaim the three contestation themes, through a process of breaking the political boundaries of fragmentation, and transitioning into landscape systems.

## Transitioning from a Political Narrative to a Landscape Narrative

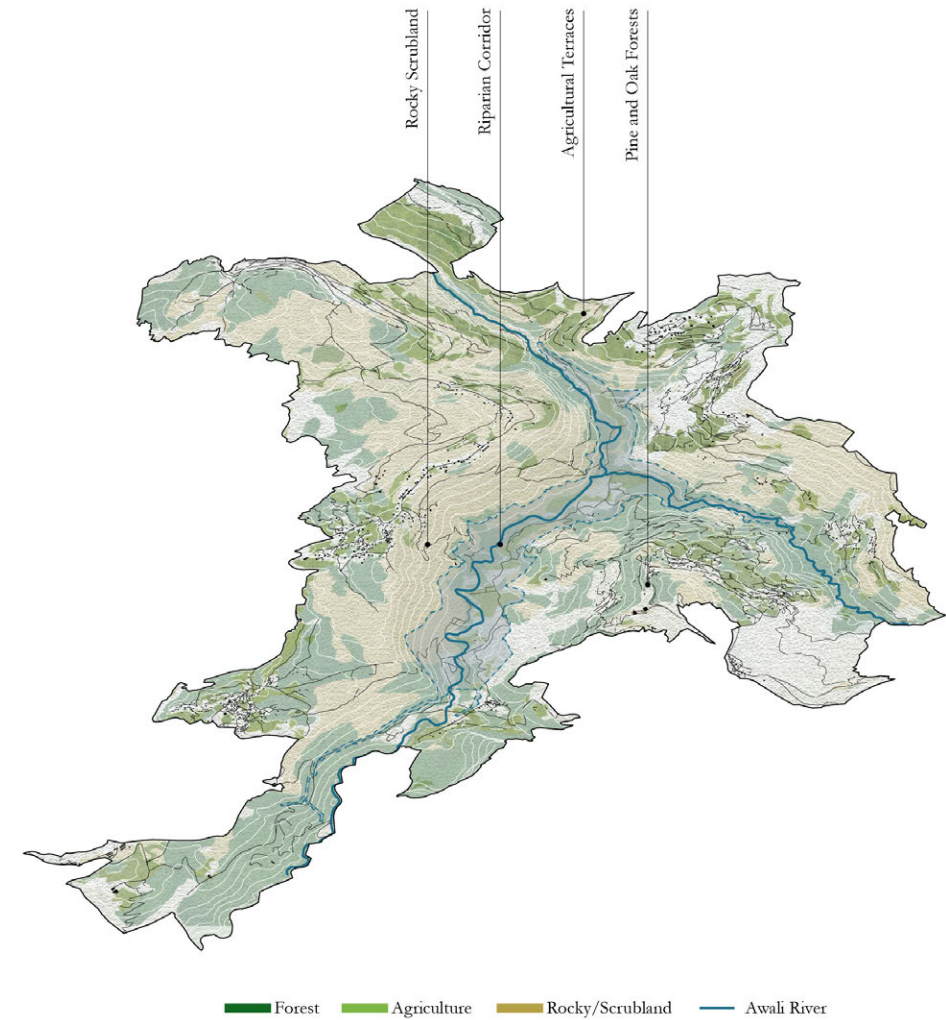
How can the idea of a collective landscape shift the discussion from a purely political one, to an environmental one, where one

can begin to read the landscape beyond the lens of property lines?



### Bisri Valley through expropriated lands

Drawing by author



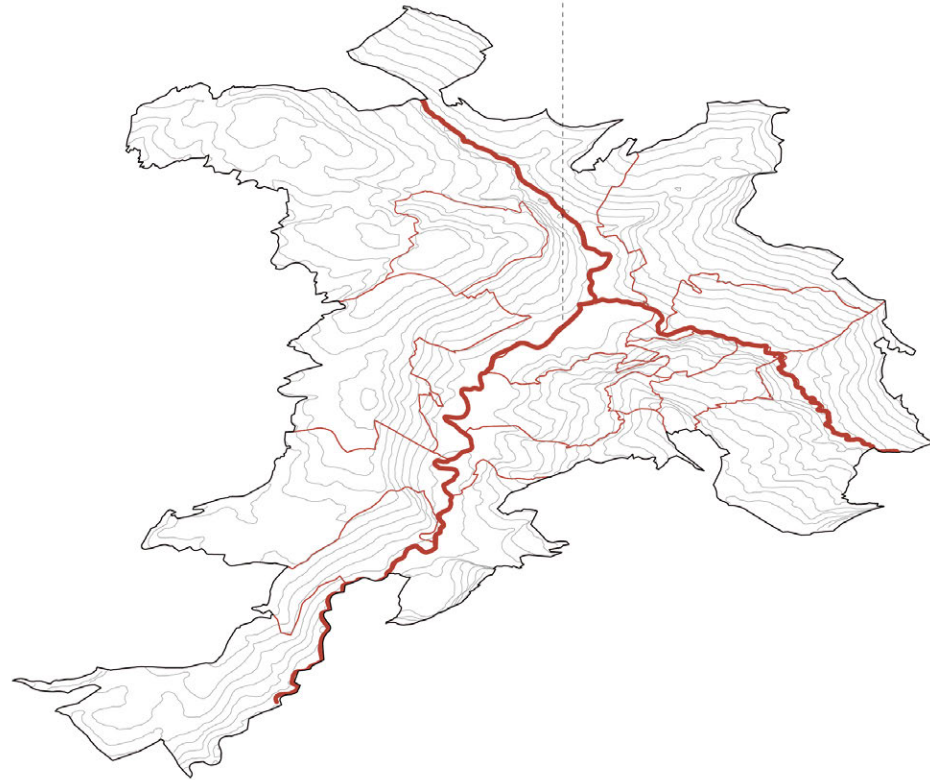
### Bisri Valley through landscape sequences

Drawing by author

## From Border to Common

The river, currently acting as a border, transforms into a common landscape. The boundaries of the proposed Bisri reservoir becomes the new *Hima*, *collective landscape*.

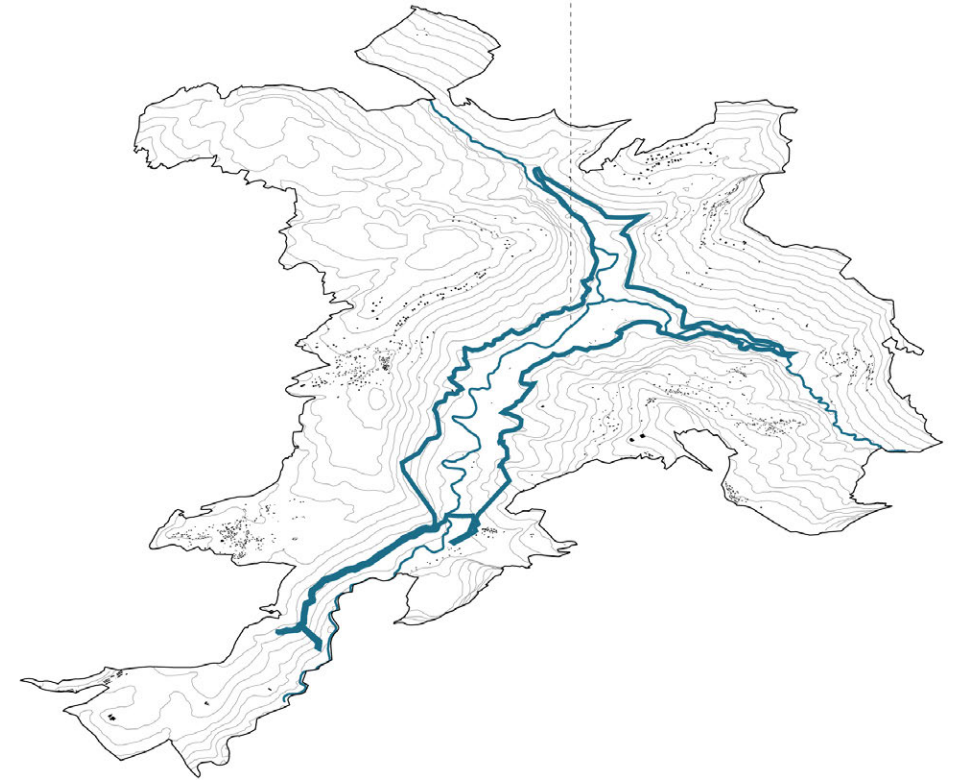
River as a border



### Awali River overlapping with district boundaries

Drawing by author

River as a common landscape

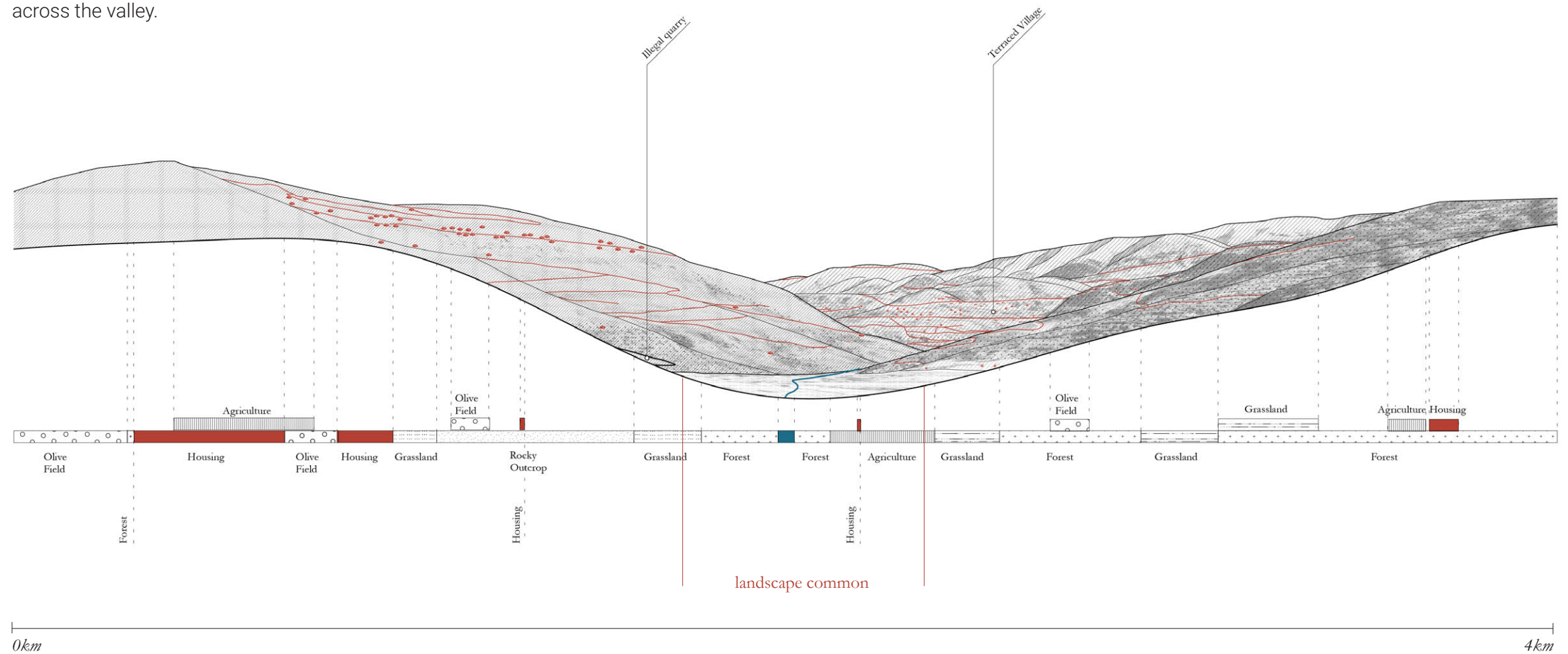


### Proposed dam reservoir becomes the common landscape

Drawing by author

## Valley Section Narratives

The section across the valley becomes a tool to define the common landscape for the proposed collective, revealing the hybrid landscape and coexistence of people and the environment, while also identifying multiple threats across the valley.

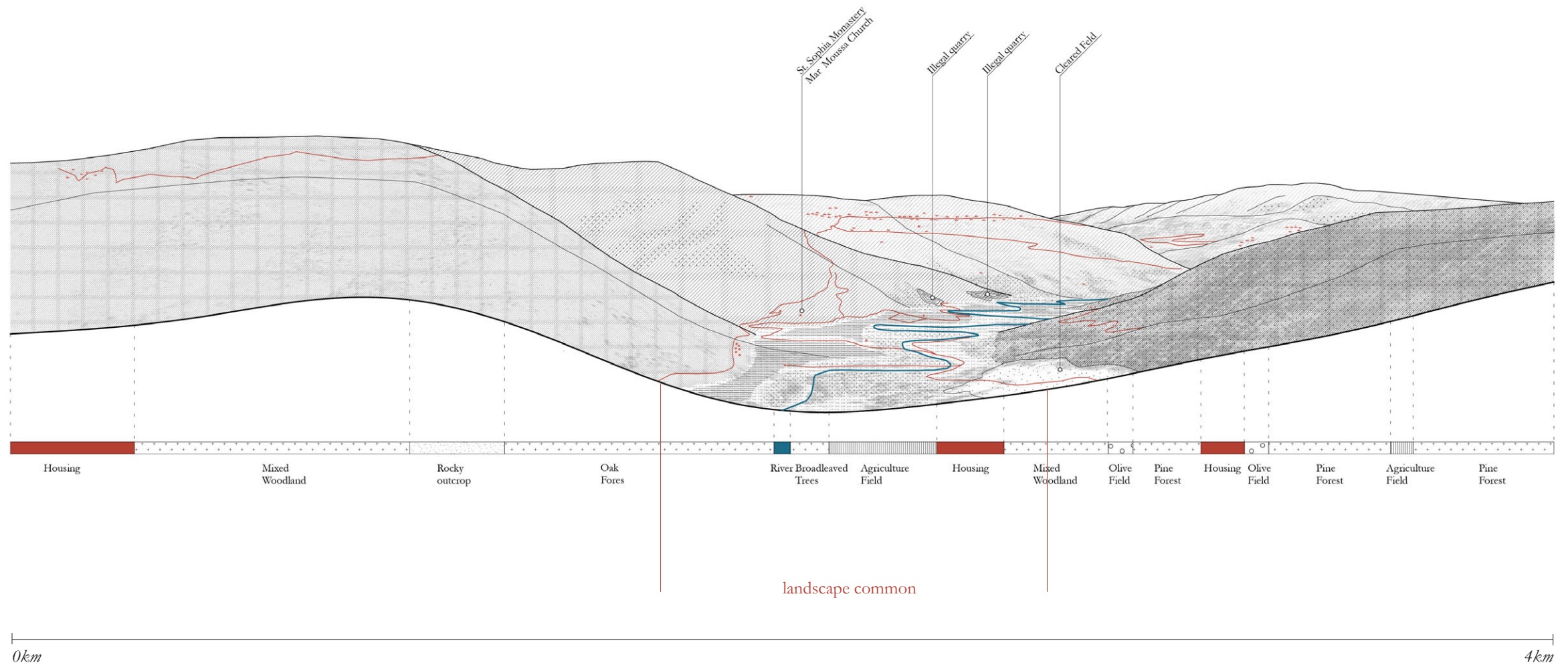


### Section 01

#### Agriculture, housing, illegal quarries and terraces

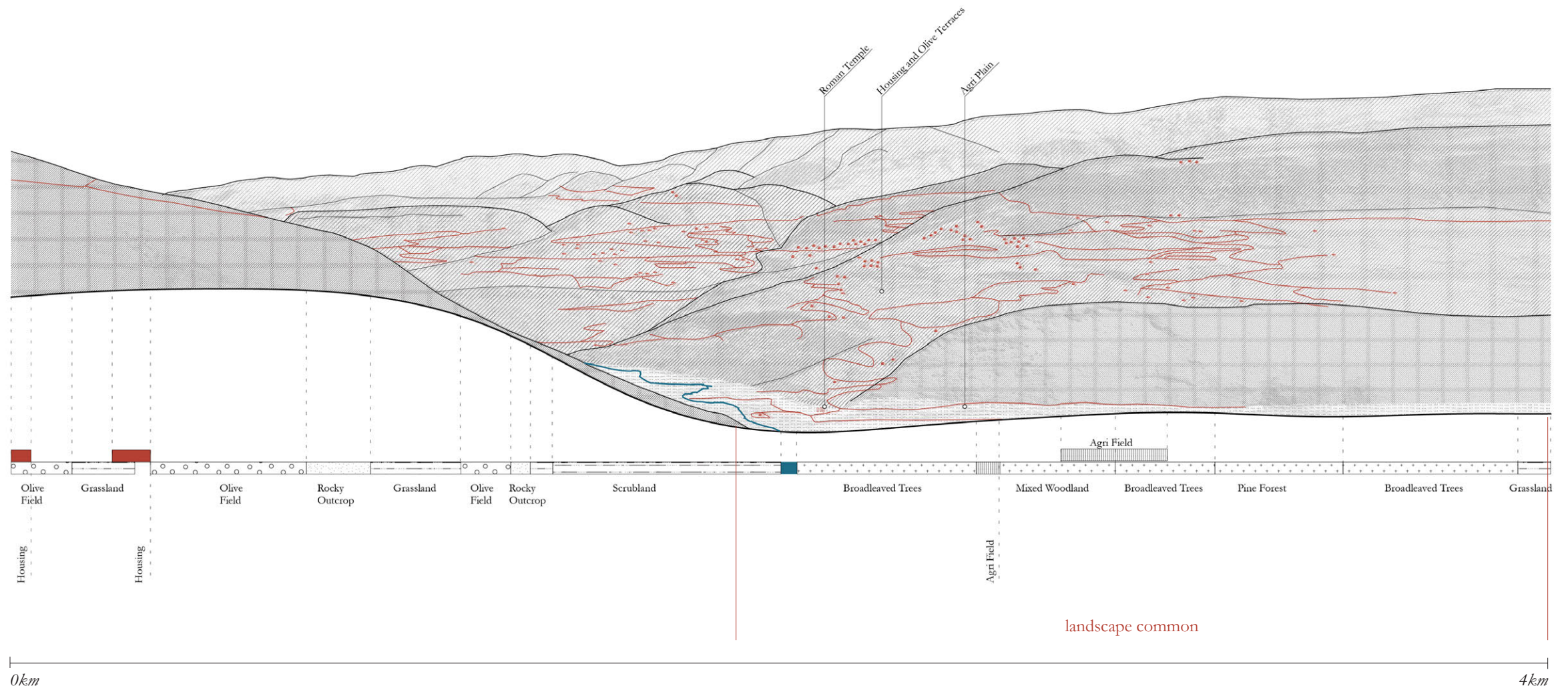
Drawing by author





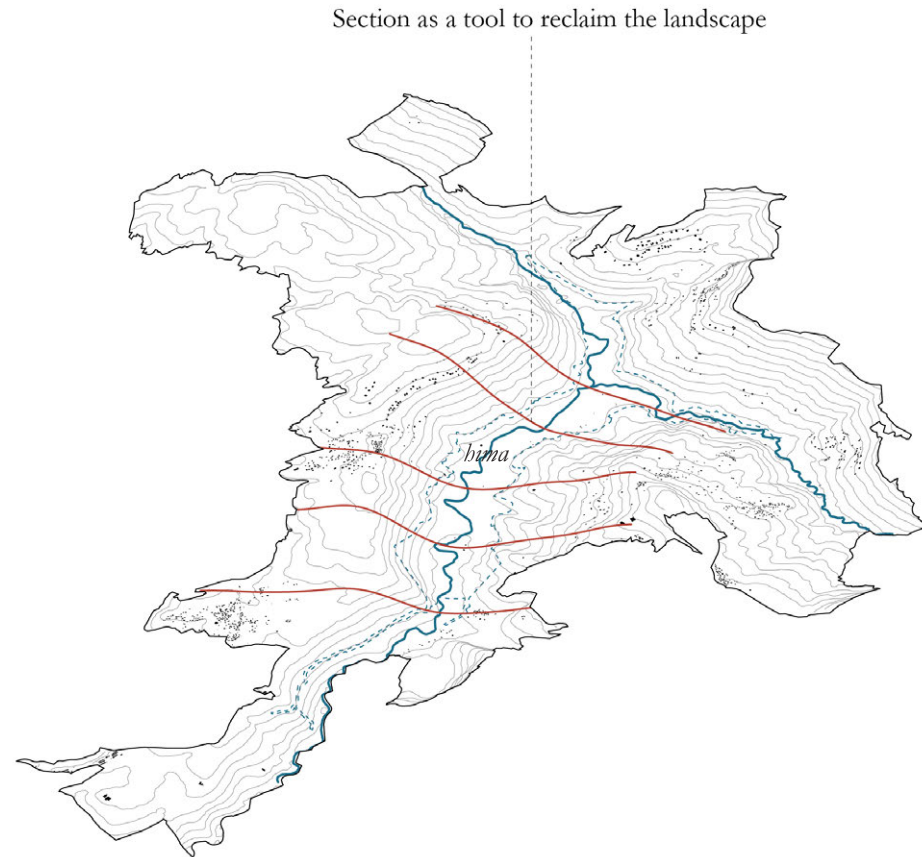
**Section 02**  
**Cultural Heritage, Forests, Quarries and**  
**Agriculture**

Drawing by author



**Section 03**  
**Agriculture Terraces, Fields and Woodlands**  
 Drawing by author

## From Contestations to Collective Design Operations

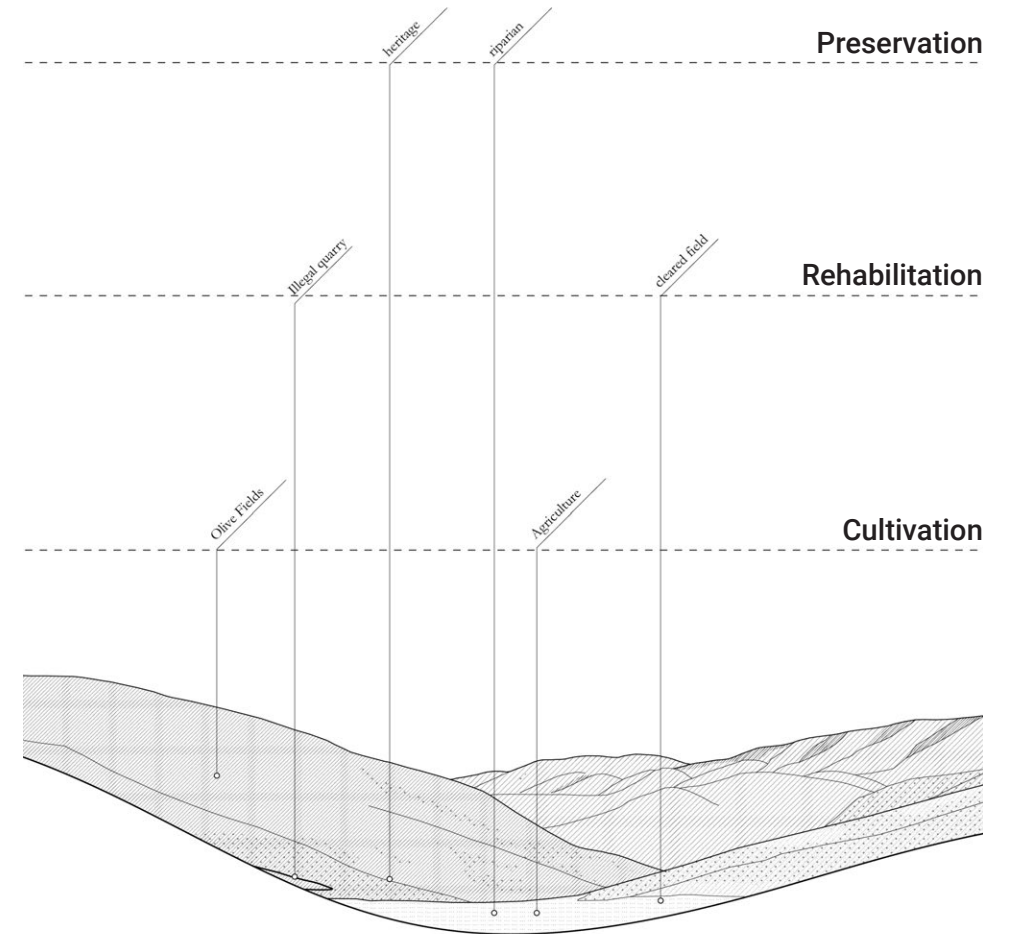


### Sectional Strategies to Design the New Hima

The sectional strategy for design allows for coexistence of landscape typologies, political narratives and socio-cultural environments. This helps create a common landscape that incorporates complex systems between people and the landscape. The section also

reinforces that the new *hima*, is not solely a delineated common space, but acts as an anchor to protect and activate the cross-sections of the valley, producing a regional collective landscape.

Drawing by author



### Three Design Operations

In reaction to the three identified contestations and threats to the landscape, I propose a design strategy of reclaiming the landscape through three operations, acting at different spectrums of protection: Rehabilitation, Cultivation, and Preservation. The aim is to provide the Bisri Collective (around

20,000 people) a strategy to reclaim their common landscape. It allows the members in the collective to operate on the landscape in order to reinforce ecological corridors and strengthen their connection to the landscape.

Drawing by author

04

## Collective Operations

Landscape is a **medium** for protest

The right to landscape is a **process**

**Preservation** is not a *shield* of protection

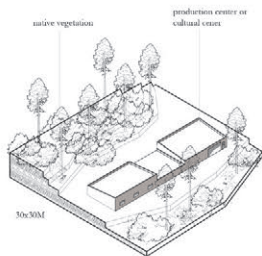
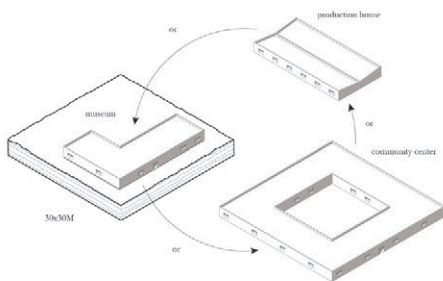
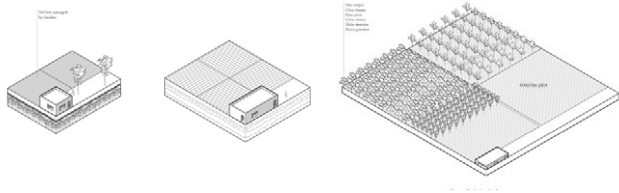
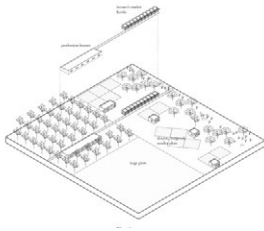
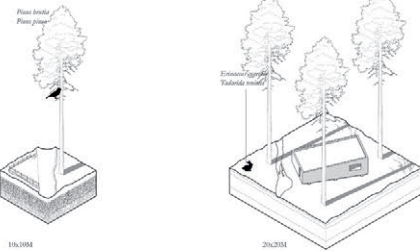
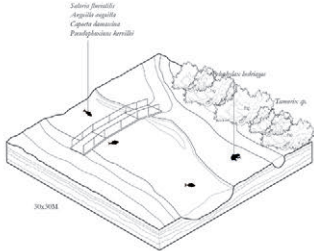
The **common landscape** is borderless

Reclaiming the valley is an act of **protection and activation**

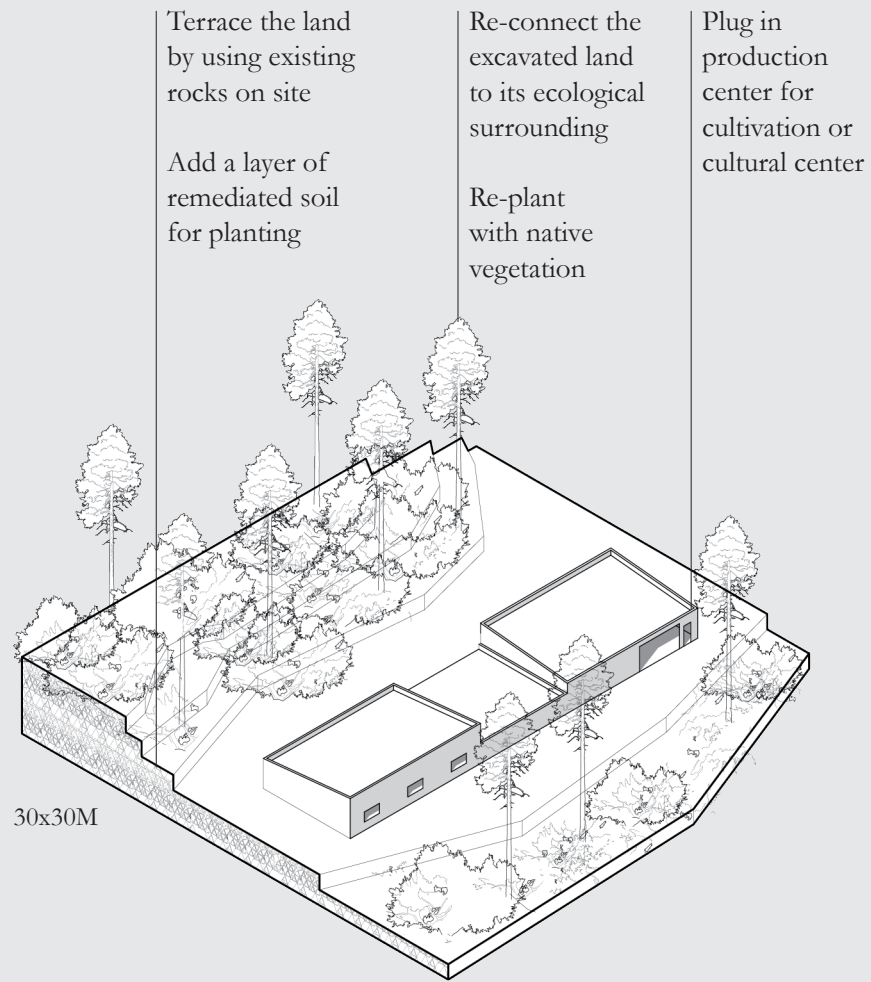
An act of **anchoring** and **unfolding** landscapes

Where design operations **rehabilitate, cultivate** and **preserve** the valley simultaneously

# Strategy

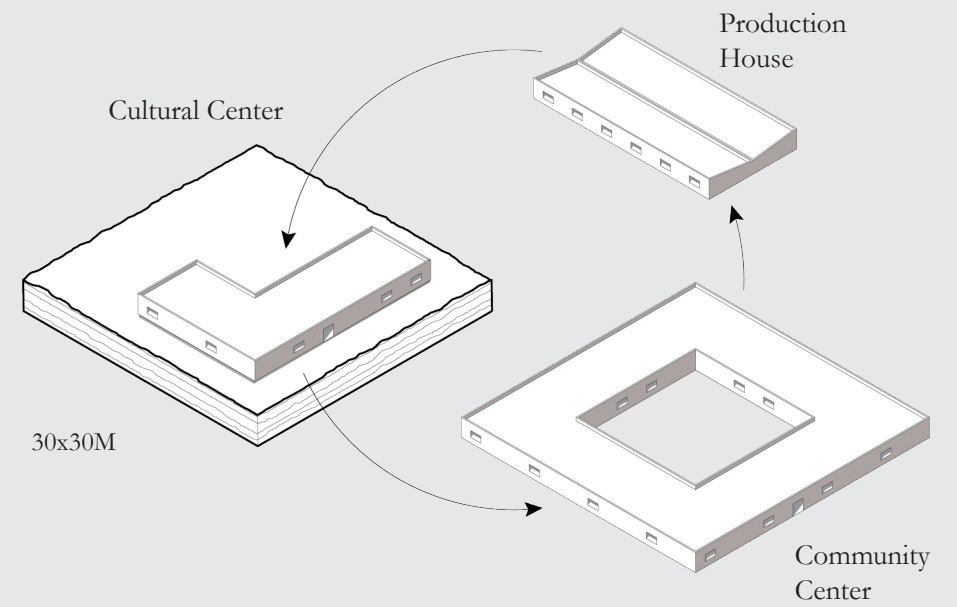
Operation	Condition	Reaction	Intervention Toolkit	
<b>Rehabilitation</b> from excavated lands to cultural and productive landscapes	Cleared/quarried, or a ground that has been disconnected from its surrounding landscape.	Reaction 1: re-connect the ecological corridor through a landscape process  Reaction 2: activate the space for cultural or agricultural benefit	quarry rehabilitation  	cleared field rehabilitation  
<b>Cultivation</b> from threatened and abandoned agriculture to multi-scalar cultivation	Fertile land for agriculture	Cultivate the land Have a multi-scalar economic approach  Include socio-cultural programs such as agro-tourism  Include a production programs	multi-scalar agriculture  	culture and production  
<b>Preservation</b> from threatened landscapes to protected ecologies	Condition 1, Environmental: Riparian corridor, Woodland forest, Rocky outcrops  Condition 2, Cultural: Heritage Building, Cultural Trail	Maintain the natural habitat or the cultural area through zoning laws/environmental rules, sensitive trails, and river crossings	forest trail  	river trail  

# Rehabilitation Toolkit



## Tool 1: Rehabilitated Quarry

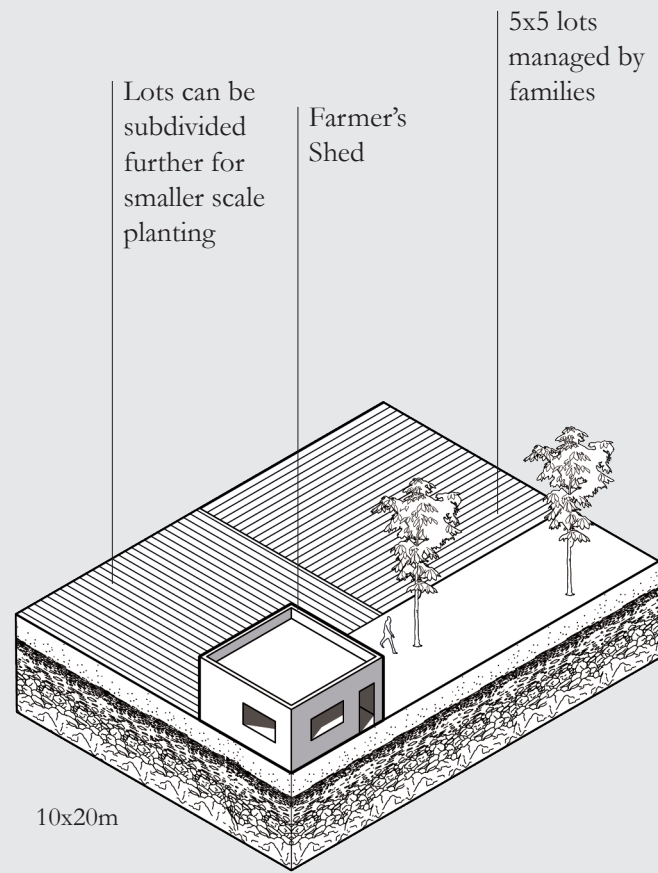
Terrace, Plant and Activate  
Drawing by author



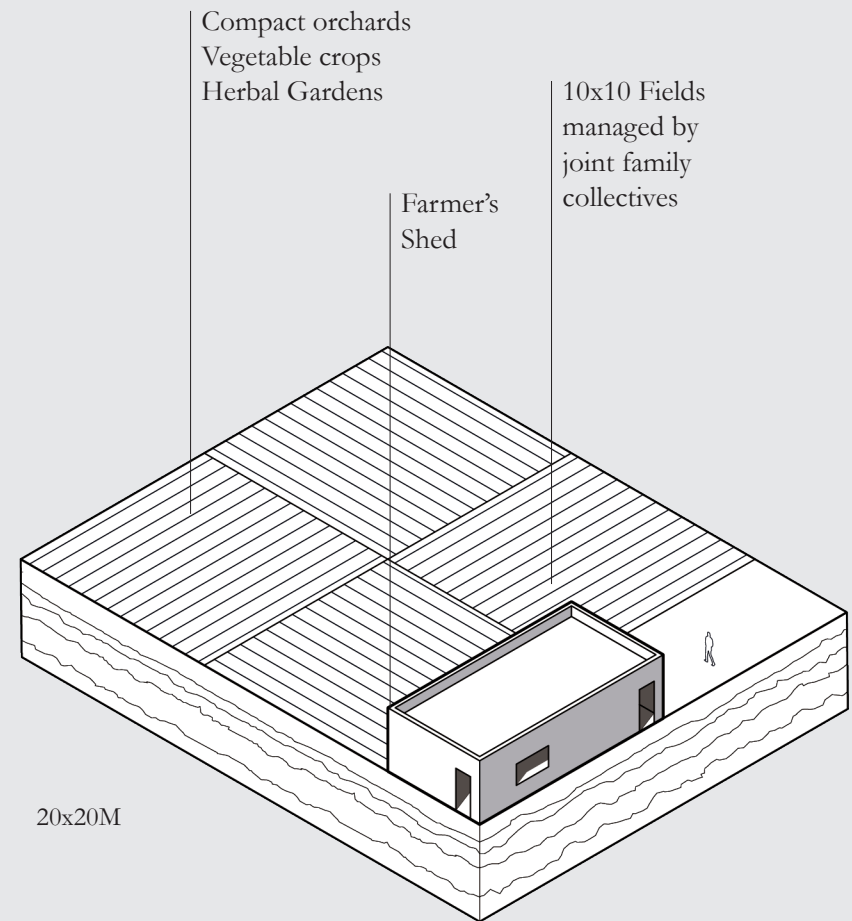
## Tool 2: Rehabilitated Cleared Field

Plant and Activate  
Drawing by author

# Cultivation Toolkit

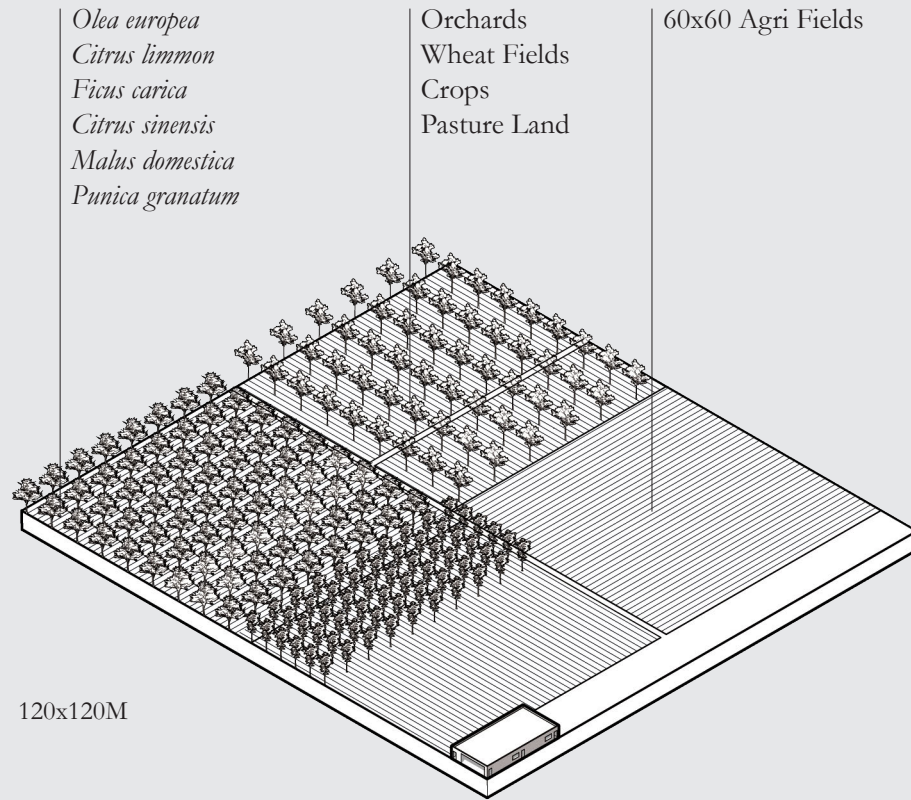


**Tool 1: Agri Lots, Small Scale**  
 Sub-Collectives, Temporal and Experimental Lots  
 Drawing by author

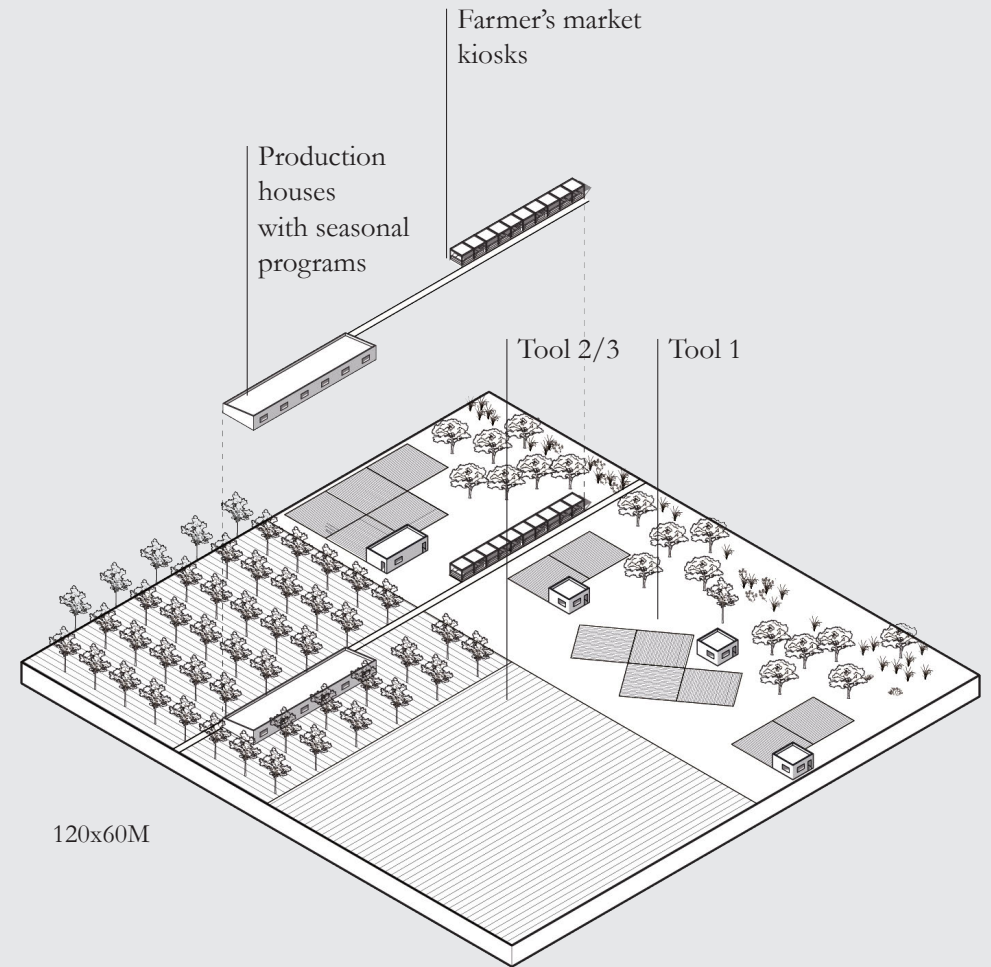


**Tool 2: Agri Fields, Medium Scale**  
 Joint Sub-Collectives, Coops and Agri Fields  
 Drawing by author

# Cultivation Toolkit



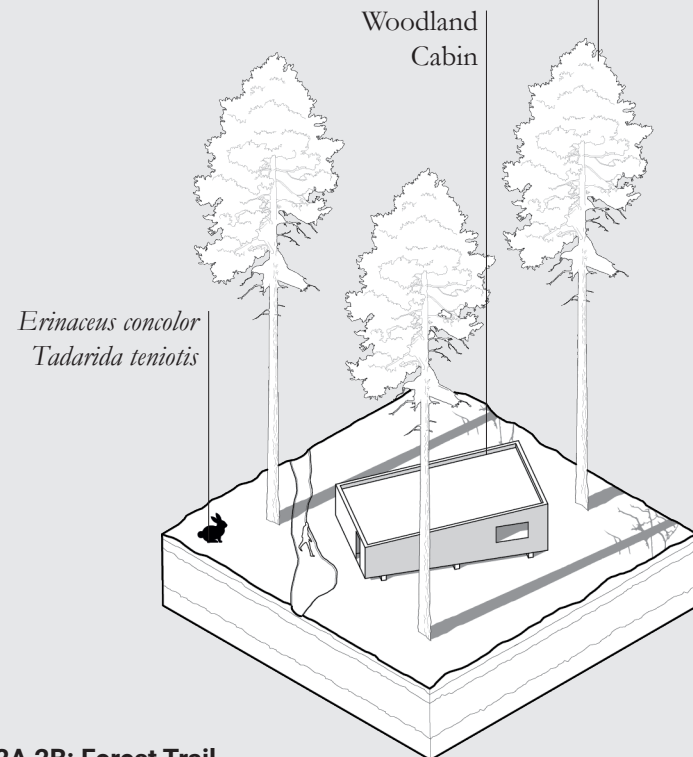
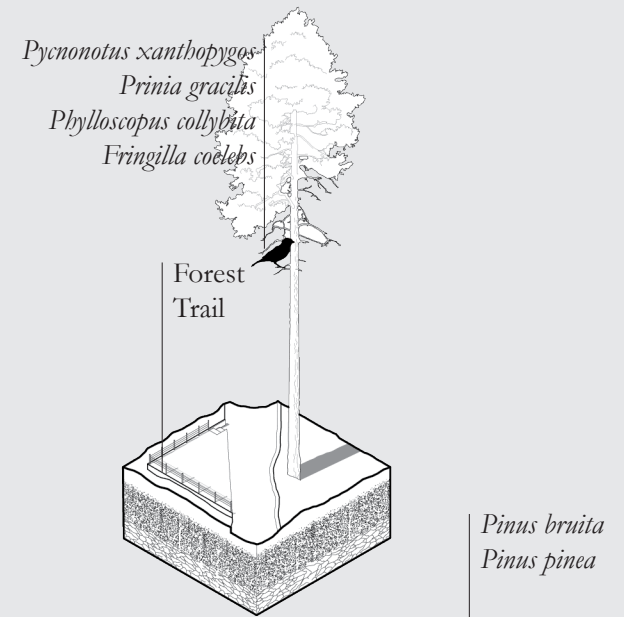
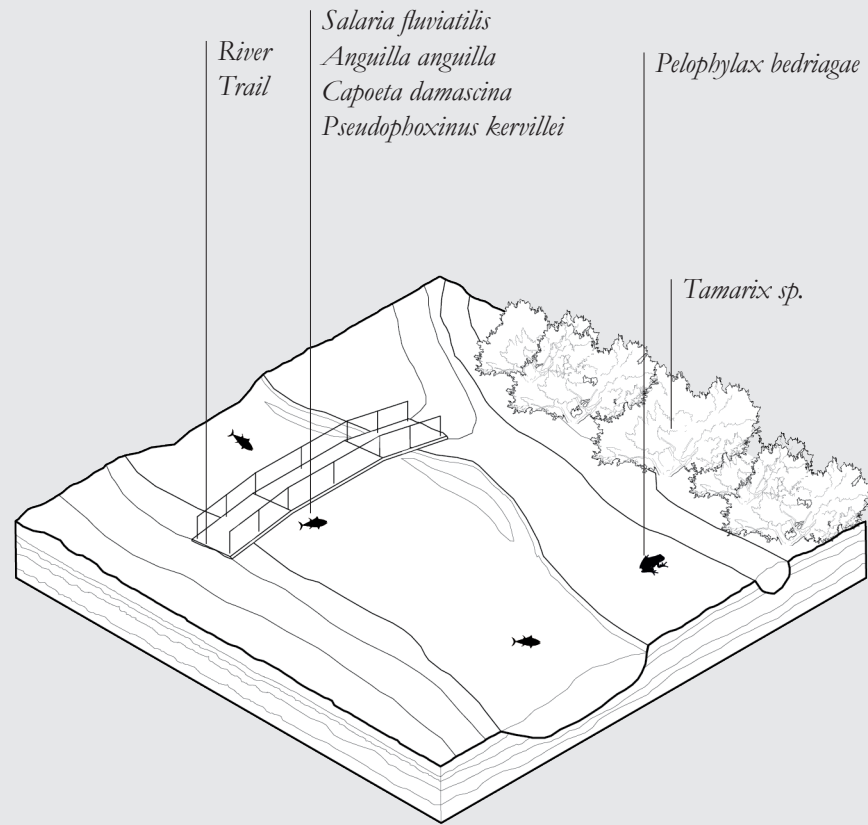
**Tool 3: Agri Fields, Large Scale**  
 Cultivation Fields for the Large *Hima* Collective  
 Drawing by author



**Tool 4: Culture, Production and Selling**  
 Plug-in Strips of Farmer Market + Production House  
 Drawing by author



# Preservation Toolkit



**Tool 1: River Trail**  
Minimal footprint Riparian Trail and Platforms  
Drawing by author

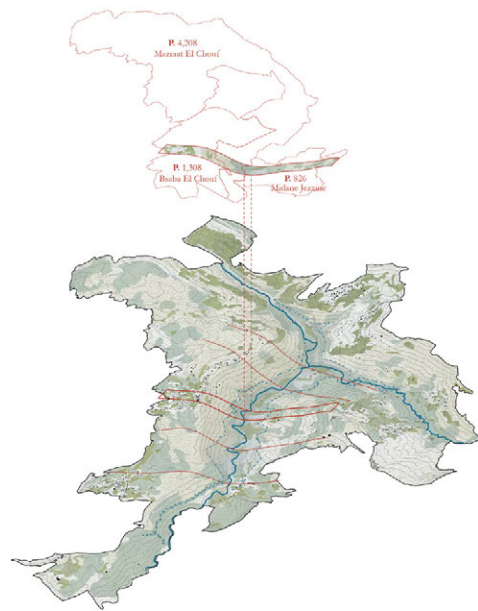
**Tool 2A 2B: Forest Trail**  
Minimal footprint Forest Trail and Cabins  
Drawing by author

# Strategy Application

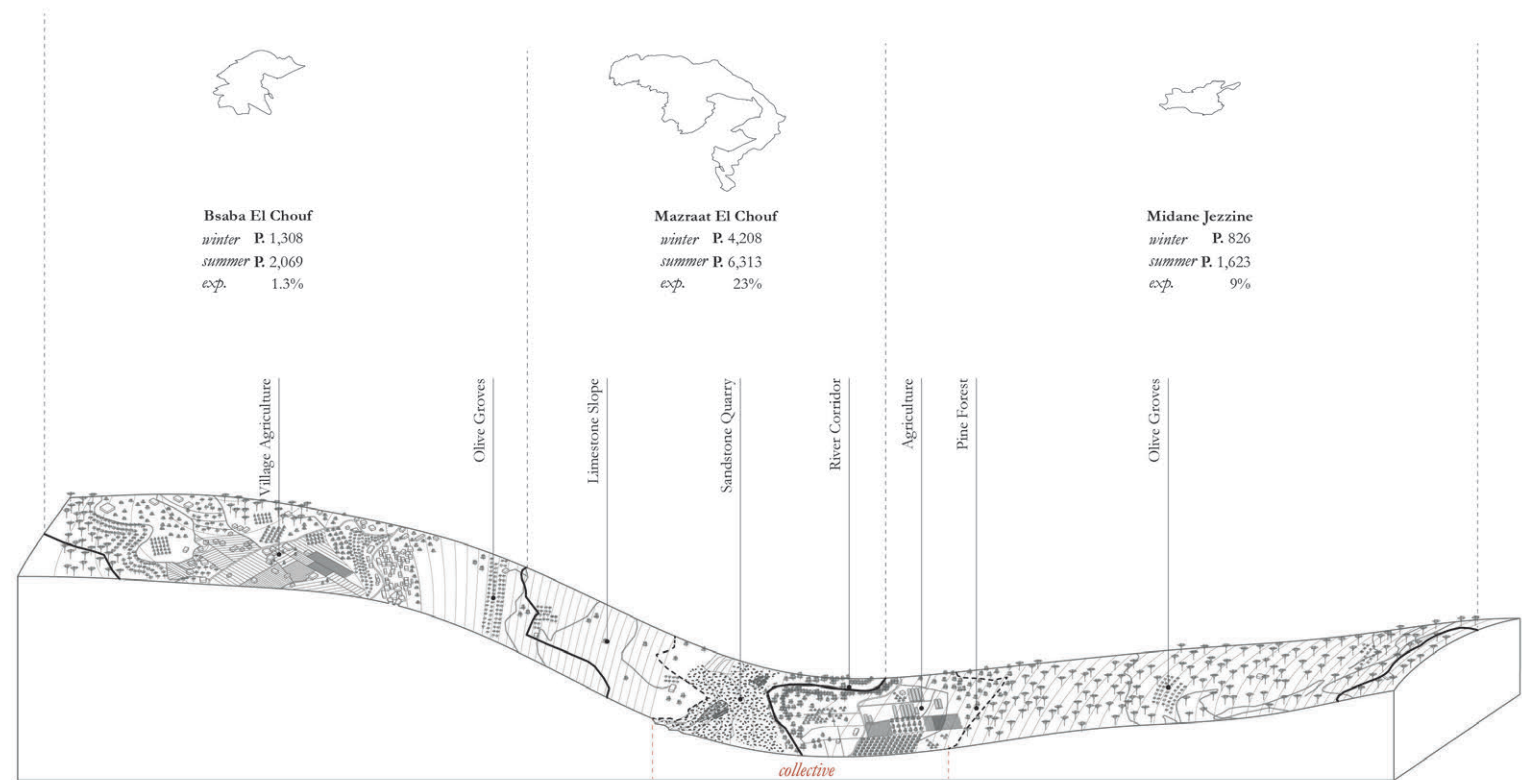
## STEP 01

The first step is to extract a section from the valley, study the existing conditions and threats across the valley, within and beyond the *hima* boundaries.

**(A) SELECT** strategic sections to operate on



**(B) IDENTIFY** ground conditions and threats to react to



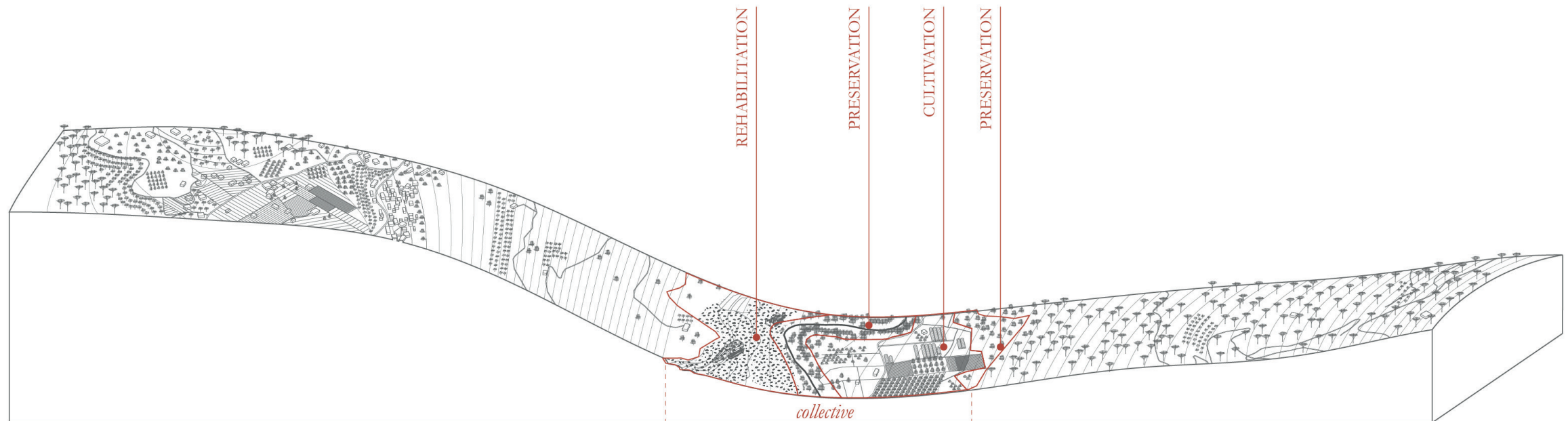
## Strategy Application

### STEP 02

The three design operations of different degrees of intervention (rehabilitation, cultivation and preservation) are zoned within the *hima* limits. These operations are decided based on the existing conditions found on the site.

**A** **ZONE** the section based on the operations needed

1. Rehabilitation
2. Cultivation
3. Preservation

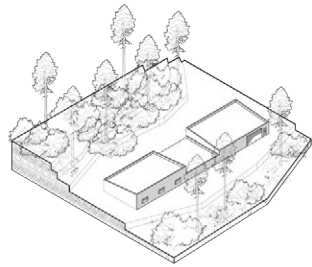


## Strategy Application

### STEP 03 REHABILITATION

The Rehabilitation Operation encompasses an ecological process of reconnecting the excavated patch of land to the surrounding environment, and then activating it for a cultural purpose.

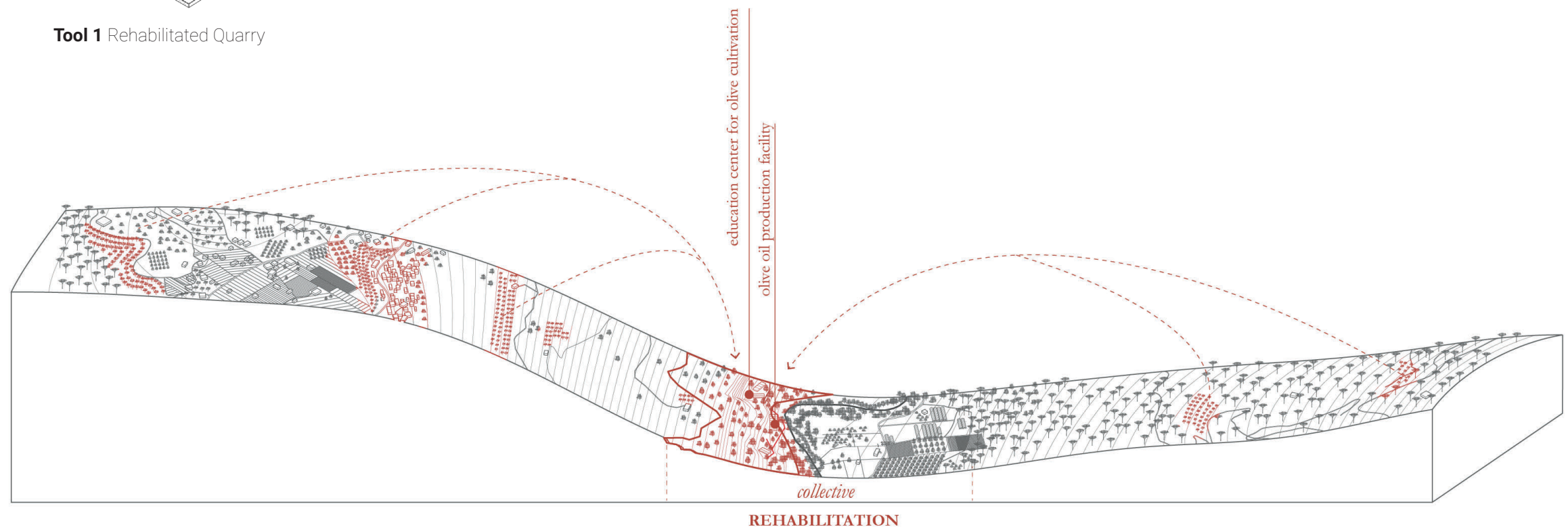
**(A) SELECT** the tool(s) needed for quarry rehabilitation



**Tool 1** Rehabilitated Quarry

**(B) TEST** the performance of the operation within and beyond the *hima* boundaries

Q1: Is the intervention activating landscape across the section?  
Q2: Is the toolkit anchoring the collective?

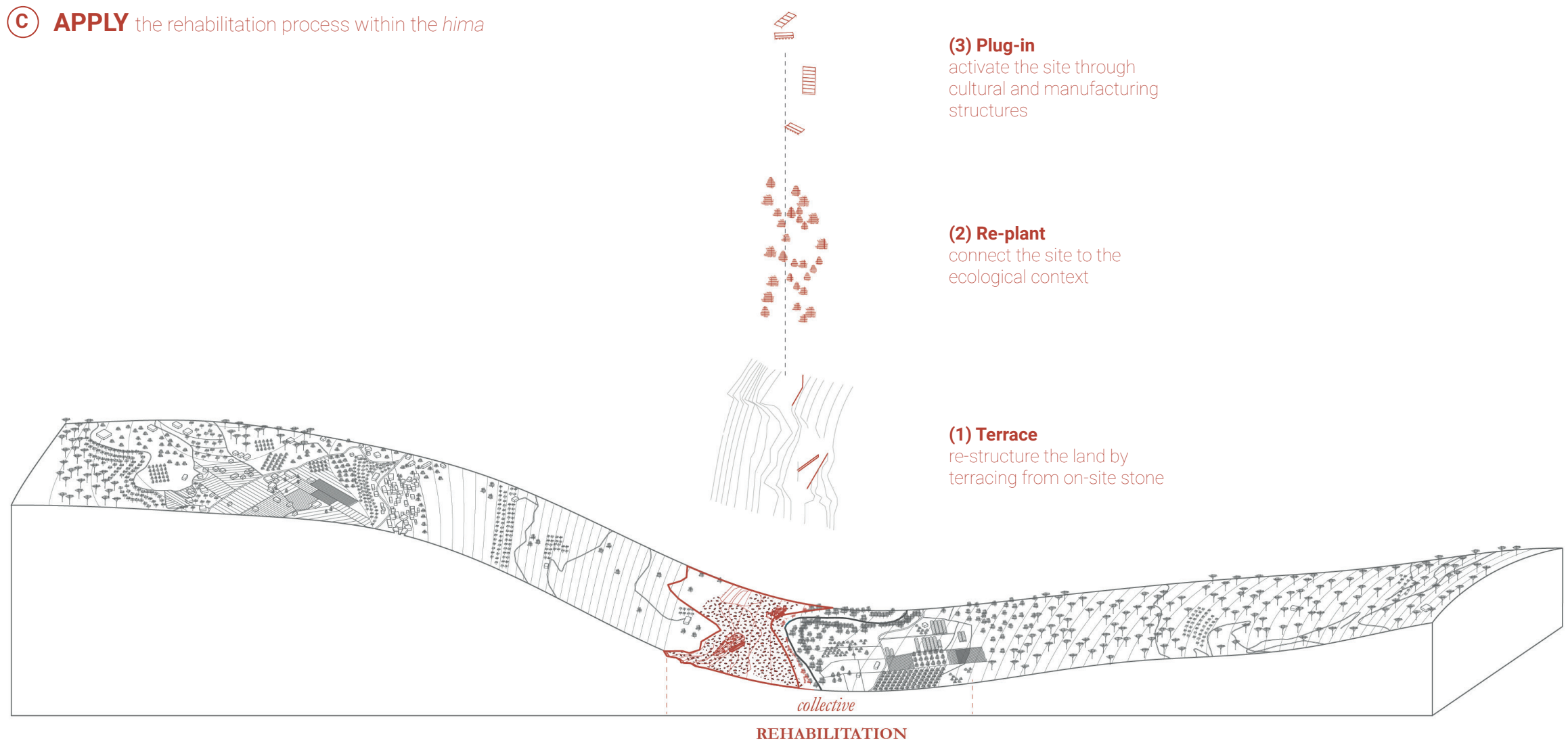


## Strategy Application

### STEP 03 REHABILITATION

After testing the impact that the selected tool of rehabilitation has on the valley, the application process is a sequence of re-grounding the land, re-planting and plugging in, in this case, an olive oil production house that will activate the surrounding olive groves.

**(C) APPLY** the rehabilitation process within the *hima*

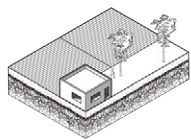


# Strategy Application

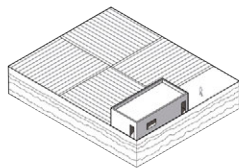
## STEP 04 CULTIVATION

The Cultivation Operation includes a multi-scalar approach of agriculture. From private lands of agriculture, the new *hima* introduces different levels of collectives, from small agriculture plots to large fields, ownership is shared between families and across the whole collective.

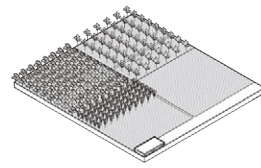
**(A) SELECT** the tool(s) needed for cultivation



**Tool 1**  
Agri Lots,  
Small Scale



**Tool 2**  
Agri Fields,  
Medium  
Scale



**Tool 3**  
Agri Fields,  
Large Scale

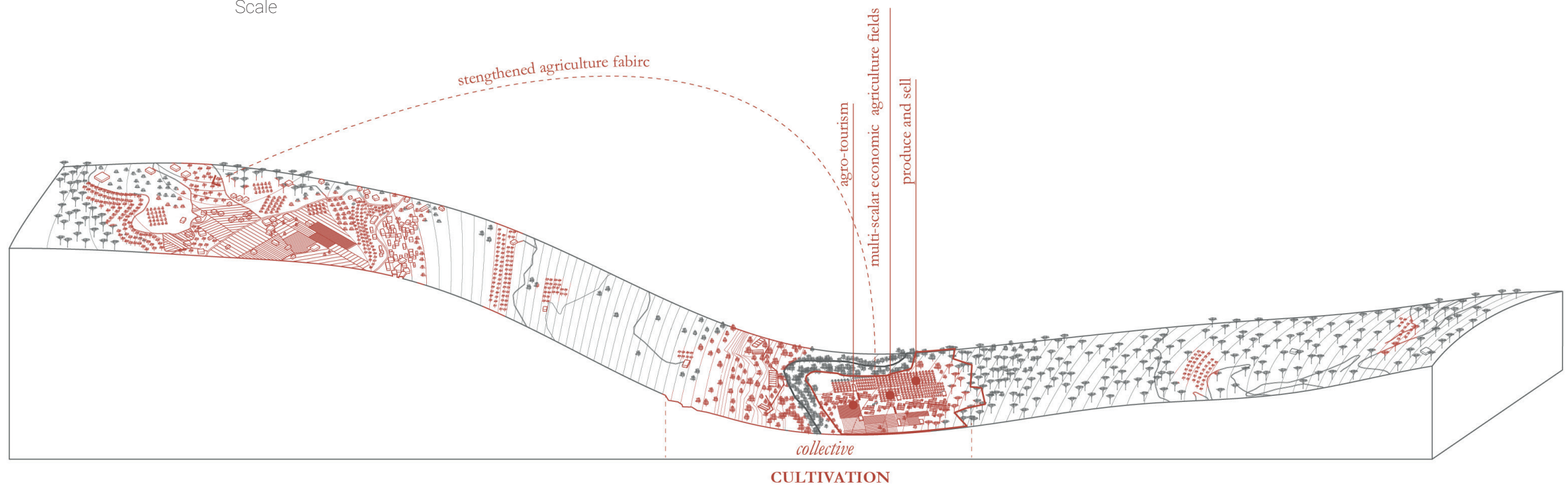


**Tool 4**  
Culture, Production and  
Selling

**(B) TEST** the performance of the operation within and beyond the *hima* boundaries

Q1: Are the interventions activating agriculture across the section?

Q2: Is the toolkit anchoring the collective at multiple scales and economies of cultivation?



## Strategy Application

### STEP 04 CULTIVATION

The application of cultivation is a process of growing fields and orchards, creating a collective system of cultivation, and activating the agricultural fields by agro-tourism. The small agriculture plots are controlled by families, and family collectives, while the large agriculture fields operate for the large collective (20,000 people)

**(C) APPLY** the cultivation process within the *hima*

#### (3) Experience

delineate a trail for visitors and locals to experience agriculture through phases of cultivation, production and farmer markets

#### (3) Plug-in

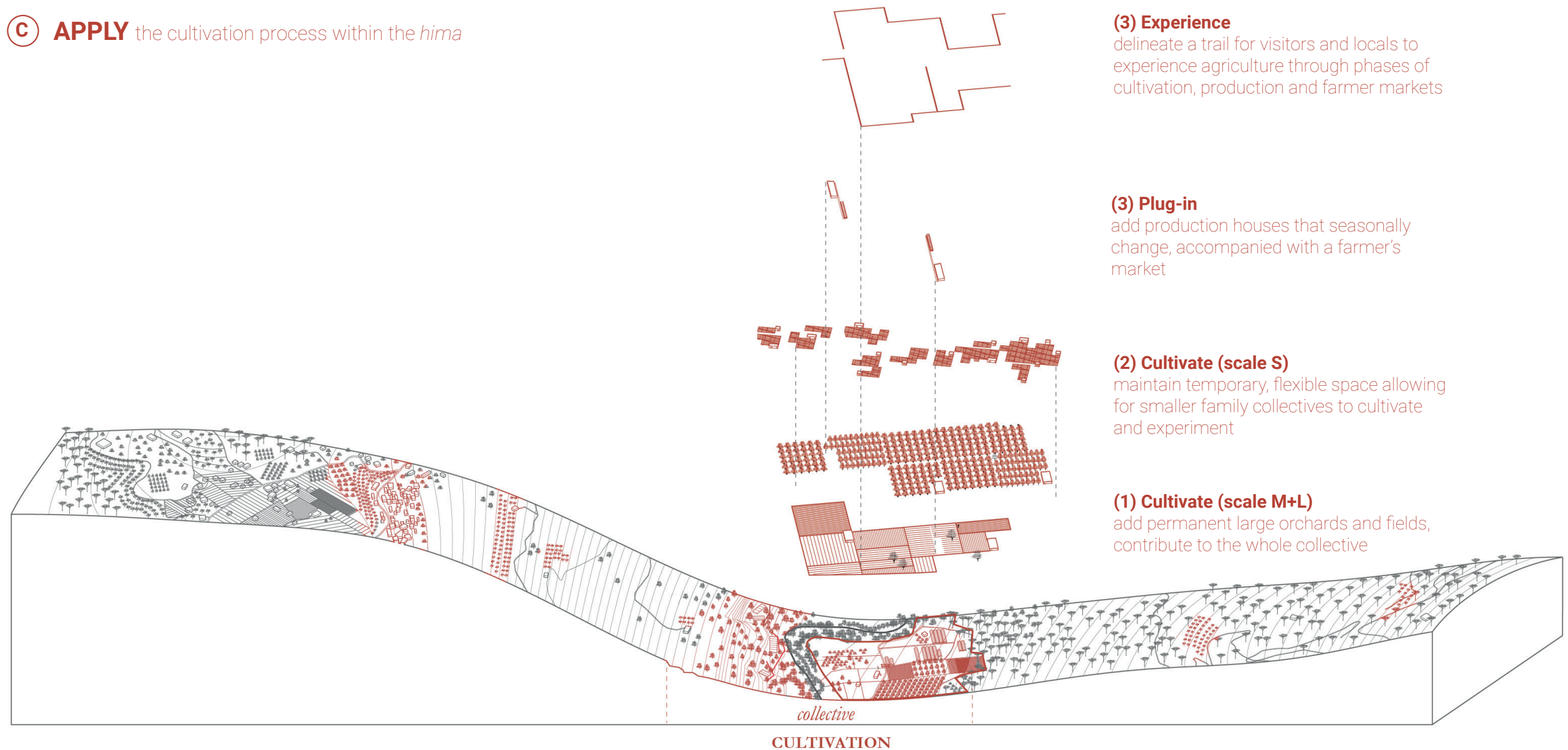
add production houses that seasonally change, accompanied with a farmer's market

#### (2) Cultivate (scale S)

maintain temporary, flexible space allowing for smaller family collectives to cultivate and experiment

#### (1) Cultivate (scale M+L)

add permanent large orchards and fields, contribute to the whole collective

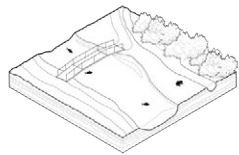


## Strategy Application

### STEP 05 PRESERVATION

The Preservation Operation is the strategy with the least physical interventions, only encompassing tools with minimal footprint that allow people to experience forests, rivers and natural protected areas.

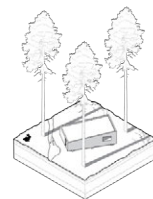
**(A) SELECT** the tool(s) needed for preservation



**Tool 1**  
River Trail



**Tool 2A**  
Forest Trail

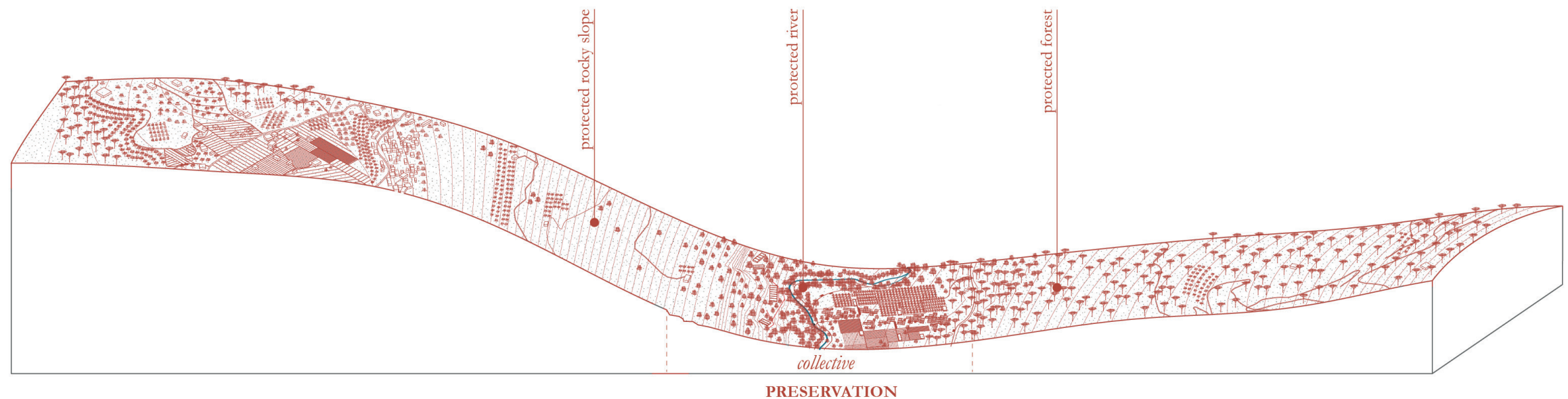


**Tool 2B**  
Woodland  
Cabins

**(B) TEST** the performance of the operation within and beyond the *hima* boundaries

Q1: Are the interventions protecting forests and riparian habitat across the section?

Q2: Is the toolkit anchoring preservation at different scales in the valley?



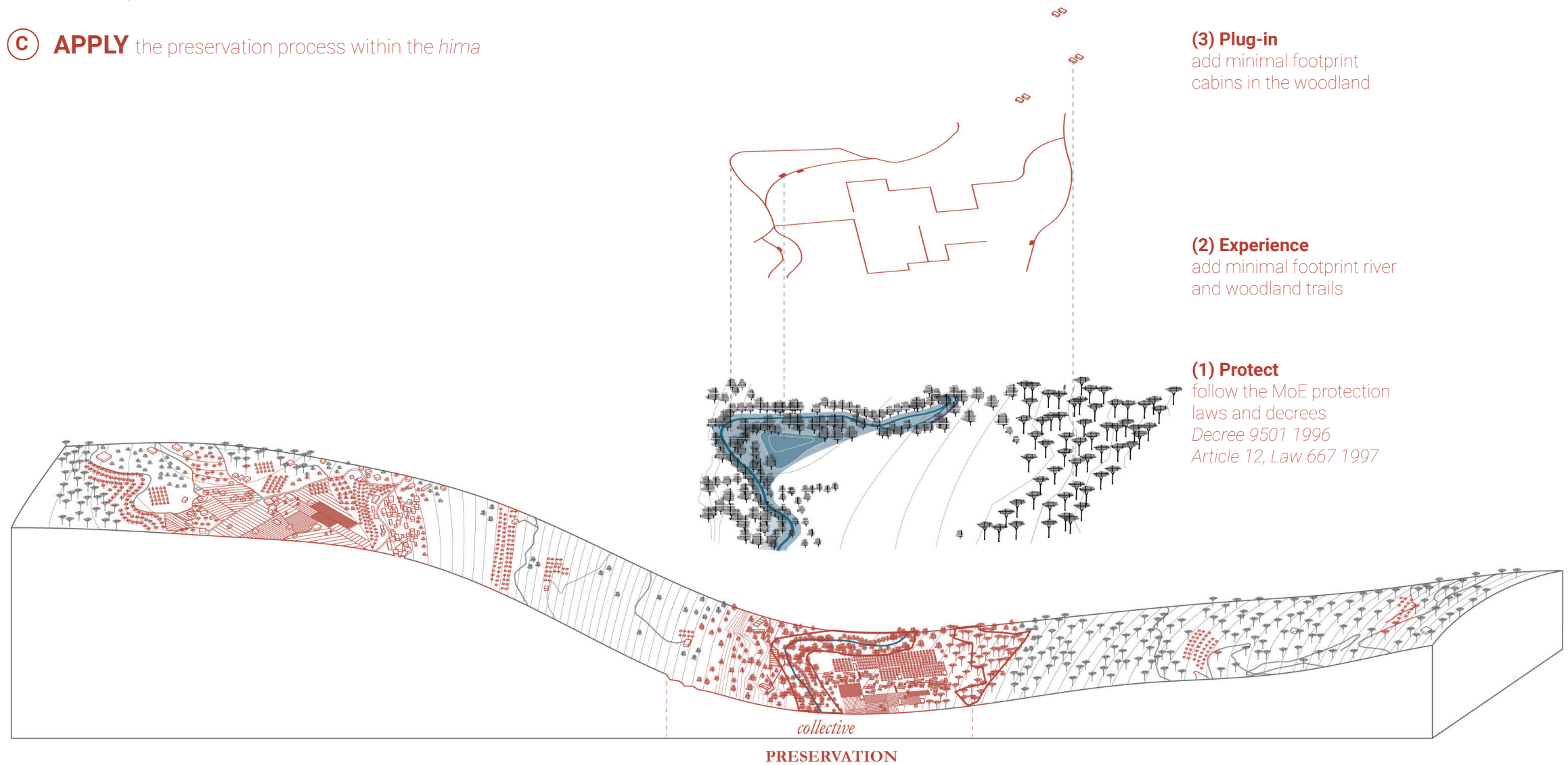


## Strategy Application

### STEP 05 PRESERVATION

Protection here is at a higher degree than the physical intervention, where policies and laws are introduced at the valley scale, in order to protect ecological corridors of forests and riparian habitats. Trail interventions and plug-in cabins act as anchors to protect and re-connect people to the landscape.

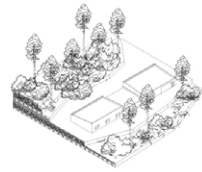
**(C) APPLY** the preservation process within the *hima*



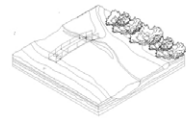
# Strategy Application

## STEP 06 *Hima* Intervention

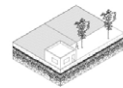
**Connect** the interventions to each other within the *hima*



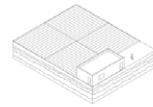
1 Rehabilitated Quarry



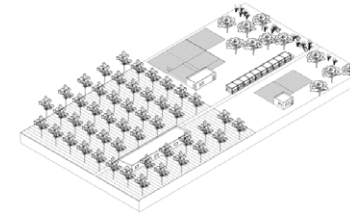
2 Riparian Trail



3 Small Scale Agri Plots



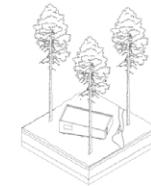
4 Medium Scale Agri Plots



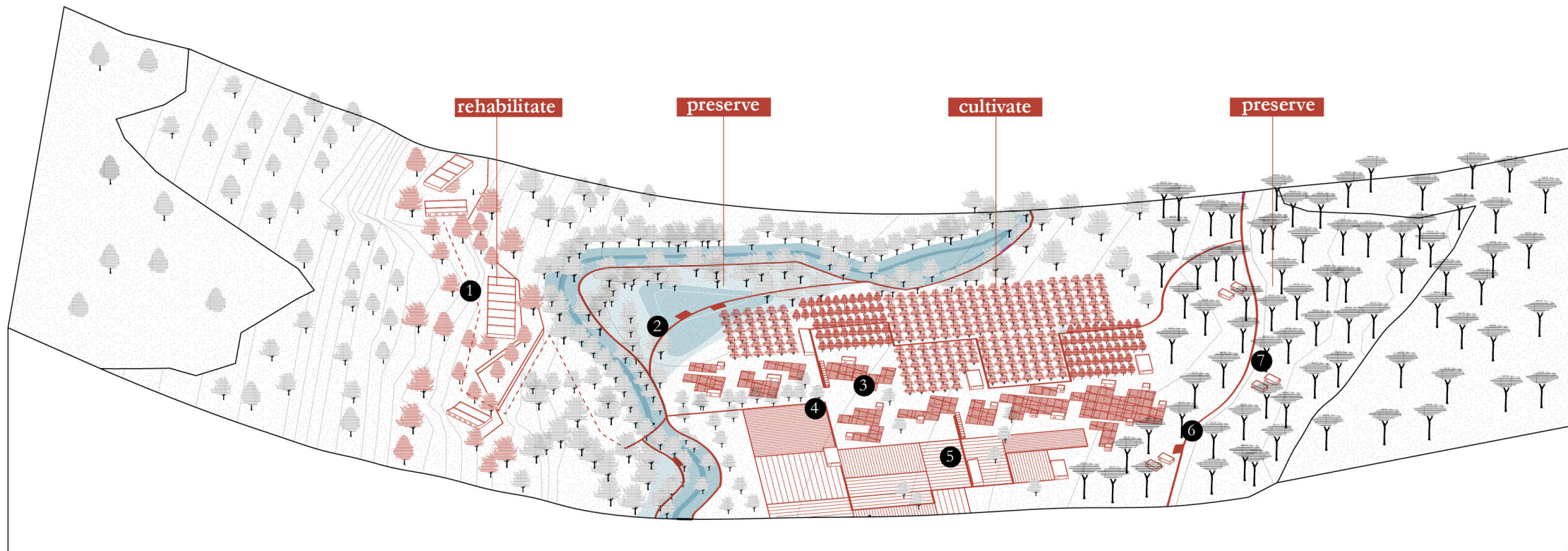
5 Plug-in Agri Production and Farmer's Market



6 Forest Trail

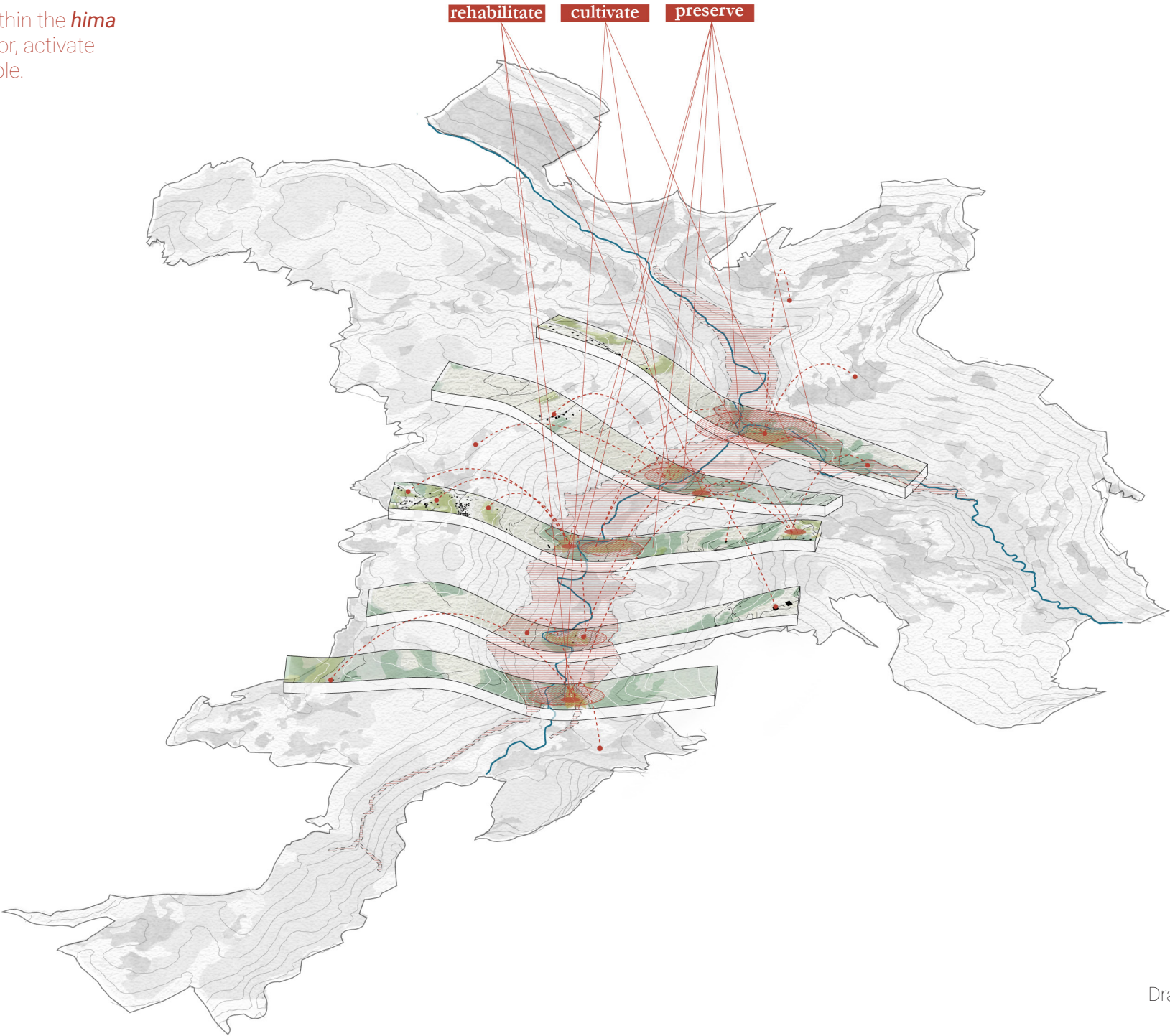


7 Woodland Cabin



# Strategy Assessment

**Assess** how the operations within the *hima* work together in order to anchor, activate and protect the valley as a whole.



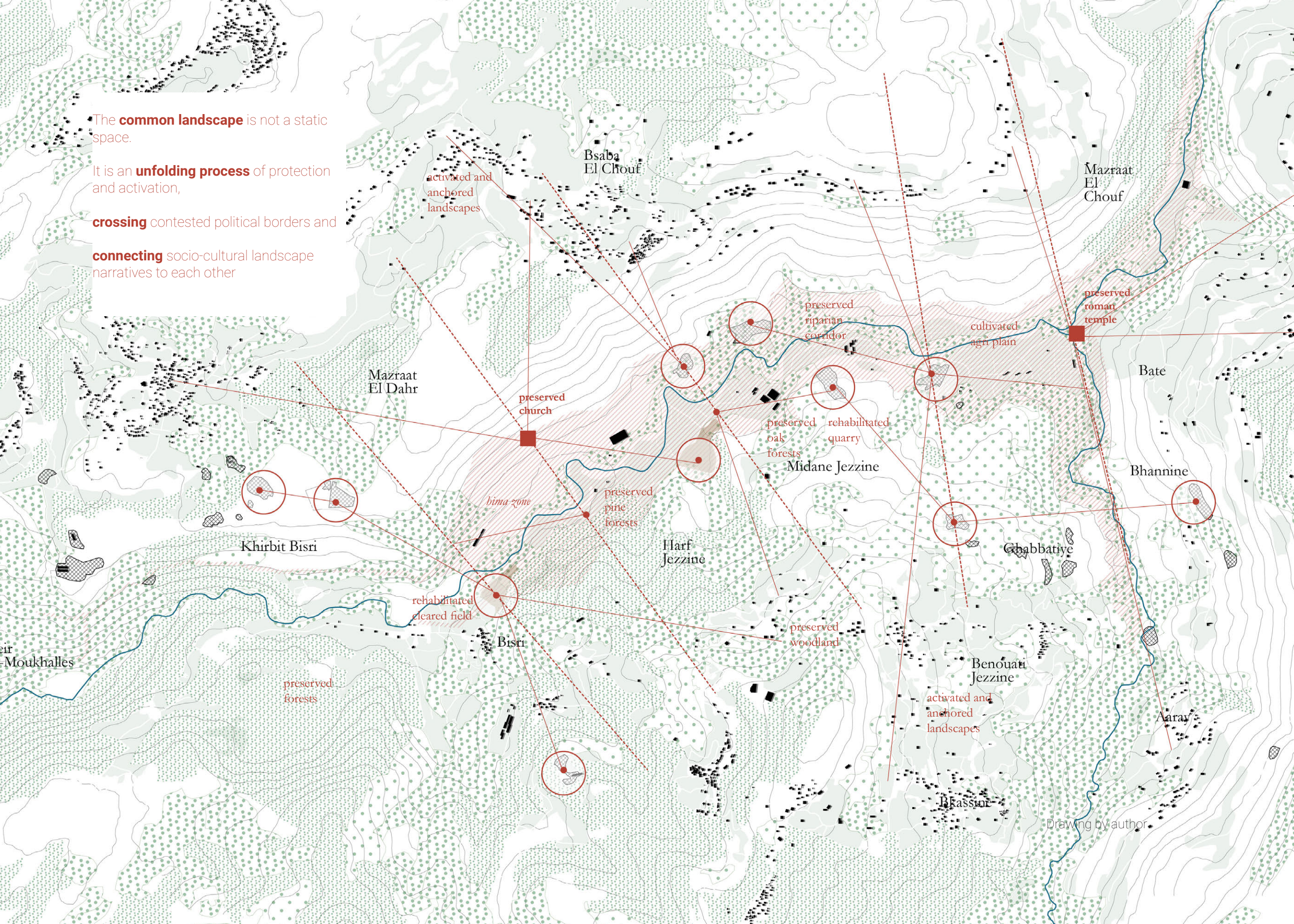
Drawing by author

The **common landscape** is not a static space.

It is an **unfolding process** of protection and activation,

**crossing** contested political borders and

**connecting** socio-cultural landscape narratives to each other



Drawing by author.

The right to landscape across Lebanon has gradually dissolved as large scale infrastructural projects carve out patches of the terrain. This spatial occupation of valleys by state authorities has led to a constant act of ecological and cultural deterioration, further fragmenting socio-environmental systems.

The relationship between territory and terror, as Stuart Elden emphasizes, portrays the act of occupation as violence over the terrain. In reaction to this, protests manifest as spatial interventions for reclaiming the landscape: from marching to chanting and writing, this process becomes one of re-reading the territory through the lens of landscape narratives, encompassing interconnected networks of people, ecology and culture.

Design and urbanism contribute to this advocacy, by utilizing devices to re-conceptualize the value of the landscape beyond its current commodified meaning, revealing collective narratives throughout the territory. As such, alternative strategies are proposed to protect and protest simultaneously, creating new landscape realities.

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01.25.2020 Jannah Dam  
01.26. 2020 Bisri Valley  
01.29.2020 Mseilha Dam

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### *Bisri Campaign*

Roland Nassour

### *MoE (Ministry of Environment)*

Manal Mousallem

## LIST OF ACRONYMS

- BMLWE** Beirut Mount Lebanon Water Establishment
- CDR** Council for Development and Reconstruction
- EDL** Electricity of Lebanon
- ESIA** Environmental and Social Impact Assessment
- GBA** Greater Beirut Area
- LRA** Litani River Authority
- MoA** Ministry of Agriculture
- MoE** Ministry of Environment
- MoEW** Ministry of Energy and Water
- MoF** Ministry of Finance
- MoIMA** Ministry of the Interior and Municipal Affairs
- MoPWT** Ministry of Public Works and Transport
- NPMLT** National Physical Masterplan of the Lebanese Territory
- NWSS** National Water Sector Strategy
- TVA** Tennessee Valley Authority