



VOLUME

Research
& Logbook

Presentation

Story of *(Chekka - Lebanon) Quarry*

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34°19'56" N 35°45'09" E

Transformation plan from cement
production to timber production.

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“Architecture
Beyond
Cement”

a story of a quarry

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Preamble//

My project's complexity forced me to think on many layers and scales to create an assemblage of notions I thought of during the design process, The trigger was the current economical doctrine that is based on the notion the world as a machine, in other words dealing with the earth in a mentality of everything could be controlled if we know the science of it, yet its sustainability opens the door of questioning especially that is under periodic crisis and vulnerable to any minor break. As an architect, I'm not yet in a position which allows me to judge or to take sides. Yet, I can analyze a local model that I can relate with many other models that are based on coalitions between economies of scale. While the current system is suffocating earth by exploiting it's natural resources haphazardly all over the globe. The current mindset in dealing with resources is spread on all scales starting from the huge global corporations ending up with small local firms, from macro to micro, feeding on each other without even having any hierarchal structure or a single system but flat, free, and monopolized. The current model is sometimes interlocked with many corrupted systems such as the Lebanese unique economical model which is based on matrixes of cartels such as banks, telecom, oil & gas, etc, and course construction materials. This model has created a convincing discourse and coexisted with all societal levels, and it sometimes unites the opposites. In general, it also coexists between liberal and closed(communist) markets. Yet, it's withdrawals on those who are not part of the club in many underdeveloped countries, where the mass populations and natural environments are facing severe inequity in all dimension that I'm going to address in my research.

Hence, there is an urge for imposing the notion of resiliency as a counter-model that will create a smooth exit to the current system. Since resilience also works on multi-scales, and it forces all stockholders to collaborate on all levels and dimensions. This doctrine will create a model of equality and democracy as it shifts the monopolized economy to be more communal and creates a spread of wealth, decision and co-creation. Resiliency, however, has also its drawbacks in some areas, as it could be miss-understood as a self-sufficient system which does not rely on other partners or became selfish in other words. While the idea is to create a circular system which tackles specific problematics.

I have chosen the cement quarry in Chekka - Lebanon, as it is rich with data, stories, and complexities, (Environmental, social, economical, political) each word carries lots of information which have accumulated through at least 80 years of excavation work and production. The area could be characterized as dystopian, and needs a direct & fast act especially with the absence of any governmental planning or imposing of laws knowing that the mine is illegal since 2010. Yet, on the contrary, many governments have backed-up the mining process and cement production neglecting all its negative and hazardous withdraws.

Therefore, adopting the circular economy model based on building materials usage and production could break down this downward loop the region is currently passing through.

My idea is to regenerate the mine by creating phases in the shutdown process without affecting the current economical model or affecting labours and stack holders.

- 1- Sculpting the quarry into terraces for forestation through the mining process
- 2- Introducing new models of production which could help in rejuvenating the quarry by inviting livestock farming as the nutrients from animals are essential in initiating new microclimates as livestock also bring insects and birds and other animals to the site. Besides introducing alternative agriculture which plays the same role.
- 3- Establishing a new cycle of production in the quarry that is based on timber production.
- 4- Achieving a circular model in the quarry which will benefit the owners, labours, and the harmed neighboring citizens.

This will open the door for architectural augmentations and interventions based on the new functions/programs which the site demands to sustain its production. Besides, the new model will open the door for new businesses to thrive in the area. In other words, it will refresh the stagnant mono-economy since it will become an arena for investors who would like to invest in timber as a building material or even small investors which can also invest in growing trees in a quarry instead of growing money in the stock market and create a bank of building materials. And maybe I can imagine a new tangible currency based on timber.

Inspired by

(Anatomy of Resilience Machine, by Simin Davoudi, Jennifer Lawrence 2012)

ESSAY

Personal reflection//

My continuous investigation towards architecture has derived from a passion on the profession on both, academic and professional levels. Although I would rather not separate practical from theoretical notions, as both complement and influence from each other and develop simultaneously based on space, time, and technology. Throughout my practice, I have always combined what I have learned from literature and try to translate architectural philosophy through the application of architectural designs. In addition, learning from the history of architecture whether it is classical or modern, western or oriental, a certainty has dyed regarding the relationship between building material technology, the typology of architecture and resiliency.

In the past, cities have been shaped based on their location and situation and each city was unique in its architecture, historians used to describe the uniqueness of many architectural typologies and well-manicured structures. Some cities were built with wooden structures such as old London, others were built with mud such as Mali in Africa, or with stones like Rome, and some with brick as in Amsterdam. Hence, every region had its architectural character and qualities unlike nowadays where most of the world cities are becoming dull, boring and starting to look similar with gigantic structure made from concrete, steel, and glass.

Architecture has become, in a way or another, a tool for stacking apartments, offices, and many other facilities with no spirit or soul. While many “star” architects introduced hanged gardens or played with the form of the structure to smooth the intensity of materials and the bulkiness of the volume, they have also developed new theories (formalistic, analytical) on how to manage ugliness of structures by formulating notions on material transparency or injecting advanced technological skins using parametric computation products. Architectural design has become just like the fashion industry, every couple of years there is a trend which architects follows blindly of course based on budget limitations.

I am not in a position or age to judge or criticize architectural development, yet I'm still observing. But throughout my practice, I have struggled with the limitations of standardized architecture design versus material usage (architecture of cliché), I have become a brutalist architect since I have worked with concrete as a primary material for construction, a material that can be applied everywhere from structural skeleton to wall partitioning CMU, outer skin facades fair-faced or brute, flooring, and even glue or a filler. But also concrete fits any architectural form. Yet, I was in serious doubt about how this material will be decomposed and its impact on nature and future societies.

Materials in application: A global crisis - aftermath. From linear to circular.

The building industry is just like any other heavy industry. It is massive,

polluting, consuming, and it is becoming a burden to the eco-systems. Statistics from the UNDP indicate red alert to the existence due to the current consumption of natural resources, the massive deforestations for agricultural usage, and the extreme exploitation of build-able lands expanses. Accompanied by social-economical and environmental challenges and changes; based on global immense urbanization driven from population growth, and their urgency to opportunities.

Consequently, the scarcity of raw materials has risen and the demand for the labor force has declined to cause the current cycle of building materials to rotate in a downward loop. While extracting and mining, followed by its processing phases and its transportation is happening without serious global policies, and the lack of law implementation, not to mention corruption in many parts of the world, all of these have caused unmeasured harmful consequences.

The fast expansion of cities has created the momentum of building fast, easy, and cheap. These rapid changes in the building industry have played a role in the population boom in some parts of the world in the last decades causing migrations and segregations in many societies. Therefore, the building industry is causing dramatic harm to nature and ecosystems directly through mining or indirectly through the emission of harmful particles into the environment caused by production processing phase and its transportation to building sites.

Despite the current technological

advancements, the current building technology is still primitive in comparison to the ancient building technologies, and its harmlessness to nature, and to social structures and authentic cultures that are to disappear with their micro-climates and pay the tax of others, through forcing them to move out of their natural habitat and lose their authenticity.

In my research about materials and its application, I was fascinated on how the usage and development of building material have exponentially increased in the past century while for example, stone as a building material has lasted for more than 5000 years as the primary material and still ongoing. This fact has led me to think about the relationship between the usage of material and the social structures of societies. For instance, we can still find many ancient societies living on earth which maintain a certain balance in their life in comparison to modern lifestyle. And it showed that there is a relationship between people's behavior and the usage of material in building applications.

Furthermore, there is a big impact on our wellbeing and the way we live and work concerning the surroundings material usage. It is well known that people who are still living in old houses, or old in old city centers have different personal characters than those who live or work in concrete high-rises buildings at newly established cities. Hence, how can architecture help in producing new social contracts which play a role in transforming societies, economies, and environment into an upward loop, via building material usability,



Beyond cement: Timber in application a socio-economic growth

After researching materials in architecture and its relation to the current challenging topics such as environmental changes, social challenges, and building materials history. It is highly recommended that timber wood construction is the most effective building material that has holistic characteristics, and it could be part of many other solutions which are helping in reducing current and future threats and challenges. One could reach to such conclusions based on live examples from societies such as the Uros people in lake Titicaca in Peru, who incorporates building materials as part of a social contract creating social cohesion which provides a balanced lifestyle over the lake, as they grow shrubs on artificial islands made from straws, the inhabitants collaborate all together in sustaining their village and maintain it seasonally, having in mind that if there is no collaboration between each other and surrounding nature both will sink. Therefore, I am assuming that if architecture adopts timber wood as the trendy primary building material instead of steel and concrete, which were enforced to many building protocols through mega business and industries. Timber wood is for sure a renewable material which has positive impacts on the economic/environmental model, wood as a primary building material has a win-win situation business model. The increasing demand for wood means excessive forestation to assure the supply of this material. This momentum in usage helps in solving many of the challenges mentioned. Moreover, the material is recyclable, biodegradable, accessi-

ble, and applicable in many regions in the world. Moreover, wood has the capability of reassembling, and could be replaced easily without damaging the total structure of the building, giving the opportunity of modifying the architecture for any future need; wood as a material is warm, it has many positive effects on people, it's smell, texture, and reduces echo in spaces providing aesthetic value to any architectural design. Nowadays, timber wood technology could compete with many other building materials, through its durability, ability to be used as structures for high rise buildings. It has great potential in reforming new typologies in architecture through its sources and variable choices of wood types and quality, and the ability to be modified at any time. I believe that wood as a major construction material will have a revolutionary shift in how we build in Lebanon, and in how architecture and technology could synchronize together and produce a resilient building. Wood will have the ability to transform mindsets and transform geographies in many locations around the world by creating forests or cultivating alternative building materials such as straws or bamboo. Imagine transforming building material mines such as cement quarries into forests and spaces for innovation, with financial benefits that produce sustainable building materials as well as balanced climate.

Grounding: A Cement Quarry

The town of Chekka and its surroundings have become a striking example of the lethal outcome of public policies implementations and poor planning in Lebanon. This region extends from el Koura plain

to the seashore, where fishing, salt extraction and other maritime activities thrived in the past. These environmental features led to the development of site-specific economic activities, long before Koura's coast and hinterlands were transformed into an industrial zone haphazardly and erratically littered with factories, companies and quarries. In 1931, the first cement factory in Lebanon – the Lebanese Cement Company – was built on the coast of the towns of Chekka and el-Heri. The operations of the cement companies expanded without any form of control, ignoring health and environmental standards, through several practices that were authorized by the Lebanese government. All this happened under national policies that greatly contributed to their success and development: in 1993, the Lebanese government banned foreign cement imports, which led to the repeated increase of the price of the ton, under continuous political cover and support. Unlicensed quarries spread in Koura towns, which led to a rapid deterioration of the environment, and people's health and livelihoods. Land purchases were a primary factor in the spread of companies and their control over the fate and resources of the area, as they benefited from the economic deprivation and marginalization of the small towns. To counter these transformations and the damage they caused, civil groups and environmental organizations have been leading a prominent movement since the 1990s in Chekka and Koura.

In Chekka and the Collar Towns, this has led to many major issues that need to be addressed. So what are the challenges facing this region?

- The Dominance of One Econom-

ic Sector

- Partial Urban Planning
- Non-enforcement of the Law
- Cement Companies' Control over Socio-Political Entities
- Deterioration of the Environmental and Health Conditions

Program: Planning and spatial organization

There is an urgency to close an illegal fully function quarry and cement factory that has been polluting for around 90 years. A strategy is to be superimposed on the site to gradually close the factory and the mine during time/space intervals. This procedure will ensure to absorb the shock which will affect the mining business industry and its parasites to reach a healed environment and revitalize old abandon agriculture and at the same time introduce wood as a new building material which would be part of a national plan to close all building industry-related mines and substitute it by forests. Before closing the mine meanwhile keep the production and mine by sculpting the steam terrain to create terraces for plantation. This technique has been used since history in mountainous terrains. During the sculpting phase, trees should be grown on-site to plant them after terracing the topography, while new functions start to enter the site which is compatible with agricultural and horticulture to heal the soil. The site will at the end creates its micro-climate in both dimensions business and environmental. That process needs architectural elements to back up the whole cycle, these elements should be scattered in the site connected and complementary. Some are essential for logistical prepuces and others are just platforms which create a hub for startups business.



Research //

In an Urban Age.. How could the transformation of a cement quarry help in producing a sustainable, contagious, and collaborative social/eco systems through materials application and its technology?

Architecture of contingency

Introduction//

The current exploitation of resources to build new cities that will host an expected urban explosion in many countries around the world will lead to an exponential deterioration of our global ecosystem. What actions should be taken in order to reach an optimum ecosystem for people to live, work, play, and interact. My hypothesis is based on various observations, and awareness on trending titles concerning urban and socio-economic changes and challenges. Titles such as (resilience, circular economy, neo-liberalism and micro-climates. And it is a reflection of several notions in the architectural paradigms which address the transformation through space and time. The methodology of my research stretches from macro to micro scale, to Mizo scale. And will be implemented on a cement quarry in Lebanon. What mostly triggered my emphasize is the current global challenges (Climatic, economical,& socio-political) and the future projections on the expected changes and how it is going to affect the global mindset (system). The massive urbanization that we are facing nowadays and soon will have a tremendous effect not only on the environmental level but also on the social level. (*Shaping Cities 2019*)

Hence, there is an urgency to find alternative ways of treating potential environmental/economical threats.

Challenges:

- Climatic
- Massive Migration
- Massive Urbanization
- Social/Economical/Political
- Aging Population
- 4th industrial revolution an exponential automation

Changes:

- Energy
- Food Scarcity
- Vulnerability
- Cultural Tension
- Vulnerability
- Human Resources
- Detachment
- Unemployment

What we are going to do with people who are going to be displaced?

What will happen to capitalism when scarcity is not a problem?



Macro to micro



Socio-Economical Reflection//

Economies of scale (mega businesses) model have been used over decades as a mean of high production quantity which can fulfill the huge demand and market need without any care towards the environmental impacts of such economical models. (Legal Agenda) The extensive harvesting of natural resources has depleted many ecological systems around the world, starting from mineral extraction from quarries to the immense deforestation for harvesting wood and replacing forests with agricultural blocks. Besides, global markets have been using all means of unsustainable production on all levels starting for harvesting resources passing through the transformation of resources by building huge plants and factories that produce not only hazardous wastes but also the products are becoming a major source of waste. This has led to a break down in many ecologies on both natural and social levels which in return have created a detained economical cycle. Many publications on my topic have shown that the massive migration from rural to urban areas in various locations in the world, as a result of bad decisions made by both governmental policies and economies of scale. This downward loop is still going and it is increasing exponentially on a global level. (diagram2) While production and its transportation costs are decreasing the world population is increasing, on the other hand, the monopoly of econ-

omies of scale has forced people to move from rural locations to more urbanized locations searching for more work potentials and opportunities. This massive migration to urbanization has been treated by decision-makers in many 3rd world countries by building larger cities and extensions to mega-cities in which at resources are being exploited immensely to fulfill the markets demand on raw materials, building materials, and commodities.

Mainly, the main material that architects are using to built with is Portland Cement Concrete, Steel, and wood.

Nevertheless, urban studies have shown that massive urbanization is creating social pressure besides environmental and economical pressures. That is because people are becoming segregated from their surroundings and people are losing the meaning of life and living. (Personal input)

Hence, the relationship between

• Diagram -2



Natural resources are currently being consumed at **twice the rate** they are produced. **By 2050, this could be three times.**

OECD, An Emerging Middle Class

• Diagram -1

This diagram represents visually the current circular global development cycle starting from exploiting resources to supply the massive global demands and needs without creating any alternative cycle.

This diagram shows that the increase in the ease of exploiting natural resources, treating and transforming needs had broke Eco-systems on all levels not only natural but social around the globe, which have created an unexpected momentum in an unhealthy urbanization

Its time for architects to start learning and adapting.

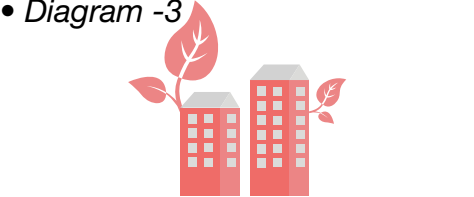
urbanization, society and resources are interlocked. Therefore, this result is to be investigated and questions arise:

- What is the relation between resources and social structure?
- How did we exploited natural resources in the past, and what made it sustainable?
- How can we correlate building material and its relationship with societal systems?

From Concrete Structures to Social Structures.

Therefore, In my research, I will be juxtaposing both materials in architecture and its behavior in resiliency. Does domestic building materials have social influence? And if yes, what are the systems that could lead to an architectural interpretation which can combine both material and societal challenges to reach an optimum ecosystem for people to live, work, play, and interact, not only healthily and sustainable, but also through introducing new ecosystems to reach a healthy cycle on all levels. A resilience model that could be spread on both macro and macro scales so that it affects the Mizo level.

• Diagram -3



Urbanized regions are aggregations of materials and nutrients, accounting for **75%** of natural resource consumption, **50%** of global waste production, and **60- 80%** of greenhouse gas emissions.

UNEP, Resource Efficiency as Key Issue in the New Urban Agenda

Research//

Materials of architecture are also resources that are exploited from natural reserves. Architecture is also taking part in damaging the environmental and social structures. How can we juxtapose both dimensions in order to create resilient solutions.

Materials, its application & Society

Materials a resource for architecture//

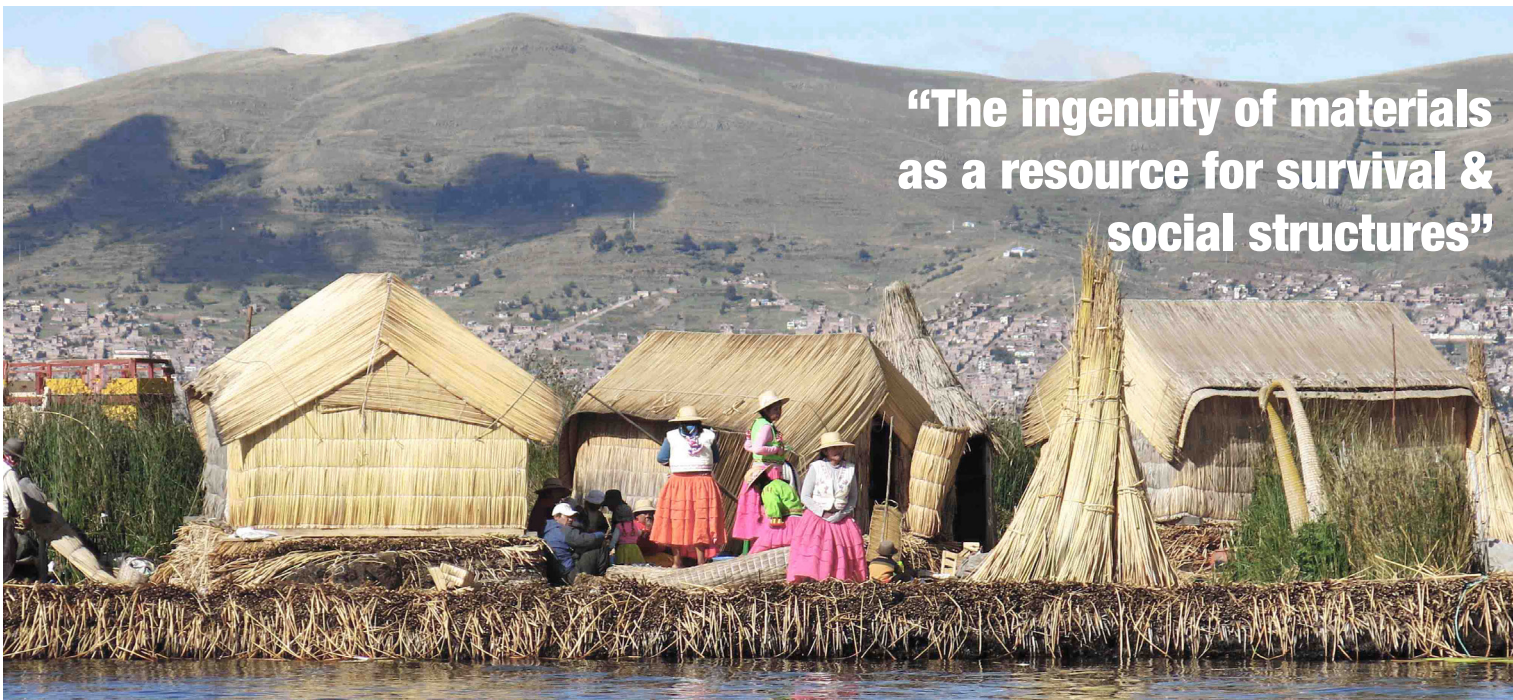
Materials in architecture have occupied a major role in human development and evolution. Its impacts are multidimensional and occurred on many levels. Building materials have force architecture in formulating its typologies and morphological evolution. Material technology also plays a role in establishing a sustainable architecture or a breathing building which connects with its users.

Research// Findings

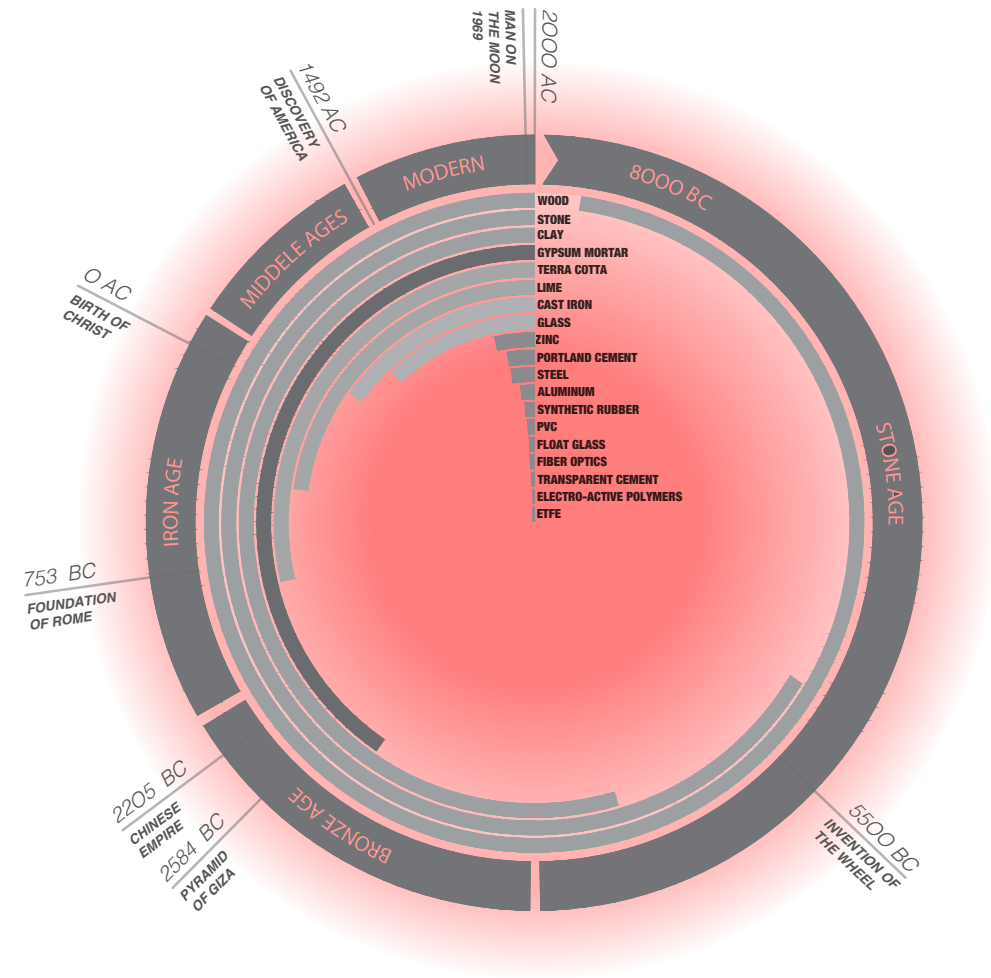
Throughout my research on materials, I've stumbled upon some live examples of how did communities have survived for many years dealing with vernacular building technologies and architectural typologies. This research also includes the use of local materials to sustain their living environments. My research started with defining building materials and their application. I started my research based on a chart that I created to understand more about the relationship between building materials, human evolution, and architecture. Through my qualitative and quantitative investigations, I have stumbled upon three examples about communities who share spaces for living, working, and playing, a place that was inherited from generation to others with a strong social structure that sustained over the centuries. (Diagram 4)

Wood in application// Live Examples

The main material used in such communities is wood or its alternative. This renewable material has many qualities such as sustainability, resiliency and has a high life span. Besides it's qualities it is renewable and resilient meaning it could be planted and harvested continuously. Third, trees are essential elements in fighting desertification, increase oxygen in the air, lower down the earth temperature. Fourth, it has an architectural quality, it is a warm and soft material that works as an isolation material, easy to be handled in the construction process, and could be subjected to easy maintenance.



“The ingenuity of materials as a resource for survival & social structures”



• Diagram -2
This diagram represents visually the evolution of material application through out time and historical events. Starting from the Stone age ending in our modern day times.

Why material research?

- 1- Historical Value
- 2- Geographical Presence
- 3- Usage & Technology
- 4- Quality and behavior
- 5- Direct Impact

What does material research offers?

Materials helps us in identifying the architectural

- Chronology
- Morphology
- Geology
- Technology
- Typology

Partial Conclusions//

A material such as timber has many potentials in its application and environmental qualities. The idea behind timber usage in architecture mainly is divided into 2 sectors:

- 1- The consumption of wood should be equal or less than its production which leads to forestation.
- 2- The production of timber has positive effects on the environment on two levels ecological & visual benefits.
- 3- The application of wood is easy, flexible, and have great structural qualities such as shock absorber for earthquakes. The techniques of wood construction are various and could generate creative applications.
- 4- The wood wastes are recyclable, that is wood wastes are transformed into wooden planks, and the waste of the waste could be transformed into paper and cardboard industry.
- 5- Wood is usually a domestic material, but when it is transported it floats in rivers and could be transported into through Eco-friendly means.
- 6- Wood has sensual properties such as smell, texture, sound.

Micro to Mizo

Social Structures and Materials// Resilient architecture

My hypothesis was built based on various trending bold titles with respect to urban and socio-economic dimensions. It is a reflection of several notions in the architectural

• Diagram -4

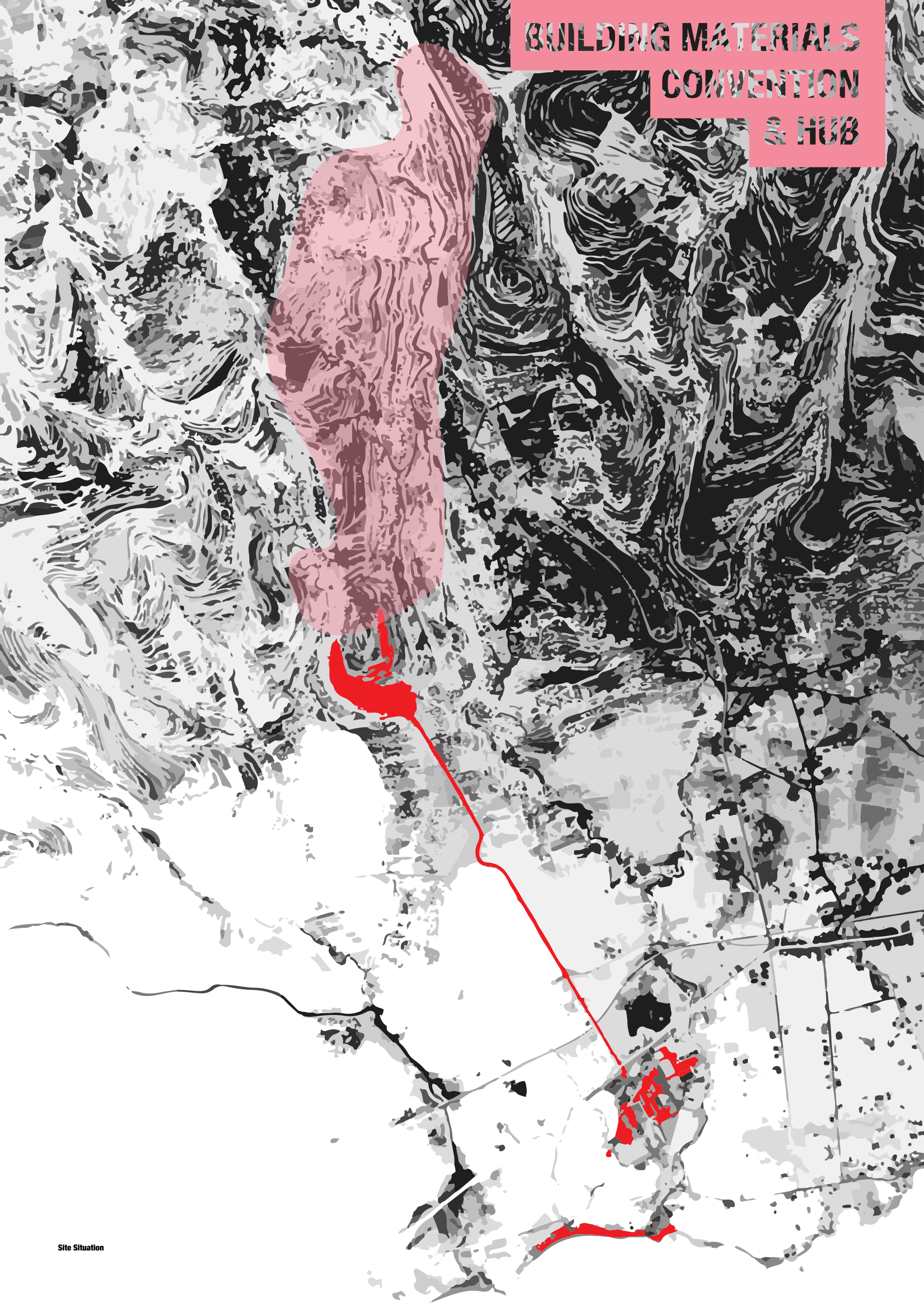


The Yononami tribe villages are protected and unconnected till recent. The usage of vernacular local materials for construction of a communal sharable village called the Shabonos. It is expandable, and the whole tribe share the space, and collaborate in maintaining. Sustaining, and enlarging the space according to need.



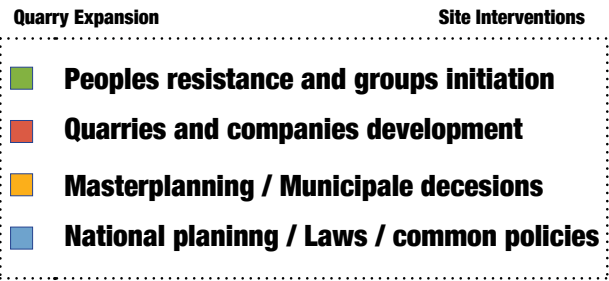
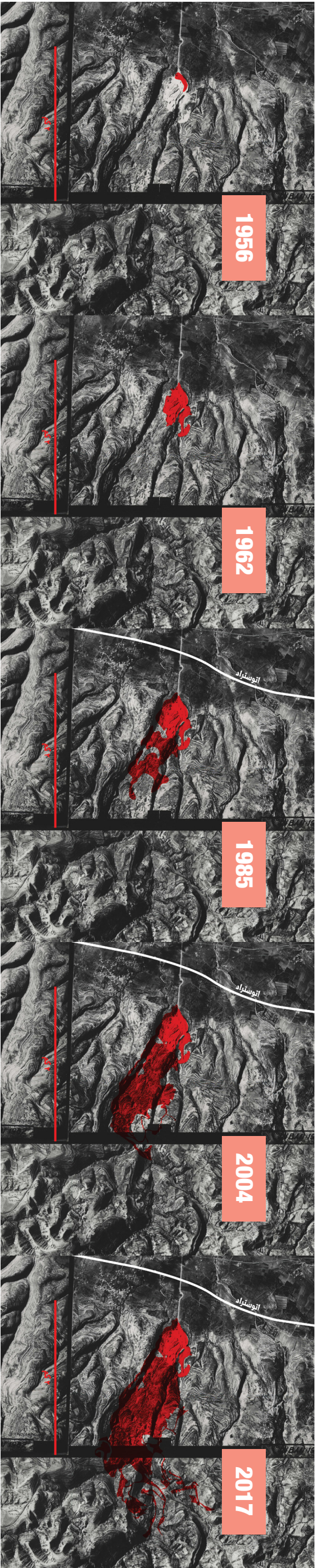
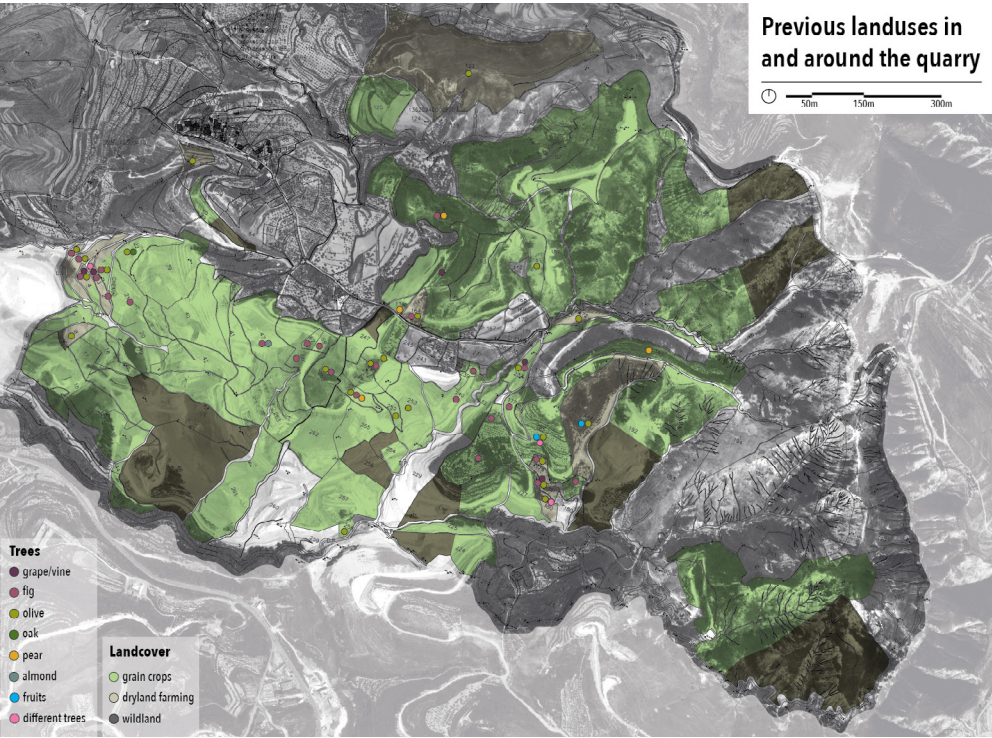
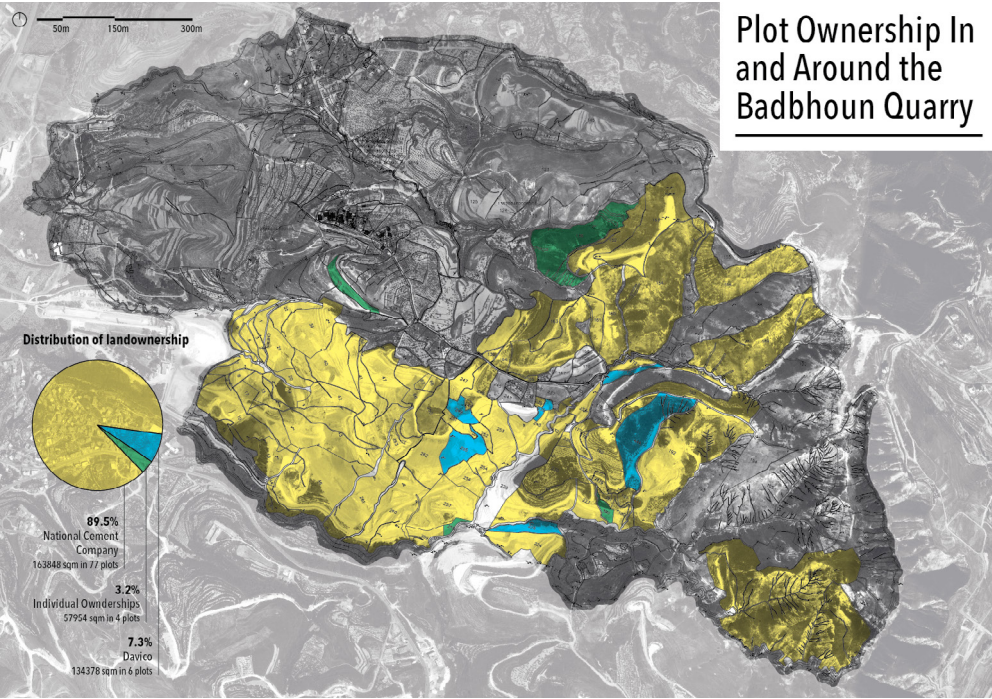
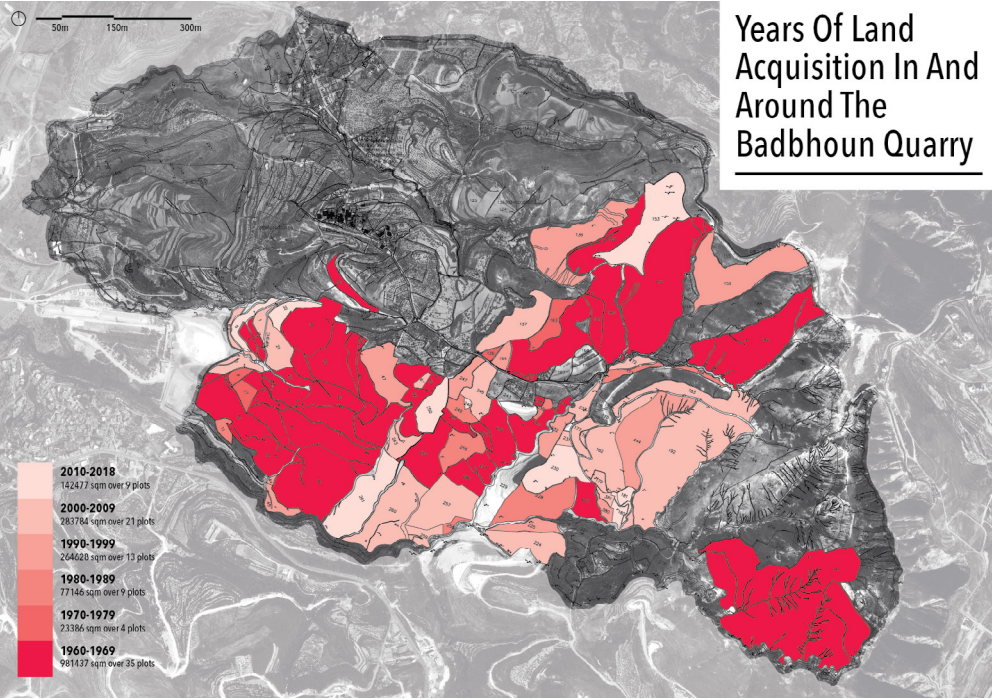
The Communal village of Uros give us a great example on the relation between building technology and communal work. The collaboration in the society via a micro-ecology system where straws are planted and harvested in the island and its used as main source for sustaining the floating village.

BUILDING MATERIALS CONVENTION & HUB



The Site//















Between Past - Present- and Future

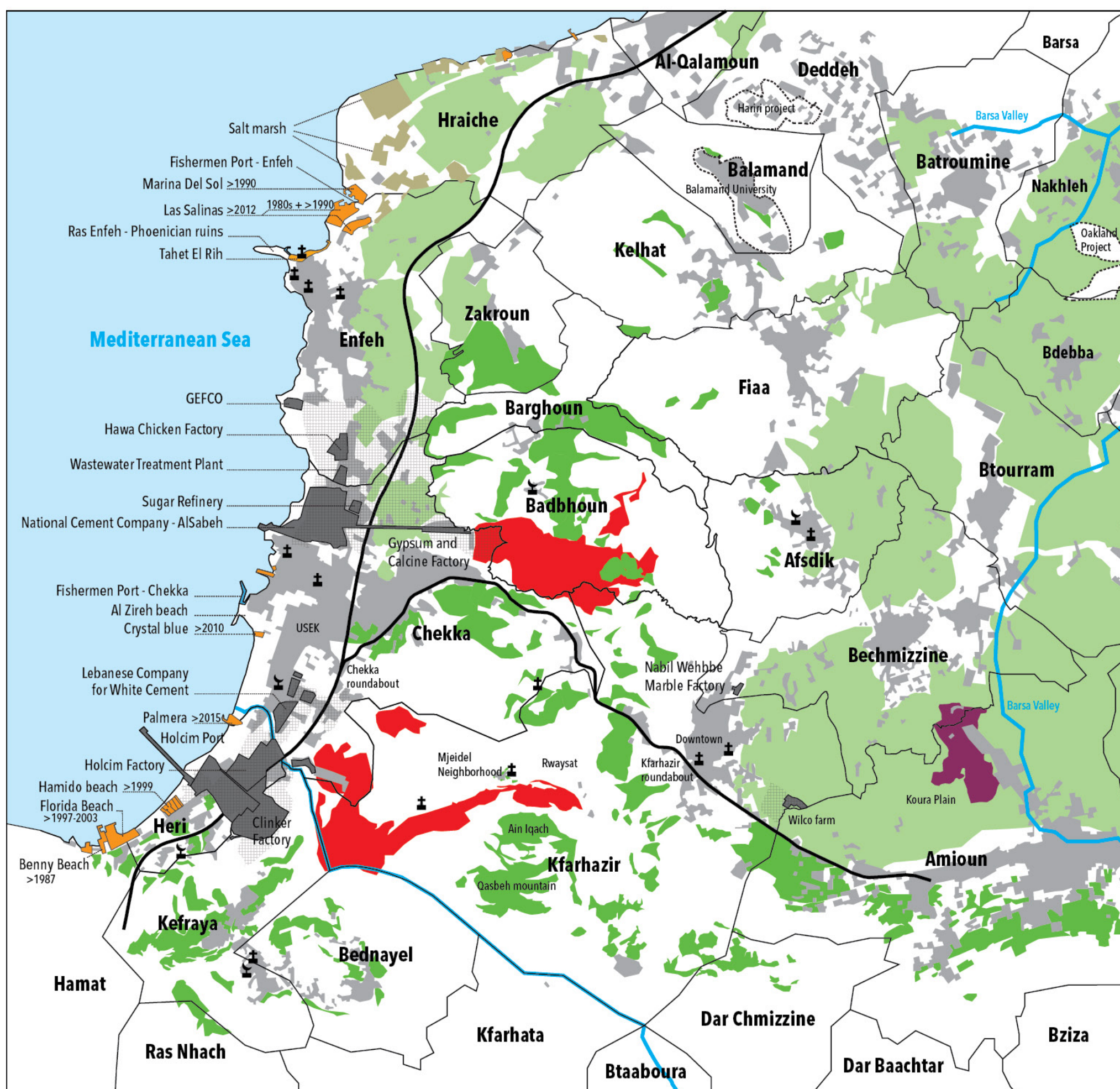
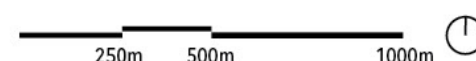


Site Analysis//

Chekka and the Surrounding Towns of Koura Map of Landmarks and Land Use

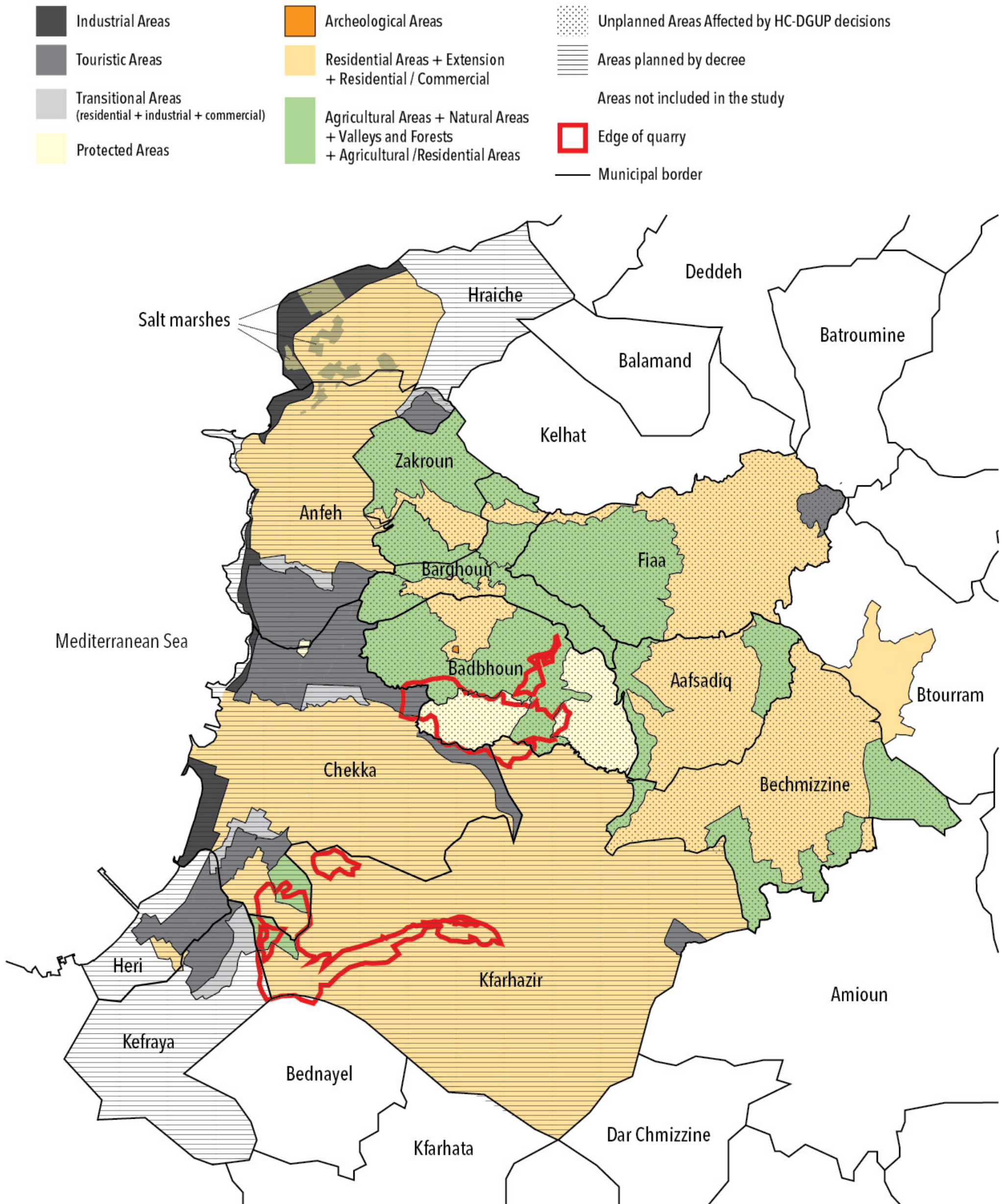
Land Use

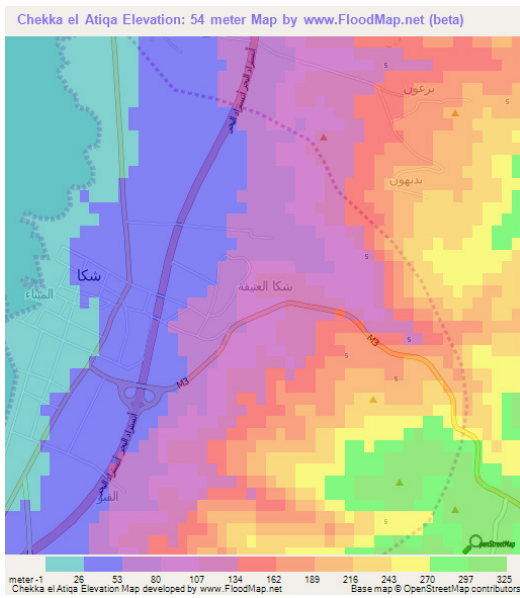
	Urbanized Areas		Private Resorts		Rivers and Water Streams		Church / Convent
	Major Industrial Facilities		Quarries		Highway		Mosque
	Agricultural Plain - Primarily Olive		Clay Extraction Pits		Municipal Borders		
	Agricultural Highlands - Olive		Areas Zoned Industrial				
	Salt Marshes						



Site Analysis//

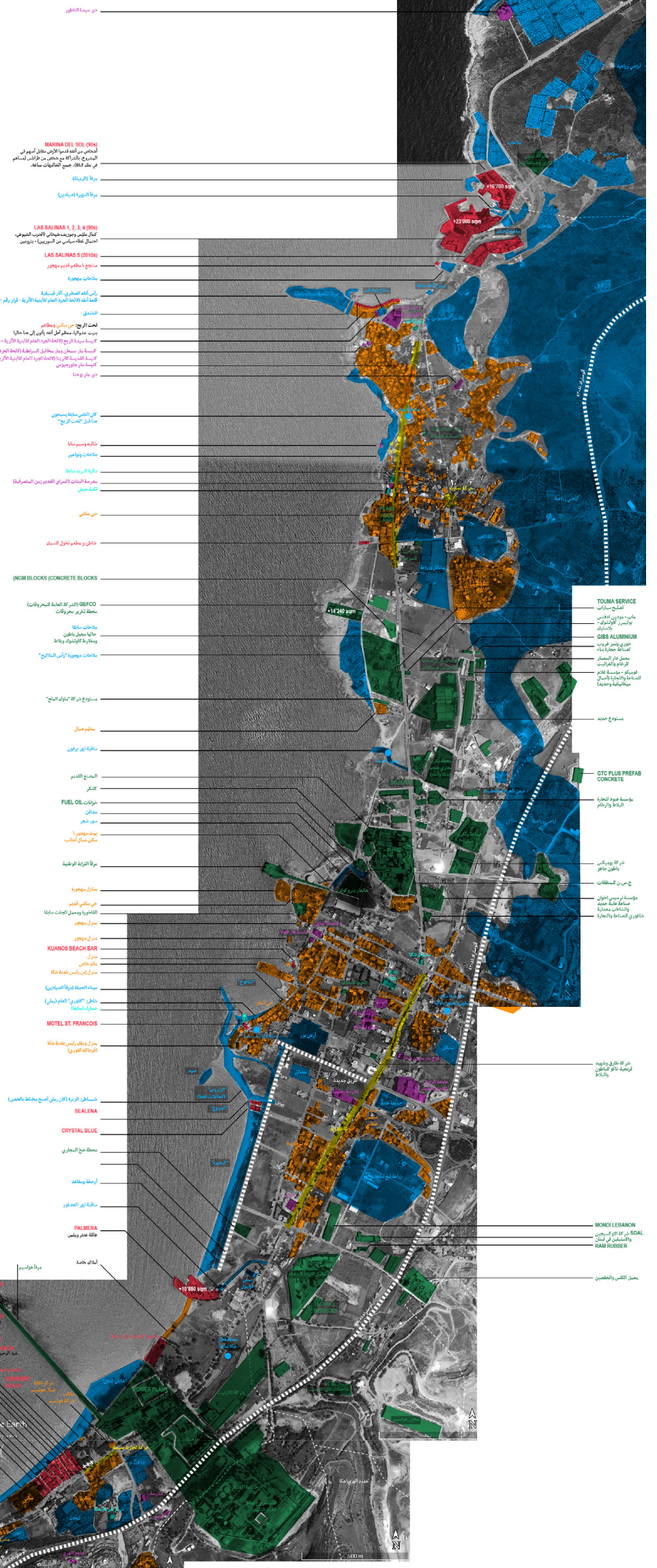
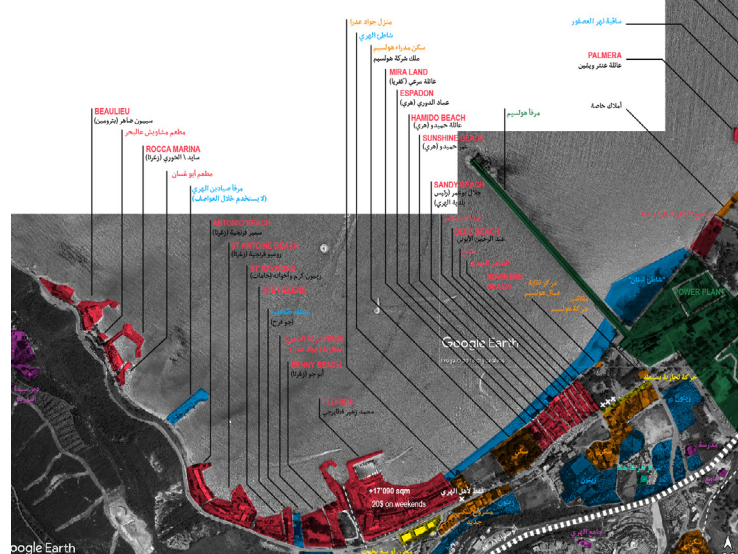
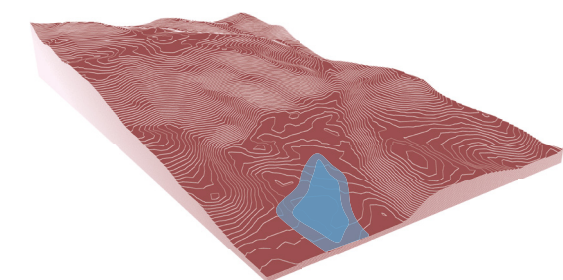
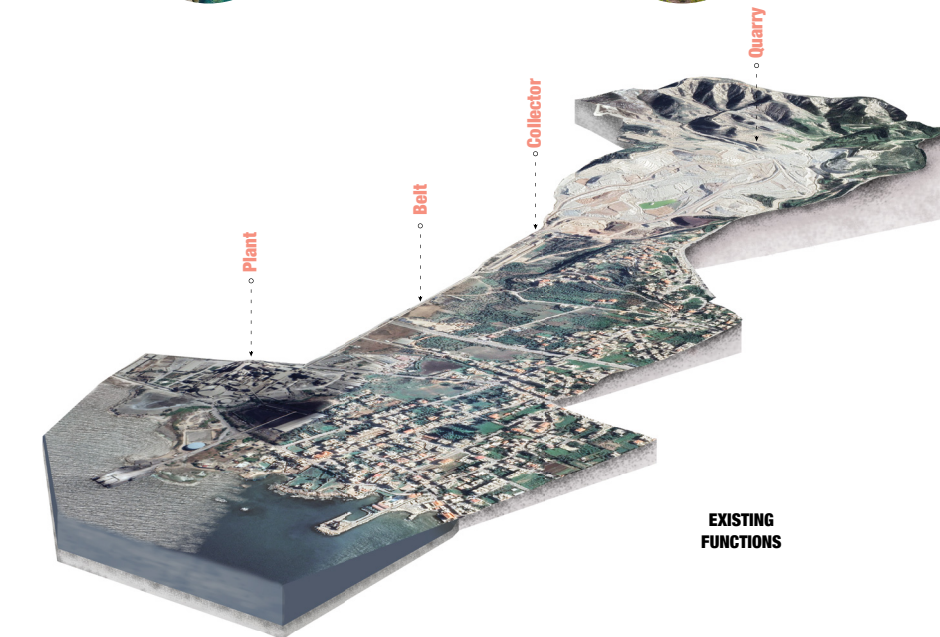
Chekka and the Surrounding Towns of Koura Land-Use as Defined by Master Plans





A horizontal line representing a number line. On the left end, there is a circle with a vertical line inside, resembling a clock face, which represents 0. Below the line, there are two tick marks. The first tick mark is labeled "250m" and the second tick mark is labeled "750m".

- [illegible]



MICRO CLIMATES

Formalistic studies//



LIVING UNDER
THE ASHES DYING
FROM THE DUST//



We have lost our culture!

Cancer is killing our dreams!



We want our nature back!



The worst terrorist insult humans have ever witnessed!

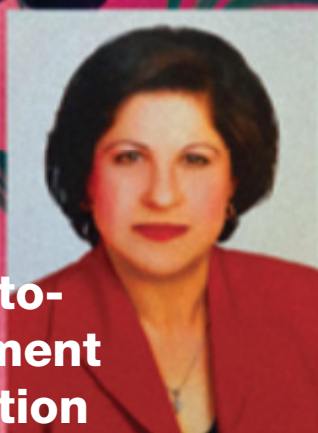


Death caused by cancer became normal while natural death became rare!

Stop the Death!



Shutting down the factories and importing cement are the start of correction in Lebanon!



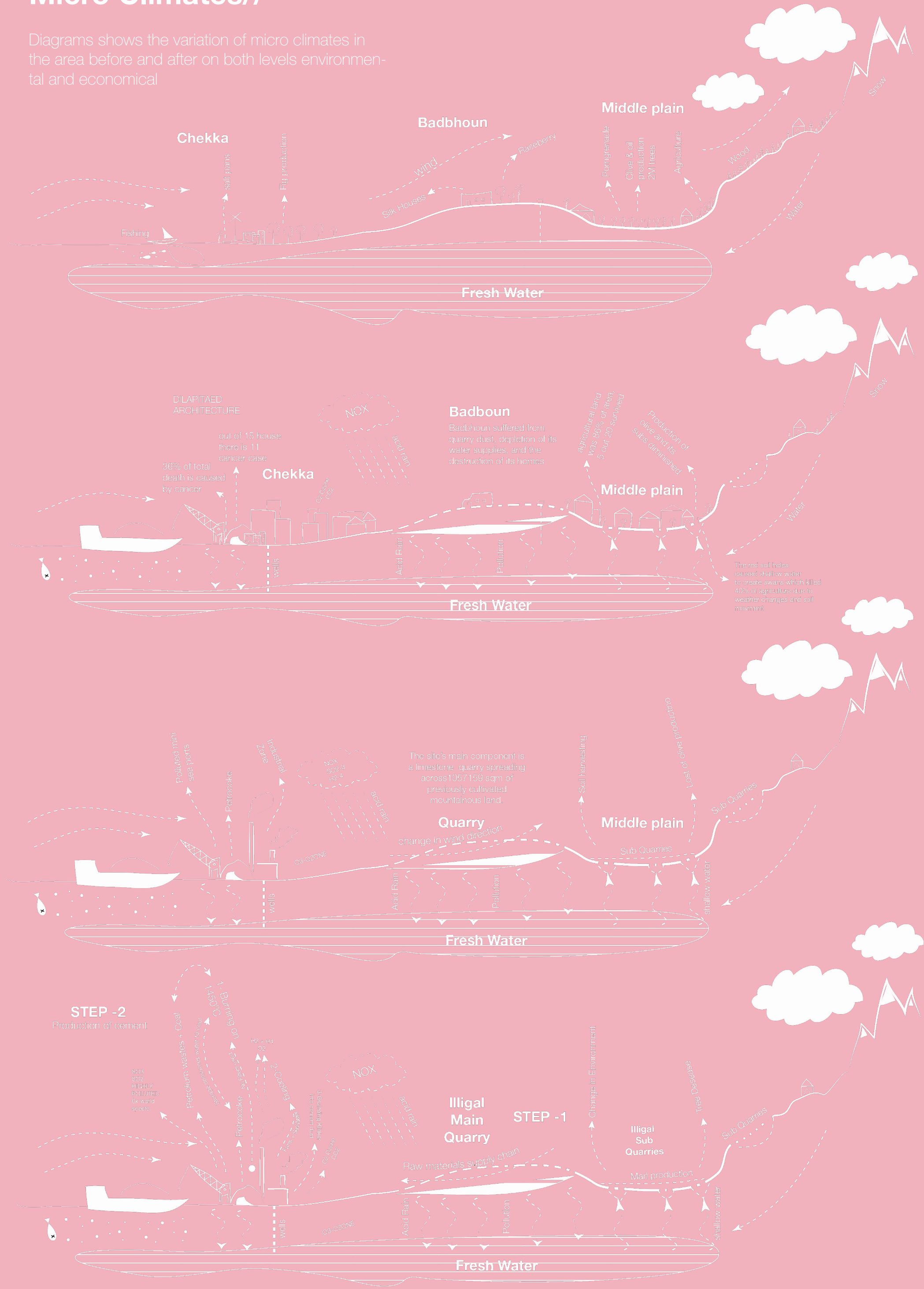
For continuation of living the factories should be closed immediately!

Cement factories & its quarries are an explosive belt surrounding Alkoura's nature and peoples life's!

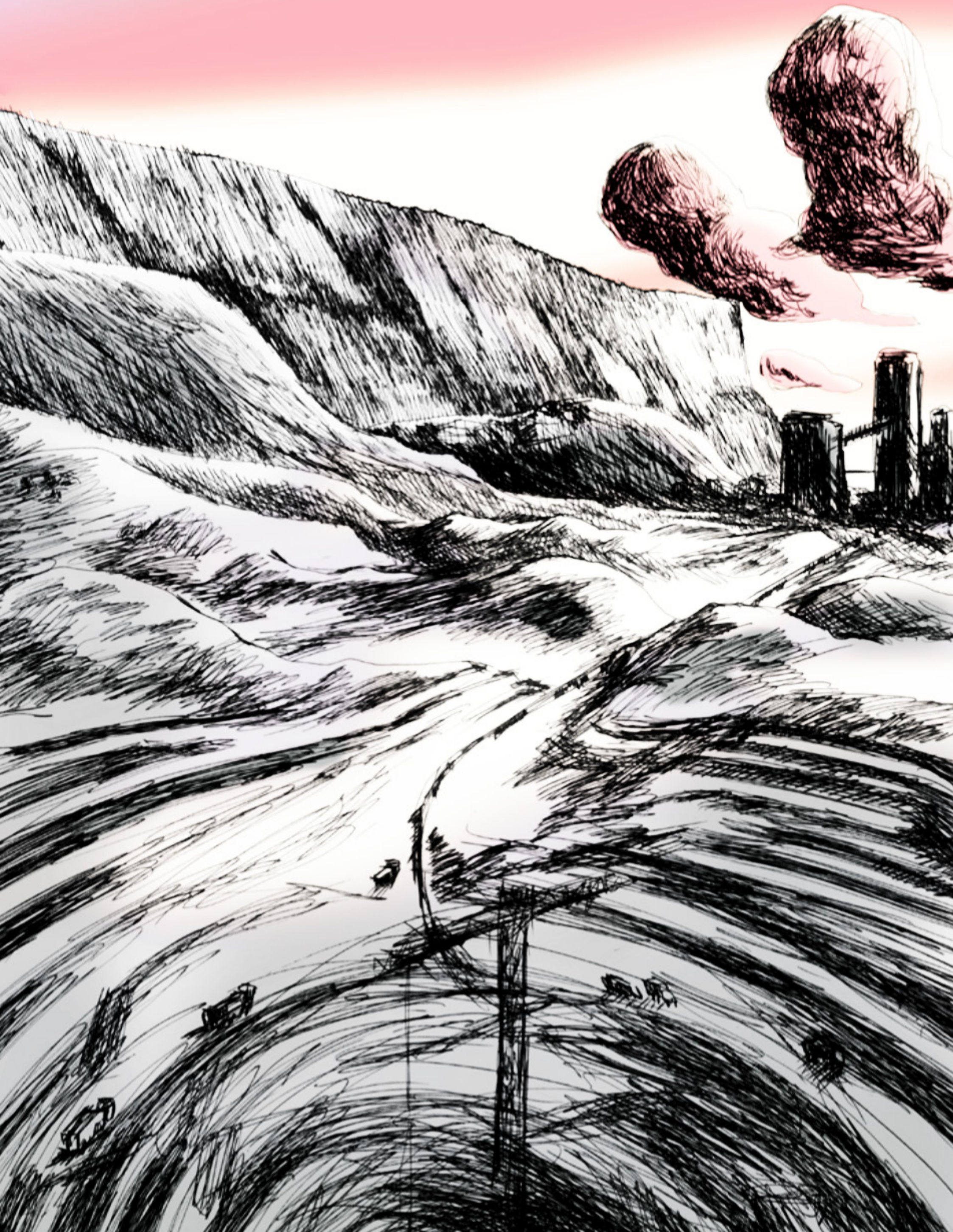


Micro Climates//

Diagrams shows the variation of micro climates in the area before and after on both levels environmental and economical



POLITICS & LAW
REINFORCEMENT//

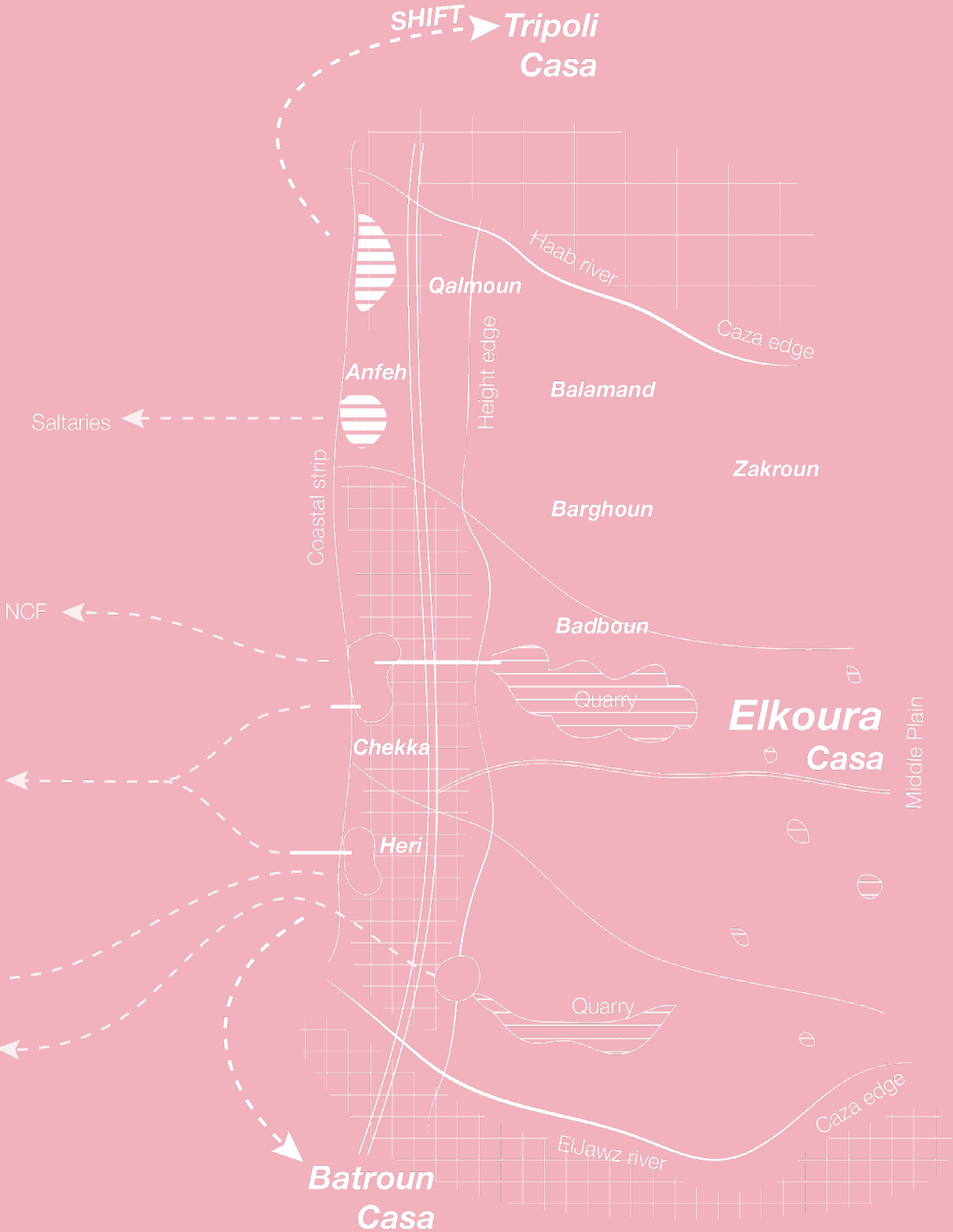
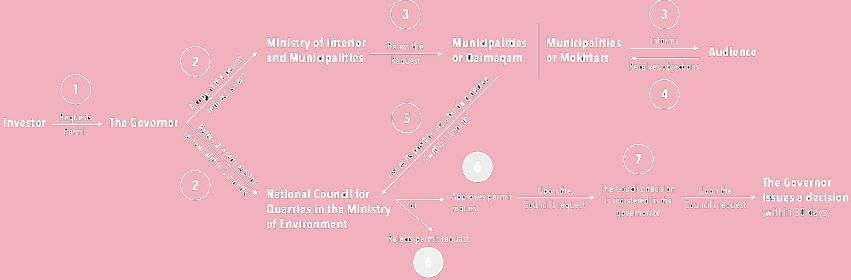


POLITICS & LAW REINFORCEMENT//

The diagrams shows how the zoning have been manipulated with for the benefit of the quarry and NCF, as well as the legislative approach from the government.



Quarries Legislative process



Illegal Mines//

Effectively, the quarry does not operate under any valid quarrying license. In early March 2019, newly appointed Minister of Interior Riass al-Husseini issued a 'decision' to halt operations in all unlicensed quarries. This suspension is not in force. In the Balamand quarry for example, within an administrative extension of 3 months is still subsequently issued by the Council of Ministers, to allow for the Ministry of Environment to develop a new quarrying policy that would include provisions for addressing existing quarries of different legal statuses. (Appendix 4.3 MoE draft of national policy for quarrying 2019) This policy has not yet been approved by the Council of Ministers, while unlicensed quarries continue to operate across Lebanon.

Partial Development plans /
Lack of policies & law
reinforcement

Re-planning based on factory interests

Exponential expansion of the quarry foot print
Arbitrary zoning & planning

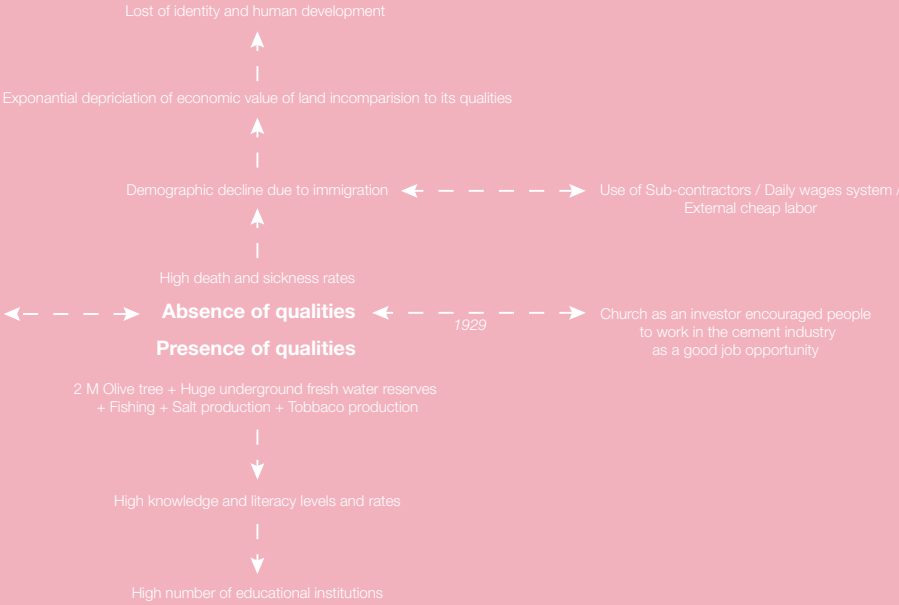
Quarries forced itself despite laws and regulations

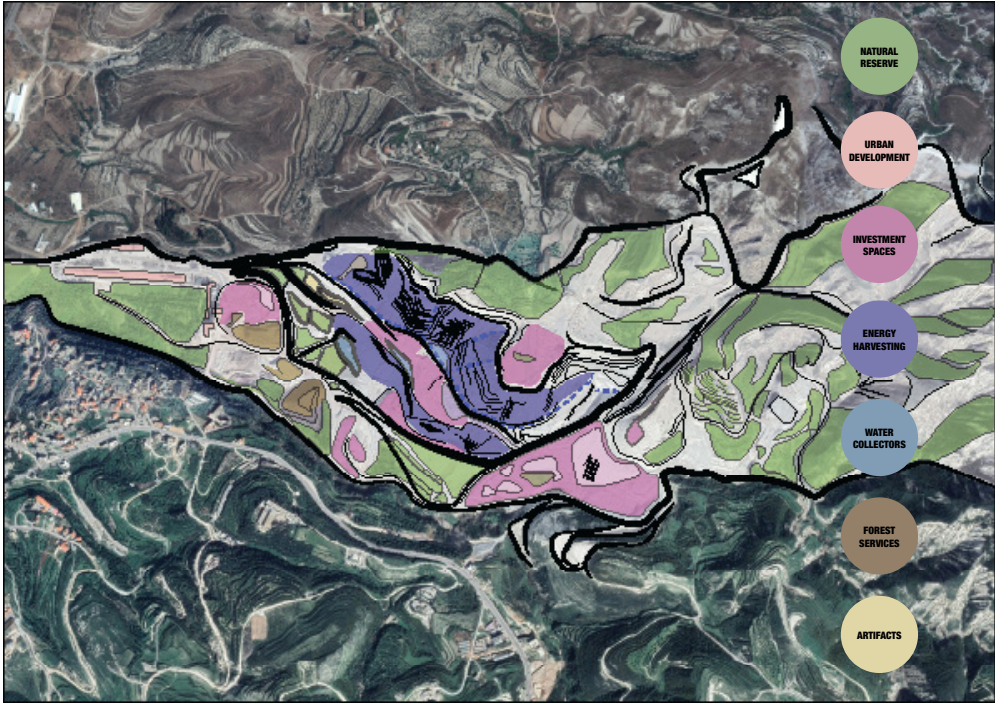
Actions taken:
Many municipal laws and regulations
to control quarries and ban industries
in the region.

The Dominance of One Economic Sector
Decrease in local vernacular economical cycle
Health & environmental deterioration
Demographical changes

Actions taken:
Civil society raised their voices,
Media and press started to cover.

Absence of any environmental prequotions
and Planning

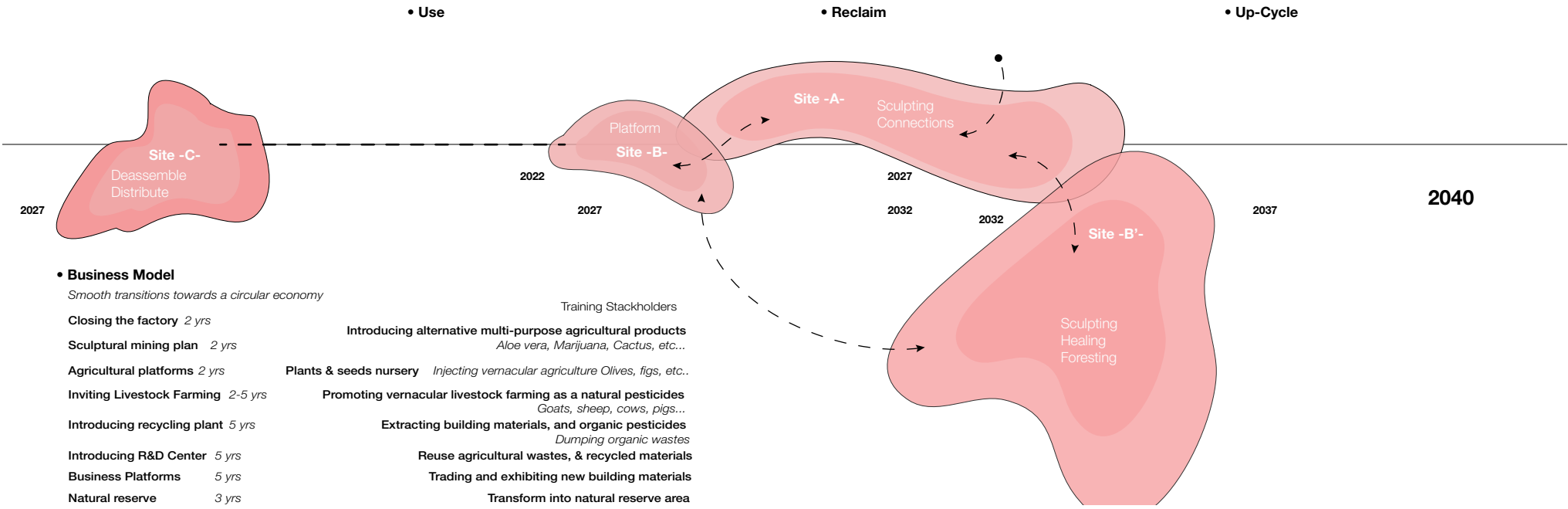
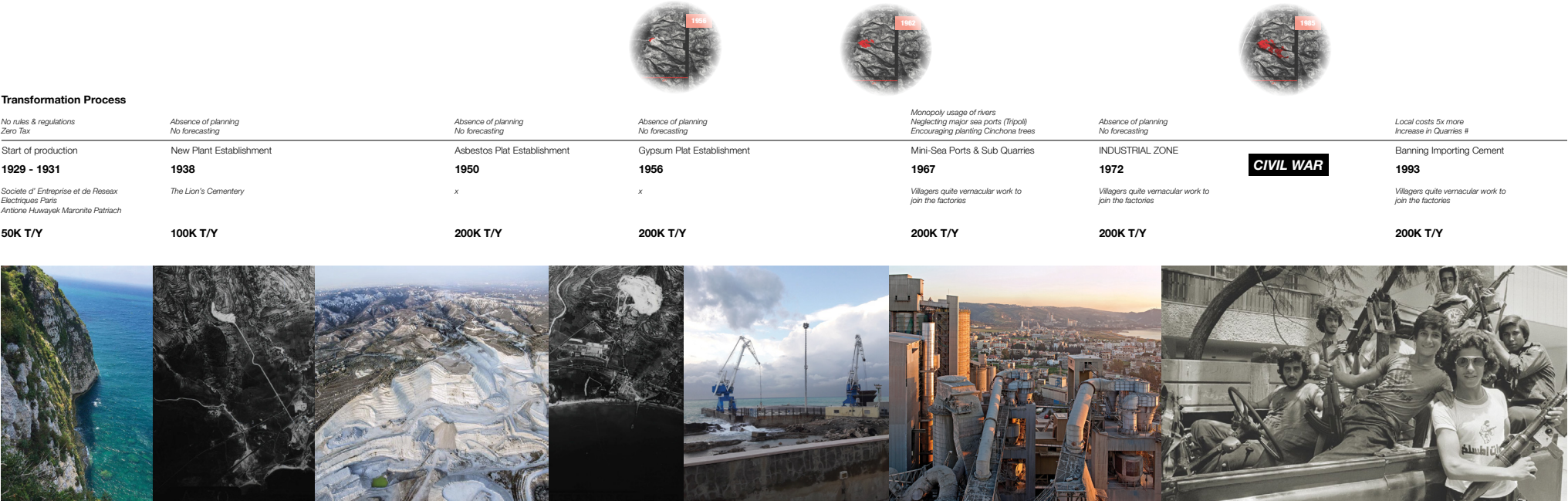




Brief on history://

The towns of Chekka and Koura today, particularly what is known as the Collar Towns , have become a striking example of the lethal outcome of public policies and poor planning in Lebanon. The residents of the area remember it as “Green Koura”, as it’s surrounded to the North by the Qadisha Valley and to the South by Nahr al-Jaouz river, which separates its natural coast from the Caza of Batroun, and the al-Asfour and al-Jarada rivers, which are adjacent to green highlands and groves of olives, grapes, figs and the like. The towns of Koura lie atop groundwater orig-

inating in Tannourine and which is considered one of the richest water reservoirs in Lebanon. These towns extend all the way to the seashore, where fishing, salt extraction and other maritime activities thrived. These environmental features led to the development of site-specific economic activities, long before Koura's coast and hinterlands were transformed into an industrial zone haphazardly and erratically littered with factories, companies and municipality, and is characterized by a low demographic density: in 2002, it hosted 268 inhabitants, 120 of whom were registered voters.



RECLAIM THE CYCLE

Badbhoun Village Today //

- Small residential center of Badbhoun, consisting of less than 30 houses, a few small groceries, a mosque and a cemetery .
- The Badbhoun quarry takes up a quarter of the town’s territory (4’482’633 sqm). Most of the plots in and around the quarry (88.5 per-cent) are owned by the Cimenterie Nationale (AlSabeh) whose cement plant is located on the coast of Chekka, connected to the quarry by a conveyor bridge. For every three square meters of private property in the town, the company owns over one square meter. It has only quarried part of its lands so far.
- Badbhoun does not have a municipality, and is characterized by a low demographic density: in 2002, it hosted 268 inhabitants, 120 of whom were registered voters.
- Administratively, it falls under the jurisdiction of its mukhtar and of the qaimaqam of Koura.

Current Problematic

Today, Badbhoun is home to those who do not have alternatives, and to those who are seeking to reclaim their town and protect what remains of its landscape, supported by surrounding towns that are negatively impacted by the cement industry. In addition to the overall strategic vision for the area, the competition calls for multi-scalar and interdisciplinary interventions that address the following site-specific issues:

- Planning and Land Ownership: What legal, economic and planning tools can be used to intervene in a land monopoly, within a vision that is contextual and relevant to residents’ needs and aspirations?
- Quarry Rehabilitation and Economic Sustainability:

How can the rehabilitated quarry redefine its productivity by hosting a sustainable economic alternative for the town and the wider context?

Replicability and National-scale Policy:

How can intervention schemes in Badbhoun serve as a replicable prototype and inform a larger-scale approach to quarry sites?

Impacted Negatively, Stake Holders:

- Residents of Badbhoun
- Residents of surrounding towns
- Owners of agricultural land in Badbhoun and surrounding towns
- Commercial strip along Kfarhazir-Amioun highway
- Owners of land adjacent to the quarry or in its vicinity.
- Workers in the quarry.
- Cimenterie Nationale - AlSabeh.
- Local Political Parties.
- Transportation contractors.
- Owners of un-quarried land adjacent to the quarry.
- Workers in the quarry.

Intervention scenarios for the Badbhoun quarry & village can use multiple tools to reduce its spread and impact and propose tracks for its rehabilitation on the bases of social equity, environmental justice and economic sustainability. Proposals would constitute strategic prototypes for addressing other similar quarry sites and can put forward tools to resist environmental threats facing other unplanned towns of low demographic density.





Overlapping Morphologies over time

How can we build on the seafront's competitive advantages to provide a sustainable economic and development alternative to the current industrial model (and particularly cement) and those dependent on it, while limiting its negative environmental impacts?

The concept of sustainable development and the immediate needs of the people, including job opportunities and a local economy, without compromising their health, the environment and local economic resources.

Guidelines

- Taking as a starting point the principles of Sustainable development as defined in the United Nations Global Goals SDGs
- Adopting comprehensiveness and sustainability in the visions, taking into account the National Physical Master Plan of the Lebanese Territory.
- Preserving local environmental components and landscapes.
- Finding economic solutions that afford development opportunities to multiple segments of residents, where the interests of all parties and social groups are accounted for.
- Addressing the damage caused, reinvigorating the surroundings, and enshrining the right to decent living in the area, taking into account the

- moral, health, and social impacts sustained by various segments of the people due to industrial operations.
- Fostering the local and cultural heritage of the region.
- Promoting existing landforms and natural landmarks.
- Developing context-sensitive approaches and enhancing the connection between the site and its surrounding context, taking into account the human aspect Goals
- Making the proposals a starting point for a public discussion around development, taking Chekka and Koura as an example to be avoided in terms of the dominance of one economic sector over others. The selected proposal will represent alternative to current practices in the cement industry in other regions of Lebanon.

- Devising future visions to ensure they remain in the lives of all residents of the area, and rehabilitate their economic, social and environmental role.
- Finding sustainable and multi-disciplinary solutions to mitigate the environmental, health and economic damages resulting from the cement sector.
- Supporting the efforts of the local community and the existing movement.
- Sensitizing officials and governmental authorities to the potentials of alternative development and promoting comprehensive solutions which put the environment, social justice and equitable development at the forefront of public policies.

Strategy//

Accelerating circular growth//

Circular Economy will be an engine for the quarry transformation.

To develop new urban solutions where resources and materials are designed for disassembly and embedded in closed loops making it possible to regenerate and reuse them again and again.

To bring together companies and municipalities in the Region that are willing to take the lead and demonstrate how to shape our future circular cities.

To support building developers in the region to create solutions that promote an industry with closed material cycles and positive environmental impacts.

Enable pathfinder projects for inspiration and learning for the whole sector, here and abroad. The goal is to accelerate the circular transformation of cities, enabling them to become re-producers of resources rather than producers of waste. The ambition is to shape the future of quarries as sustainable centers for rich and healthy lifestyles.



1. Assemble

To assemble the construction sector around circular building and urban development projects. To identify barriers and opportunities that must be addressed to accelerate circular construction. To distribute responsibilities to ensure that the right skills and solutions come into play. To integrate companies through collaboration and thus create new opportunities for growth.

2. Innovate

To help businesses and builders develop and integrate circular processes. To establish value chain collaborations to deliver circular building solutions. To develop new circular business models for the construction sector. To offer introductory courses to businesses wishing to transition to circular construction. To provide financial support for the development of solutions and projects.

3. Initiate and Scale

To propose circular solutions for construction projects in the Region. To match circular solutions with building and urban development projects throughout the region.



Built Environment Trends// Digitalization: BIM, Big Data, and IoT:

Building Information Modeling (BIM) drives a convergence in the building value chain, increasing transparency and the potential for collaboration around new business models for circular construction, operations and reuse. Big Data and IoT hold the potential to improve circular decision-making in design and construction, for example through BIM integrated Life Cycle Assessment (LCA) tools and material passports, or using real-time data to optimize building operations or reduce waste during construction.

Modular fabrication and construction:

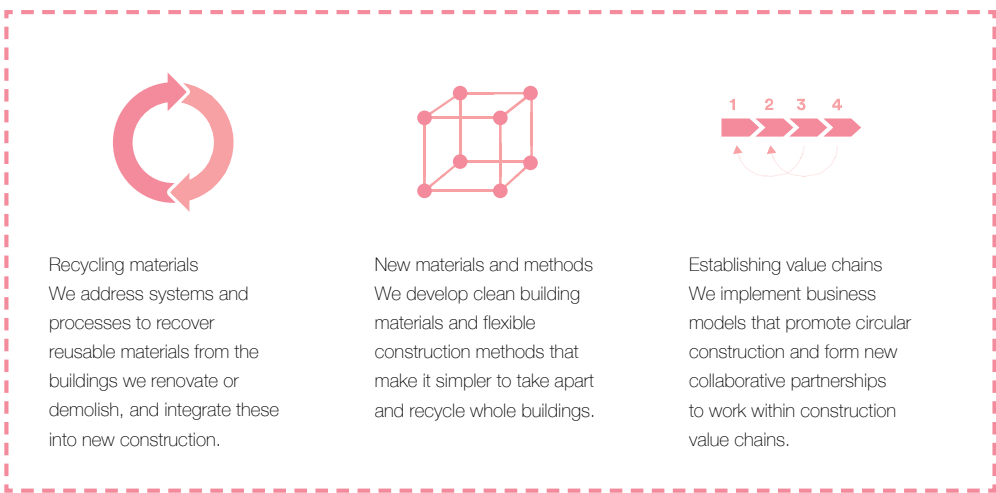
Modular fabrication of larger building elements off-site greatly enhances the possibility for circular construction. Modular buildings are increasingly envisioned as adjustable structures that can be adapted to changing needs throughout their lifetimes. Adaptation is essential for keeping resource intensive buildings in circulation for longer, while modular reuse can allow building elements, even whole rooms, to gain a second life as parts of new structures.

New models for collaboration:

New models for collaboration will affect the business of all members of the construction value chain. Companies will look to new ways of organizing projects which enable improvements from the earliest stages of the design process. Defining new models for cooperation throughout design, procurement, construction and operations can enable circular solutions through cheaper and better project delivery, up-scaling design for disassembly, and enabling recycling of building materials at a higher value during both construction and demolition.

The Public Sector can Accelerate the Transition//

Policy makers have an important role to play in the transition to circular economy. The public sector is uniquely placed to take the long-term perspective required for setting ambitious goals and driving positive change.



• Diagram -3

This diagram represents the circular development as a strategy for a healthy transformation of existing situation in the region. It shows the road-map of material transformation throughout development and rehabilitation.

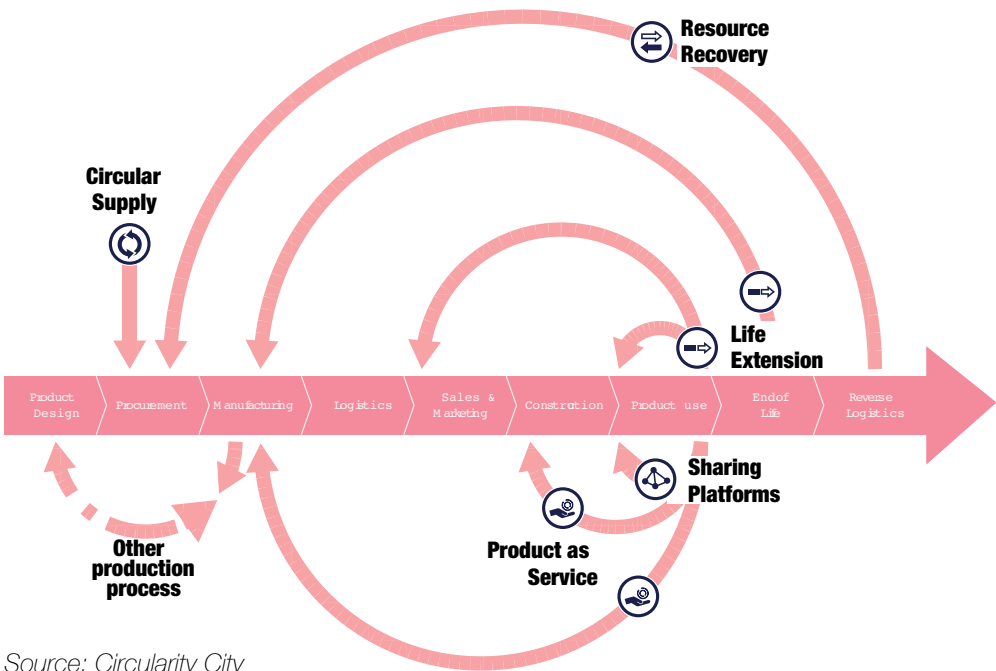
5 Circular Business Models//

Circular business models are a key to the transformation from a linear to a circular economy in the construction sector, and must work alongside design strategies, governance, and regulations for the transition to be a success.

Circular business models generate new ways to develop and grow a business while improving planning, creating savings, and leading to responsible material choices. The business models are based on a comprehensive life-cycle approach and seek to forge new productive partnerships in the construction value chain. One way to implement the model, is to create consortiums, which include designers, suppliers, service providers, contractors, and demolition companies, who all need to work closely together to forge robust business partnerships.

The 5 Business Models Are:

- 1. Circular Supply**
Replace virgin raw materials with materials that are renewable or bio-degradable.
- 2. Resource Recovery**
Recover discarded products or by-products to recycle or upcycle the materials.
- 3. Life Extension**
Extend the life cycle of a product, or parts of a product, while preserving the original function.
- 4. Sharing Platforms**
Increase the use of a product through new models for sharing, accessibility, and ownership.
- 5. Product as Service**
Optimise productivity of a resource or product while maintaining ownership of the product.



Source: Circularity City

Strategy//

Circular Design Strategies//

Circular design strategies are key to the transition from a linear to a circular economy in the construction sector. Design for disassembly and life-cycle design across urban scales is essential to building a truly circular urban environment and hold large potential gains for people, businesses, and environment.

Circular design can improve human well-being in the region

Circular design should not be seen as simply a collection of design strategies, but rather as a comprehensive philosophy for improving living standards, meeting social outcomes, and increasing human well-being in the whole region. Filtering materials and reducing waste will make circular designed buildings and neighborhoods cleaner and healthier. Designing for disassembly will introduce a new kind of flexibility to the built environment, allowing it to adapt to the changing needs of residents. New value chains and business opportunities will also support localized growth and employment.

Circular design can reduce our environmental footprint

Circular systems design can radically reduce the amount of waste generated by the built environment in the region and minimize the need for new materials. Making buildings and products easier to produce, maintain, and up-cycle, is a first step to easing demands for raw materials and alleviating resource scarcity in cities. If we create buildings that can truly be thought of as temporary collections of high value materials, the built environment will become a material bank, storing valuable resources for future generations. Urban areas in the region can then become engines for regeneration of the wider environment.

Circular Design Across Urban Scales//

Design for disassembly and life-cycle design across urban scales hold large potential gains for people, businesses, and environment.

Circular Design delivers value across urban scales

Our cities provide and unprecedented concentration of resources, capital, people, ideas and talent. This concentration enables economies of scale and critical mass

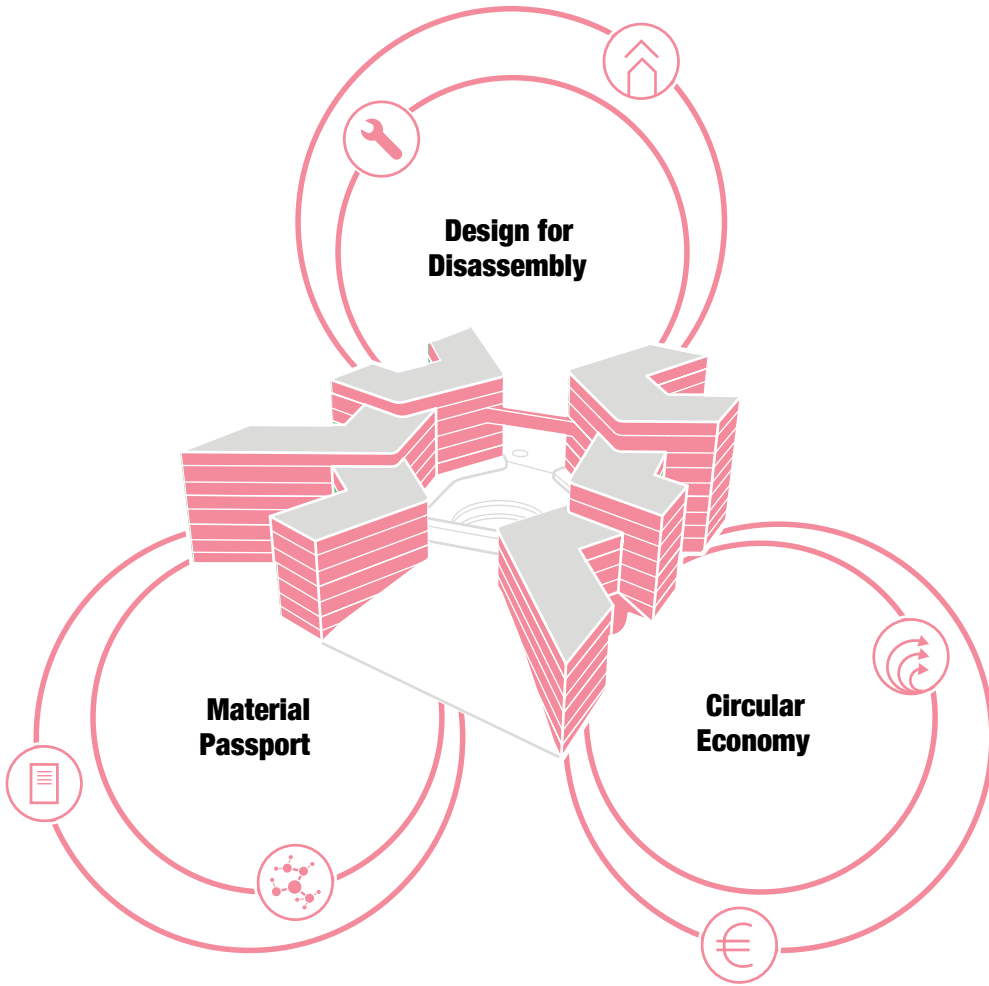
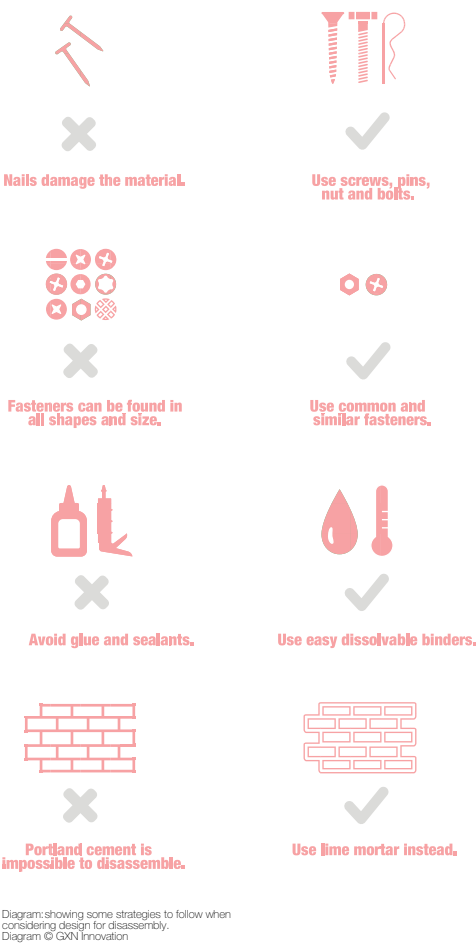
for material loops across urban functions. It can be the basis of a new form of green and social urban development through resource sharing, up cycling and localizing links between producers and users. The region has the necessary scale to enable new markets and new collaborative business models. Circular economy has been steadily developing in the region, which holds a large and varied supply of both products and producers for the built environment and beyond. Regional development and urban transformation should drive the demand for goods and services that enhance the circular economy within the region.

Design for Disassembly//

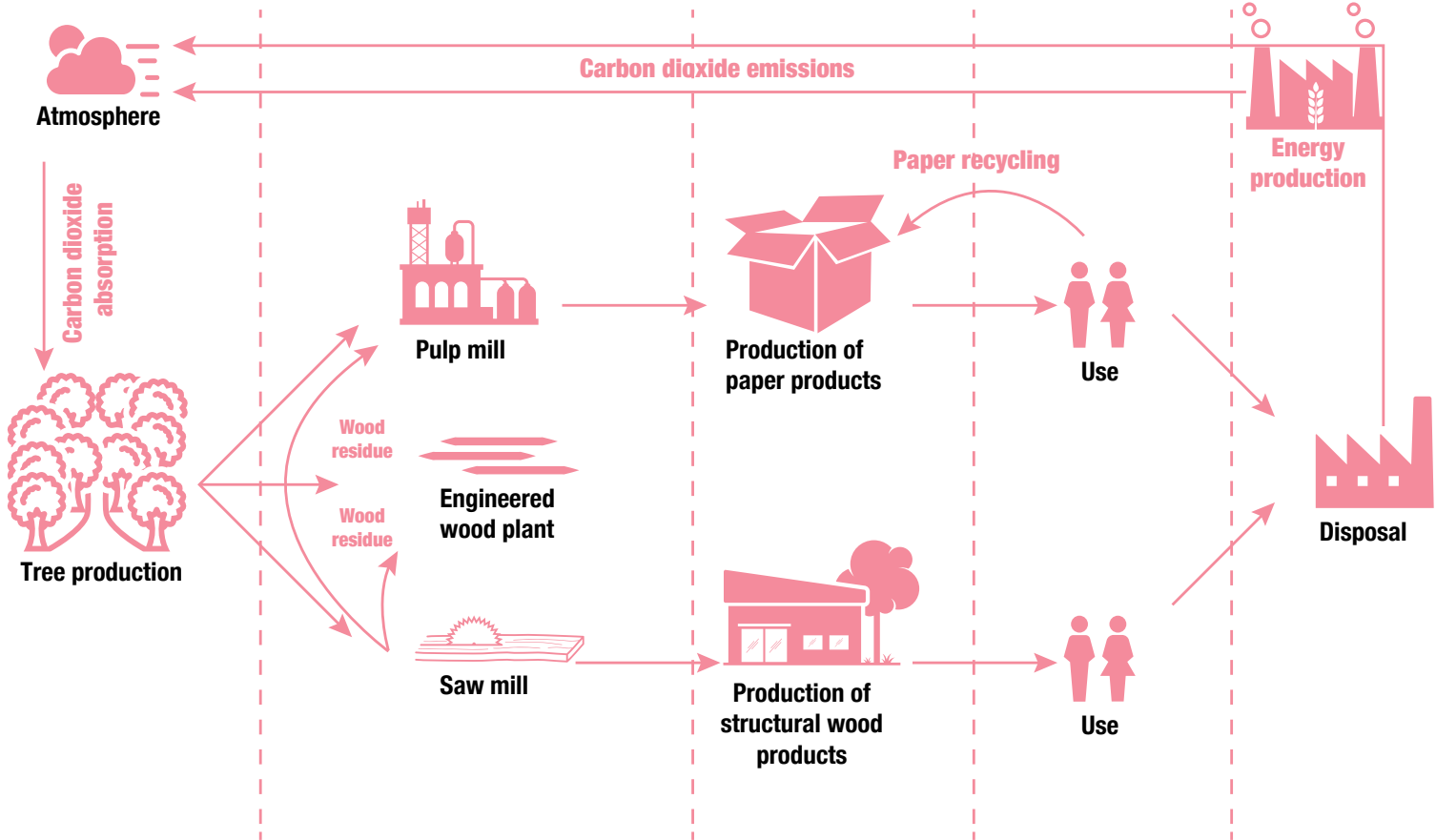
Design for Disassembly is a cornerstone of the circular economy. It allows resources to fit into looping material cycles, where they can be reused, reassembled, and recycled at similar or higher value. In the built environment, this requires a strategic approach to building components during design phases, consideration of the differing life-cycles of construction elements, as well as careful thought about what will happen to elements at the end of their life.

There are a lot of different ways to enable easy disassembly of products irrespective of scale. The key point is that all connections between components must be reversible, without causing damage to the parts. This means

that screws, splits, and nuts and bolts are favored over nails, and that binders, such as glue, should be avoided. To allow for easier deconstruction, connections must be easy to access and preferably visible. Designing for disassembly in this way increases the possibilities for effective reuse of building components and materials, as well as the possibilities for integrating reused elements from former buildings or other industries in construction projects. Collaboration across the full construction value chain is the key to success, the complexity and different scales and life-cycles in the built environment require systemic solutions involving many products and partners.



Generic Supply Chain and Related Environmental & Social Impacts



Since the scale of the site is large, there is a need to create an urban vision with guidance prototypes or a manual which could be implemented on phases in the site based on forestation processes and rejuvenation of the quarry.

The guides are based on vernacular and local expertise in terrain correction, and addresses all the features regarding the quarries gradual closing in time/space phases reaching to a new circular micro climates that are based on resilient building material production.

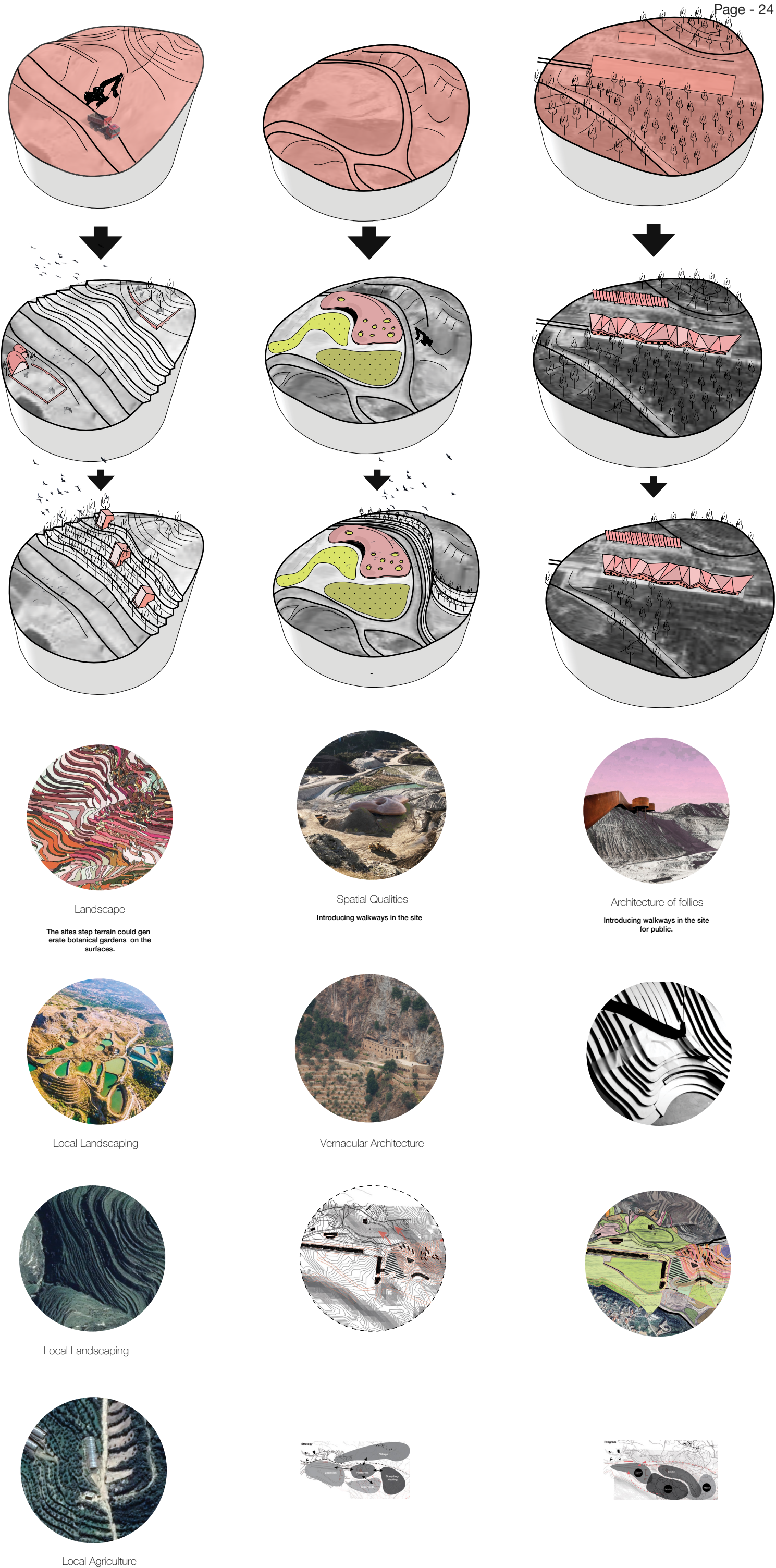
IMPLEMENT

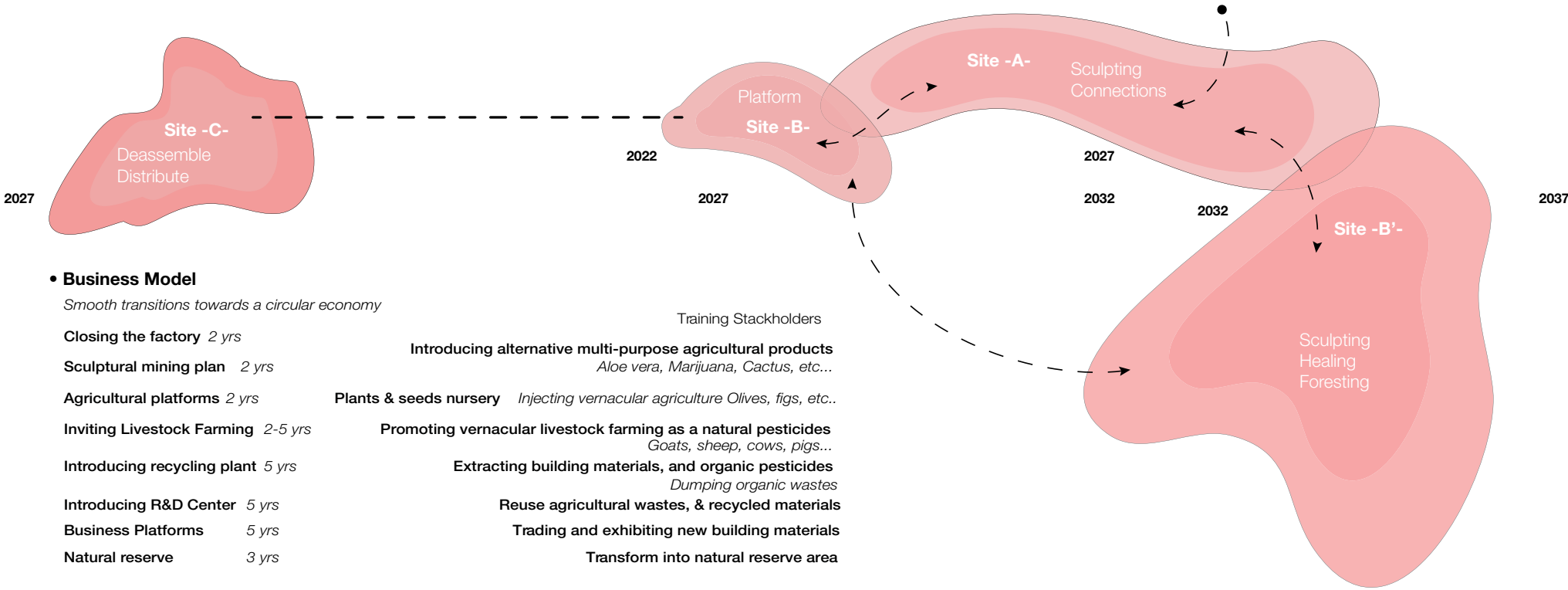
Summery//

The design was derived from quantitative and qualitative research on the quarry and its surrounding, and the negative impact it had produced. The urgency to close an illegal fully function quarry and cement factory that has been polluting for around 90 years.

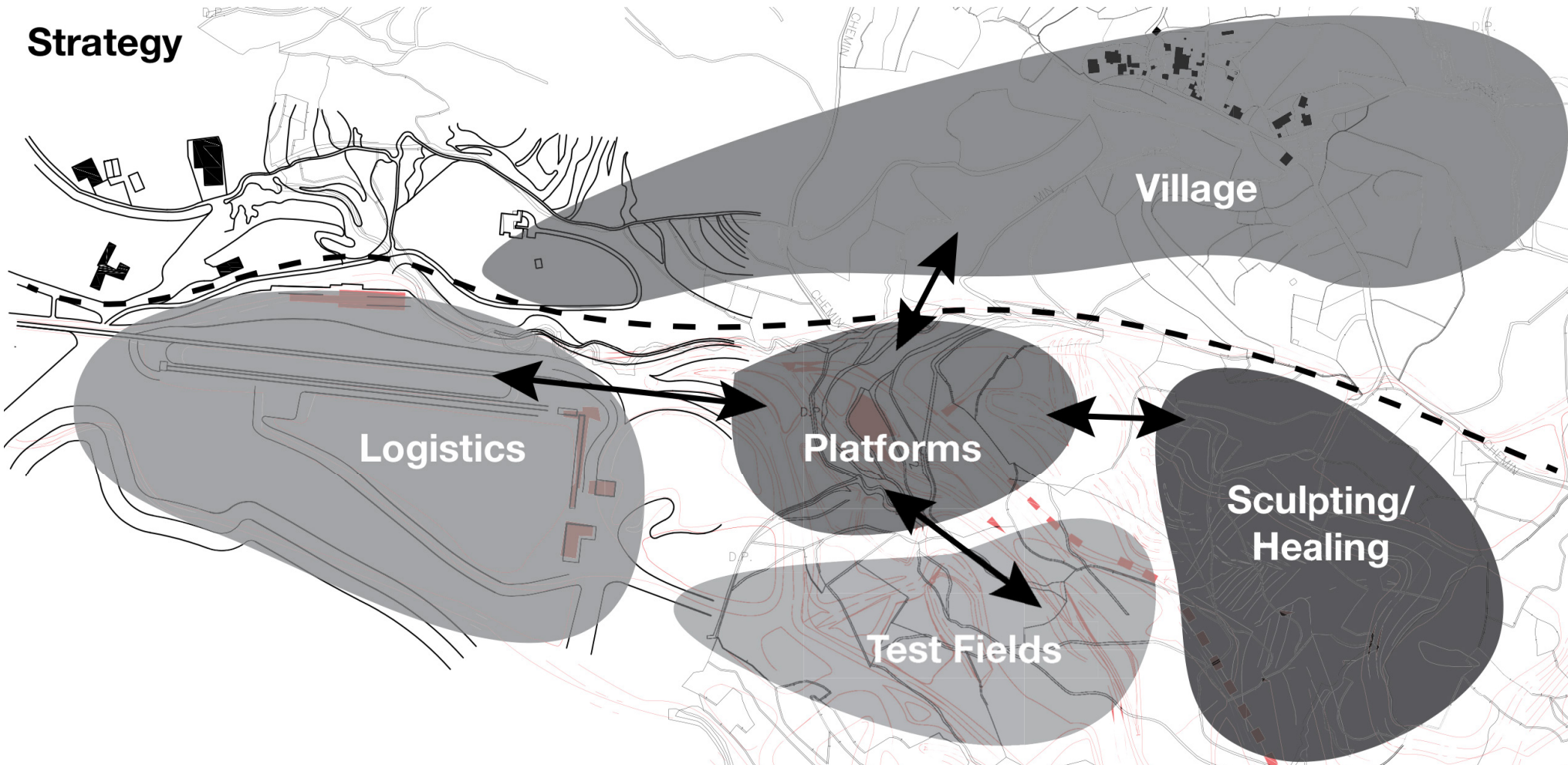
A strategy was superimposed to gradually close the factory and the mine during time/space intervals. This procedure will ensure to absorb the shock which will affect the mining business industry and its parasites to reach a healed environment and revitalize old abandon agriculture and at the same time introduce wood as a new building material which would be part of a national plan to close all building industry-related mines and substitute it by forests.

The phases start within two years during the closing process of the mine, while maintaining the production and mine by sculpting steep terrains to create terraces for plantation. The terracing technique has been used since history in mountainous terrains. During the sculpting phase, trees should be grown on-site to plant them after terracing the topography, while new functions start to enter the site which is compatible with agricultural and horticulture to heal the soil. In the end, the site will create its micro-climate in both dimensions, economical and environmental. That process needs architectural elements to back up the whole forestation cycle. These elements should be well arranged in the site connected and complementary. Some are essential for logistical prepuces while others are just platforms which create a hub for start-ups business and entrepreneurs.

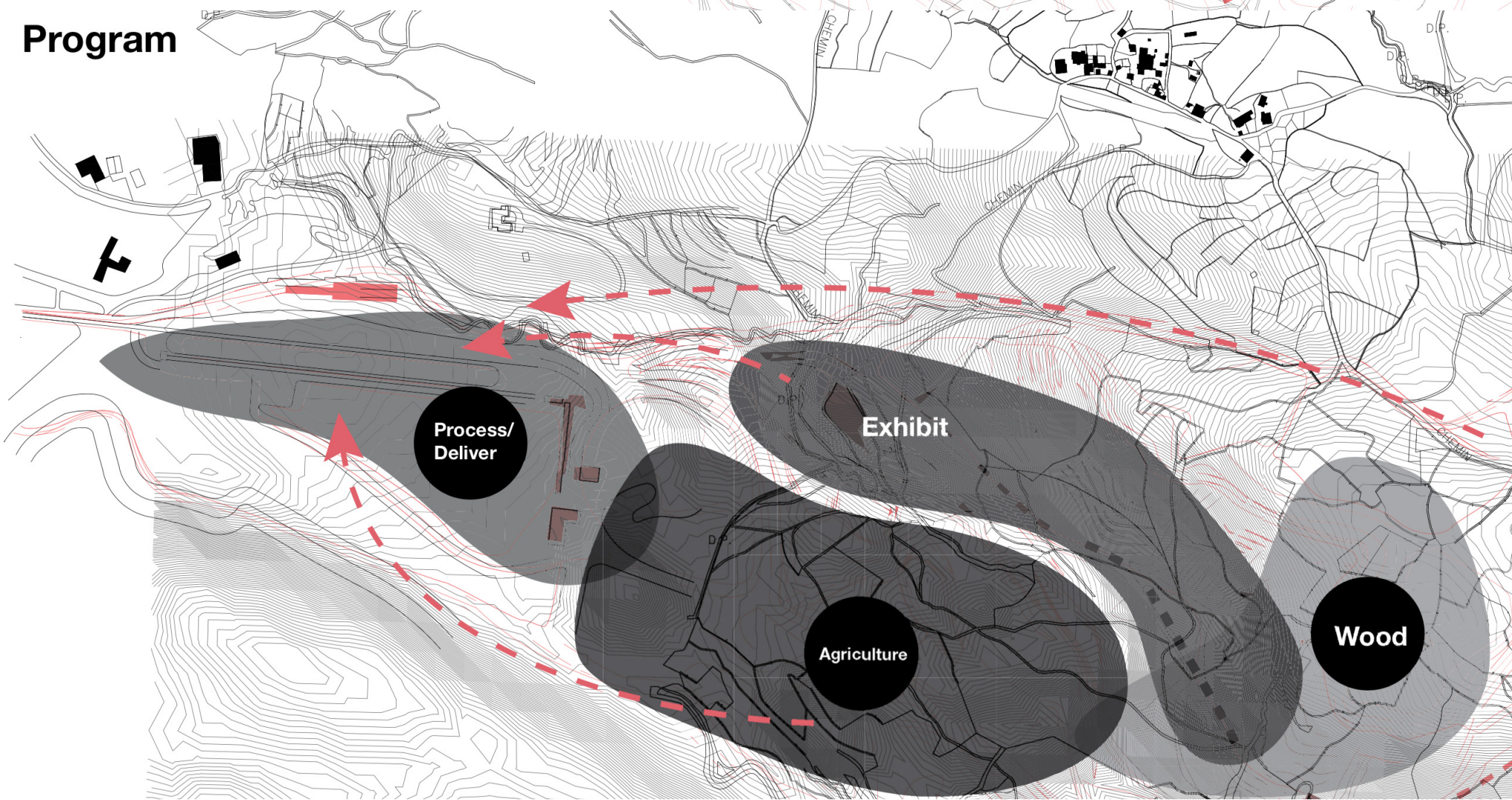


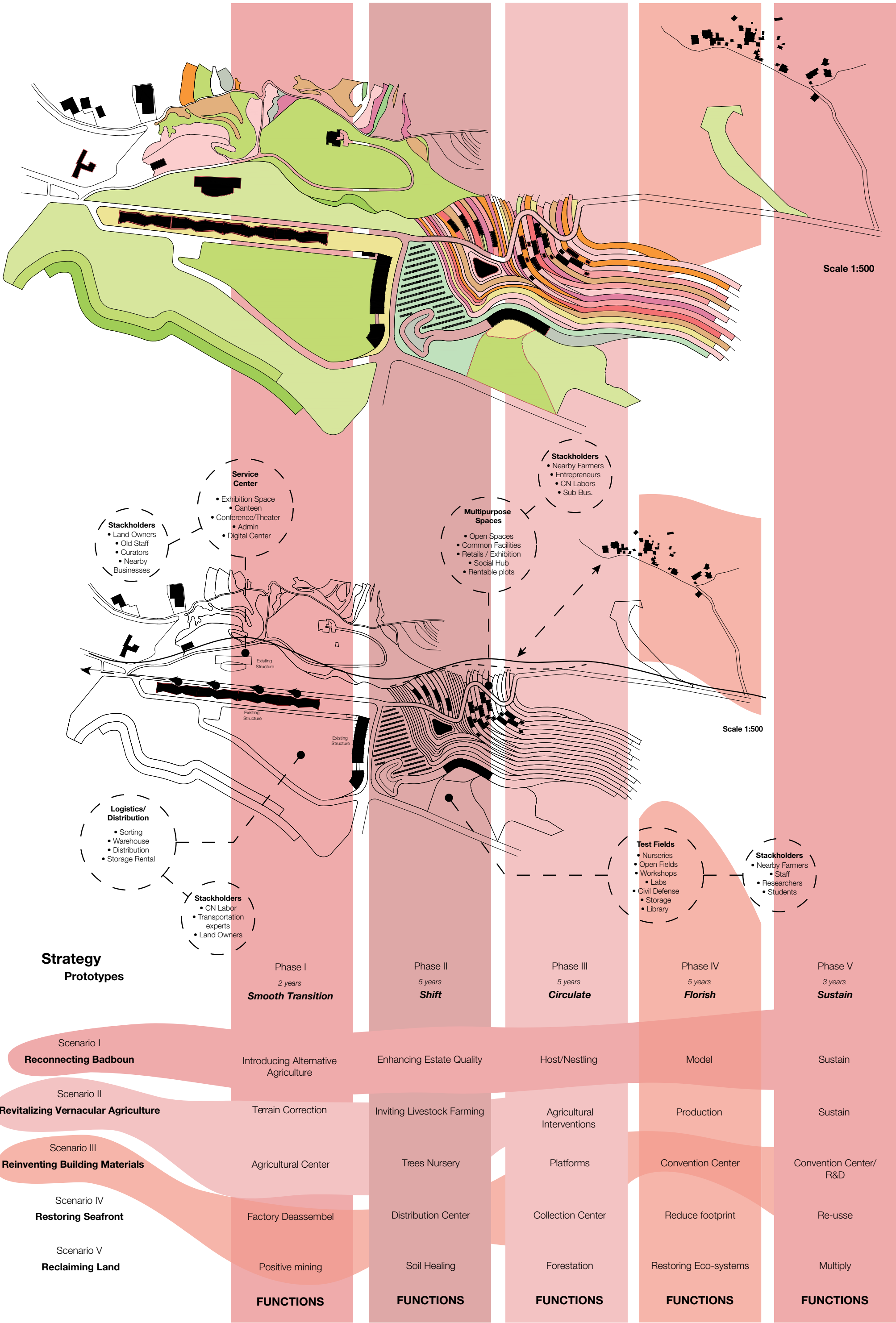


Strategy



Program





Landscaping//



Pinus albicaulis



Ocaliptus



Coniferous
Resinous trees



Oleo Vera



Olive tree



Cactus



Pomgrenade



Fig



Citrus



Palm tree



Roman Wheat



Lavender



Thyme

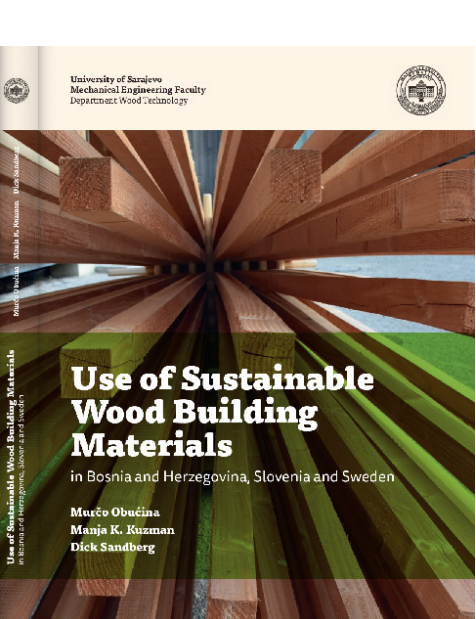
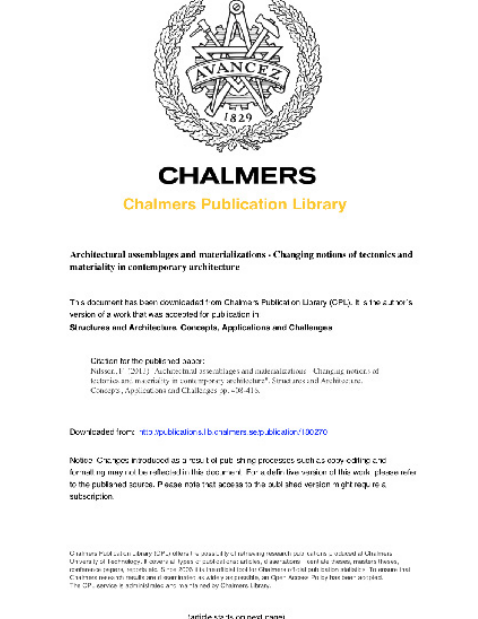
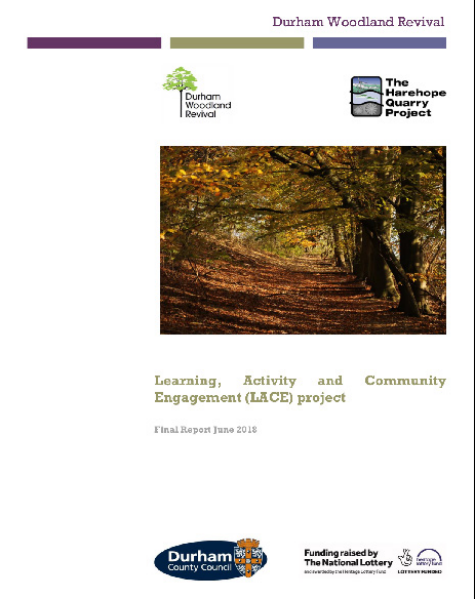
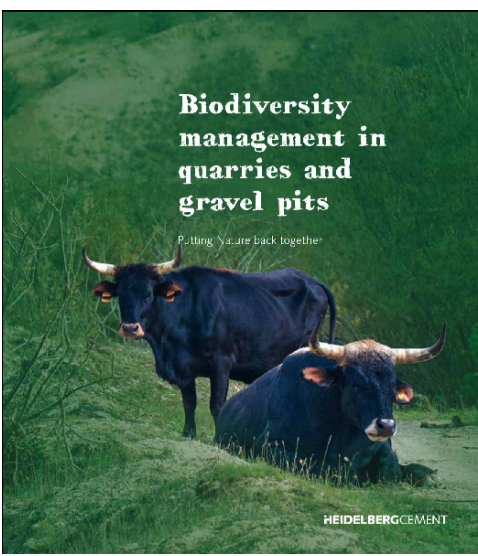
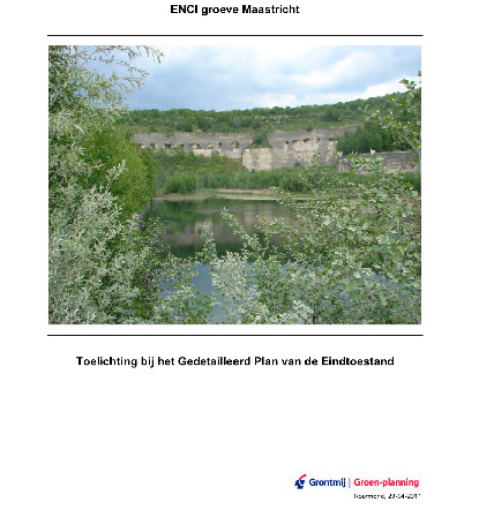
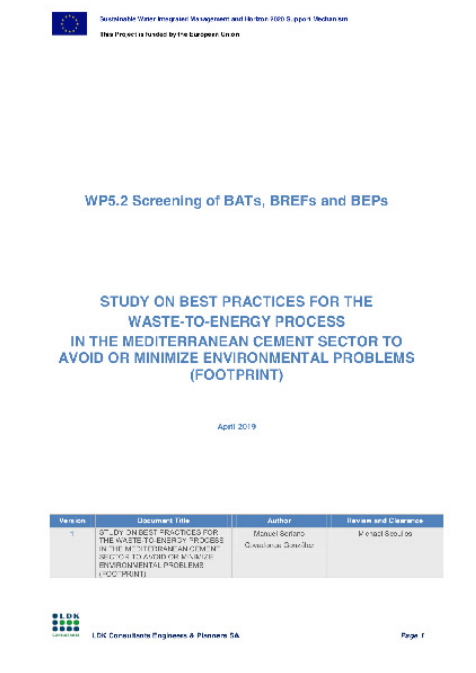
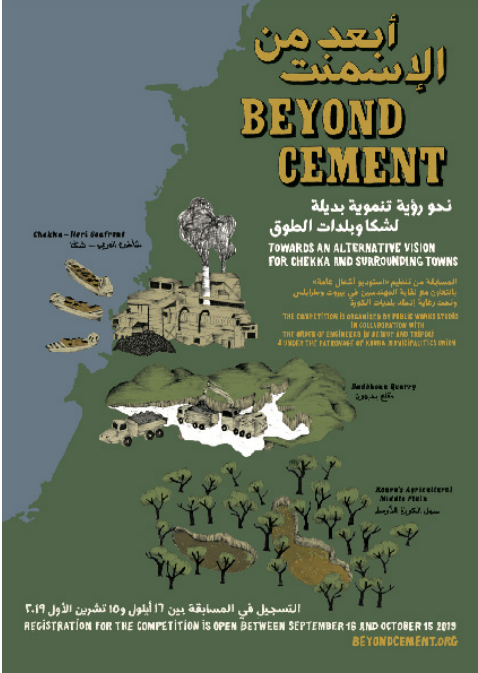
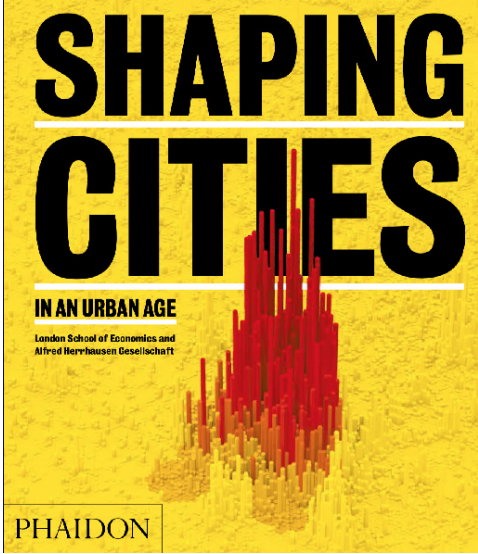
Landscape design is derived from production plants that are essential for healing a and the generation of alternative building materials. The site could be transformed into an open-air museum for vernacular vegetations which enhance the connection between people, agriculture and space.

The selection of plantations plays a huge role in the design work-frame, and the circular economy in the site, which in return will create micro-climates for experiences, for development and production.

Literal architectural superimposition on the site//



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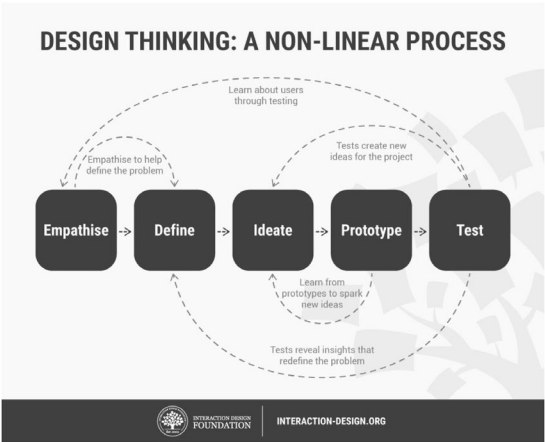
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How could materials and its technology help in producing a sustainable collaborative social system through architecture?



Starting Point, anchoring the process #1

SHAPING CITIES
IN AN URBAN AGE
London school of economics

GLOBAL
REGIONAL
LOCAL

Mega-trends:
Globalization, Digitalization,
Urbanization

New technologies are revolutionizing the way we move and interact.
World population became urban more than rural. 80% world population will be urbanized in 2050
Increase birth rates vs increase in life span
Global economy and climatic change
Re-densifying city centers and end of suburbs, new urban age a catalyst for change.

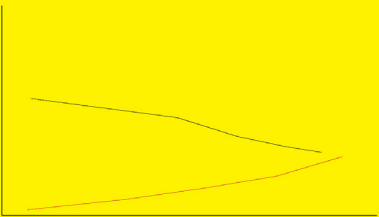
Forecast the future because we are creating architecture to sustain.

Challenges:

- Climatic
- Massive Migration
- Massive Urbanization
- Social/Economical/Political
- Aging Population
- 4th industrial revolution an exponential automation

Changes:

- Energy
- Food Scarcity
- Vulnerability
- Tension
- Cultural
- Vulnerability
- Human Resources
- Detachment
- Unemployment



The Great displacement

AI + Automation = Inequality

Its time to start learning and adapting.

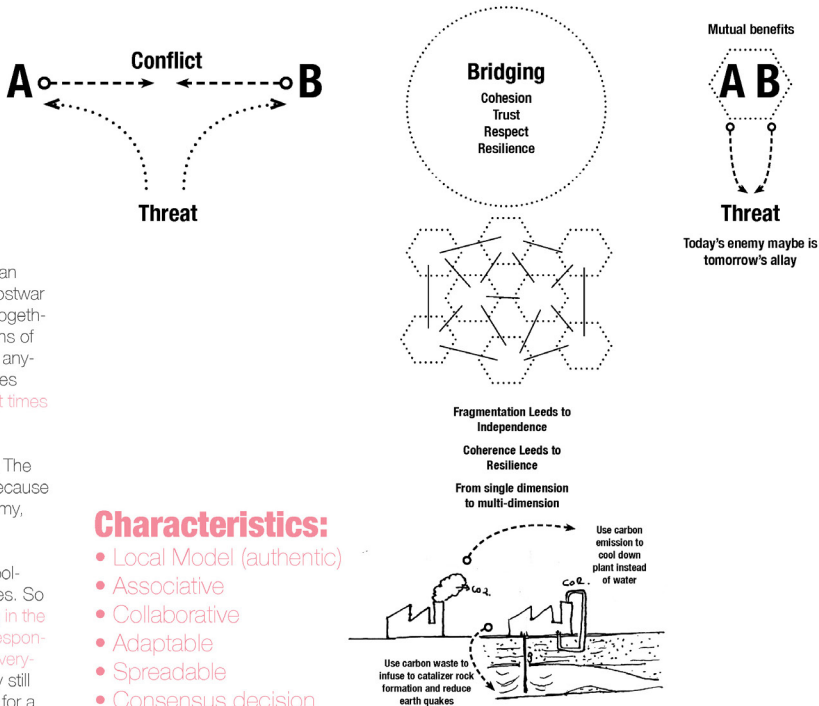
What we are going to do with people who are going to be replaced?
What will happen to capitalism when scarcity is not a problem?

-Poldersocialisme-

An Alternative Mindset?
A new social contract.
A resilient architecture.

- One explanation points to the rebuilding of the Netherlands after World War II. **Corporatism** was an important feature of Christian Democratic, and particularly Catholic, political thought. During the postwar period, the Catholic, Protestant, Christian, social-democratic, and liberal parties decided to work together to reconstruct the Netherlands, as did unions and employers' organizations. Important institutions of the polder model, like the SER, were founded in this period. No single political party has ever had anything approaching an overall majority in parliament, so coalition government is inevitable. This makes parties extremely cautious, since *today's enemy may be tomorrow's ally*, all the more so in present times when the "death of ideology" has made it possible for almost all the parties to work together.
- Another explanation points to the dependency of the Netherlands on the international economy. The Dutch cannot afford protectionism against the unpredictable tides of the international economy, because the Netherlands is not an autarkic economy. Therefore, to cushion against the international economy, they set up a tri-partite council which oversaw an extensive welfare state.
- A third explanation refers to a unique aspect of the Netherlands, that it consists in large part of polders, land reclaimed from the sea, which requires constant pumping and maintenance of the dykes. So ever since the Middle Ages, when the process of land reclamation began, *different societies living in the same polder have been forced to cooperate because without unanimous agreement on shared responsibility for maintenance of the dykes and pumping stations, the polders would have flooded and everyone would have suffered*. Crucially, even when different cities in the same polder were at war, they still had to cooperate in this respect. This is thought to have taught the Dutch to set aside differences for a greater purpose.

How to transform a problem into solution?
How to benefit from a challenge?



Characteristics:

- Local Model (authentic)
- Associative
- Collaborative
- Adaptable
- Spreadable
- Consensus decision

We are facing a new industrial revolution accompanied with many challenges on approximately all levels.

What model could we learn from to encounter the threat?

How can architecture survive and help in sustaining the balance in human nature?

Spirituality in architecture is disappearing, architecture is becoming more standardized.

What are the typologies that could preserve the connection between people and space?

The relationship between space, place, and people is trapped in an inward loop.

How can architecture offers an antidote to be immunized from dystopia?

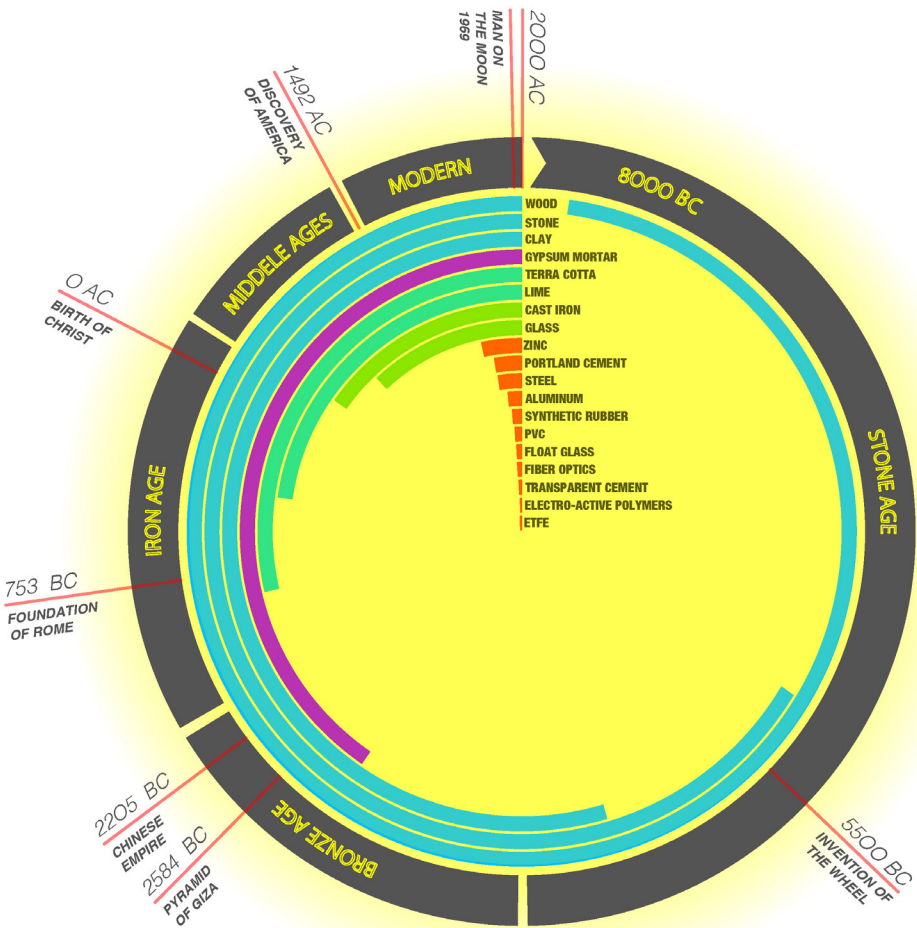


Contingency & Architecture

How can we integrate material research to be part in creating resilient architecture?

Intro to Materials & Architecture

Materials in architecture has occupied a major role in the human development and evolution. Its impacts are multidimensional and occurred on many levels.



Expected 12000 years BC

Gobekli Tepe - Turkey



Why materials?

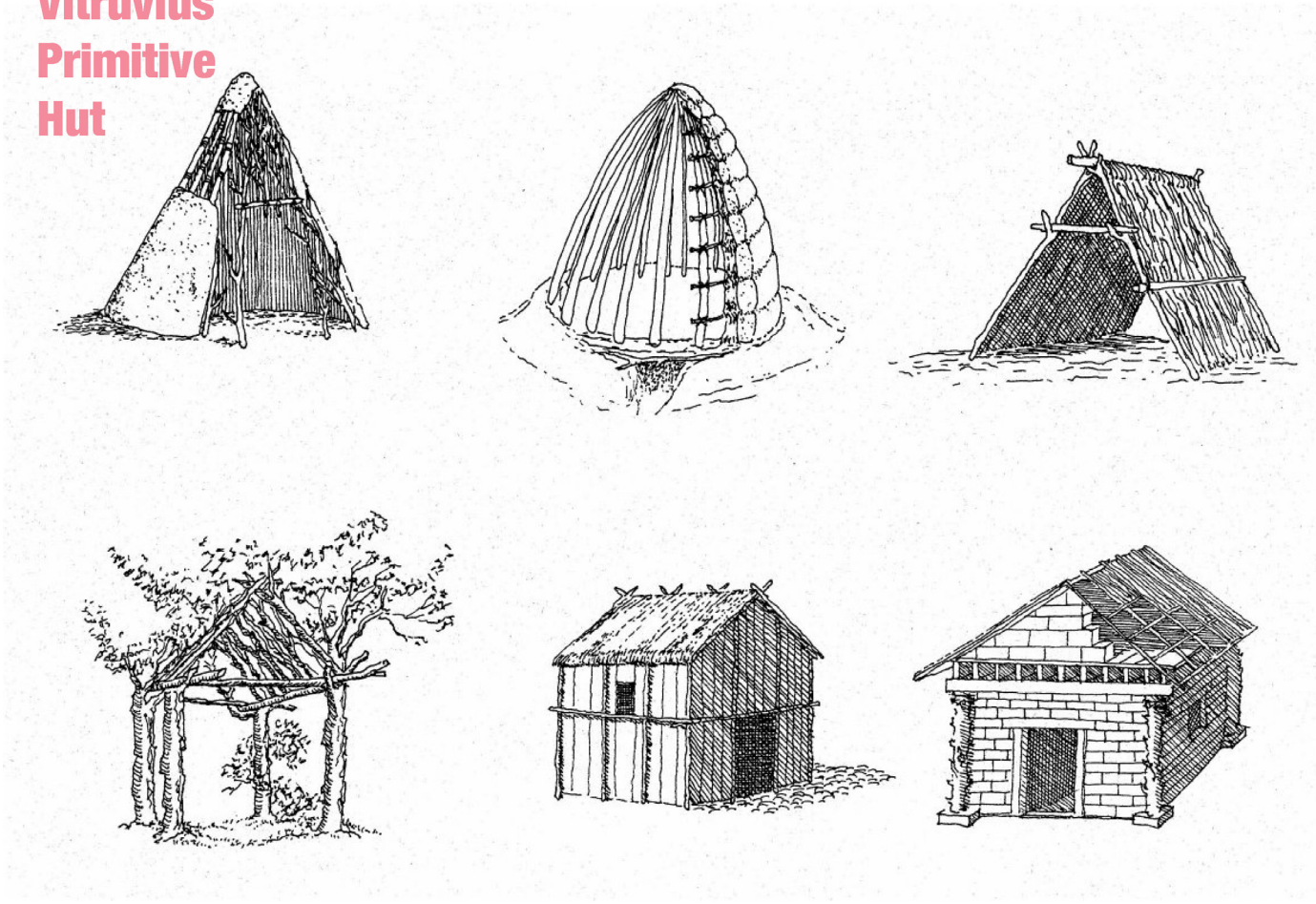
Pantheon - Rome
The mix of sustainable
cement and stone.
The Roman cement mix remains
a mystery.

- 1- Historical Value
- 2- Geographical Presence
- 3- Usage & Technology
- 4- Quality and behavior
- 5- Impact

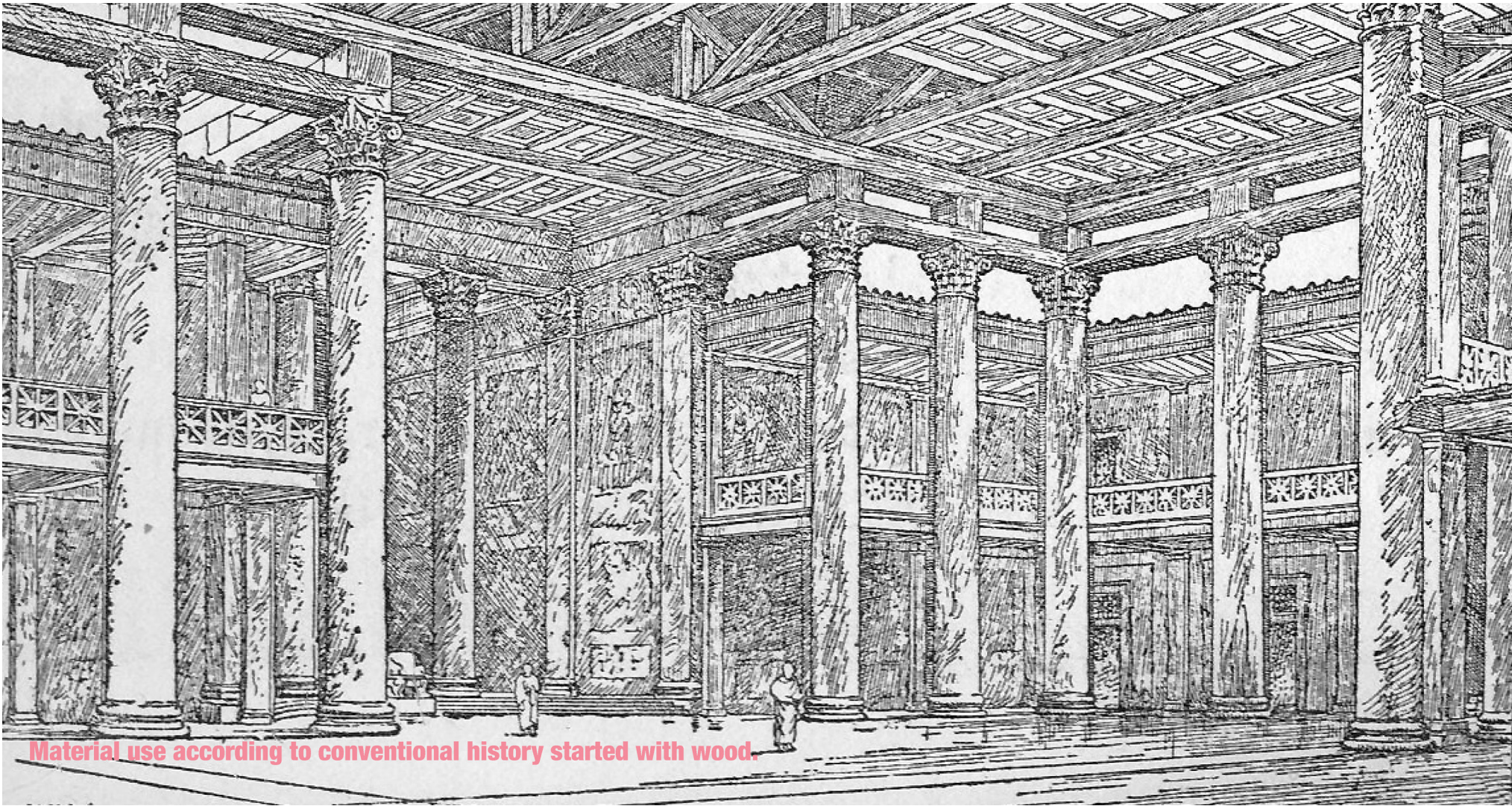
Materials helps us in identifying the architectural

- Chronology
- Morphology
- Geology
- Technology
- Typology

**Vitruvius
Primitive
Hut**



The need for a shelter



Material use according to conventional history started with wood.

**Society, Materials
& Architecture**

Live examples on social
architecture using vernacular
materials / resources.

**Yanomami Tribe in
the Amazons**



The Yanomami tribe villages are protected and uncontacted till recent. The usage of vernacular local materials for construction of a communal sharable village called the Shabonos. It is expandable, and the whole tribe share the space, and collaborate in maintaining, sustaining, and enlarging the space according to need.



**This is a good
example to learn
from.
Where sustain-
ability and social
coherence meets.**



**Uros on lake
Titicaca Peru**

**Another
example to
learn from
vernacular
architecture.
Where everything
is made for a
certain need.**

The Communal village of Uros give us a great example on the relation between building technology and communal work. The collaboration in the society via a micro-ecology system where straws are planted and harvested in the island and its used as main source for sustaining the floating village.



Jaques Derrida mentioned in his theory Deconstruction the Japanese wooden temple which has last for thousands of years standing without any transformation of its original architecture, yet every single piece of wood have been replaced by a new one over the years using the same old techniques. This is because of the material used and mastering of interlocking systems.

**And one final
Example from
Japan!**



Is the poldermodel /
poldersocialisme an
example?



**Biomimicry has
always accompanied
material technology
and social
structures.
It is the main
inspiration for
humanity.**

Stone as a material in architecture:

- Structural
- Recycable
- Finish
- Psychological presence
- Typology

Stratification of Architectural Layers



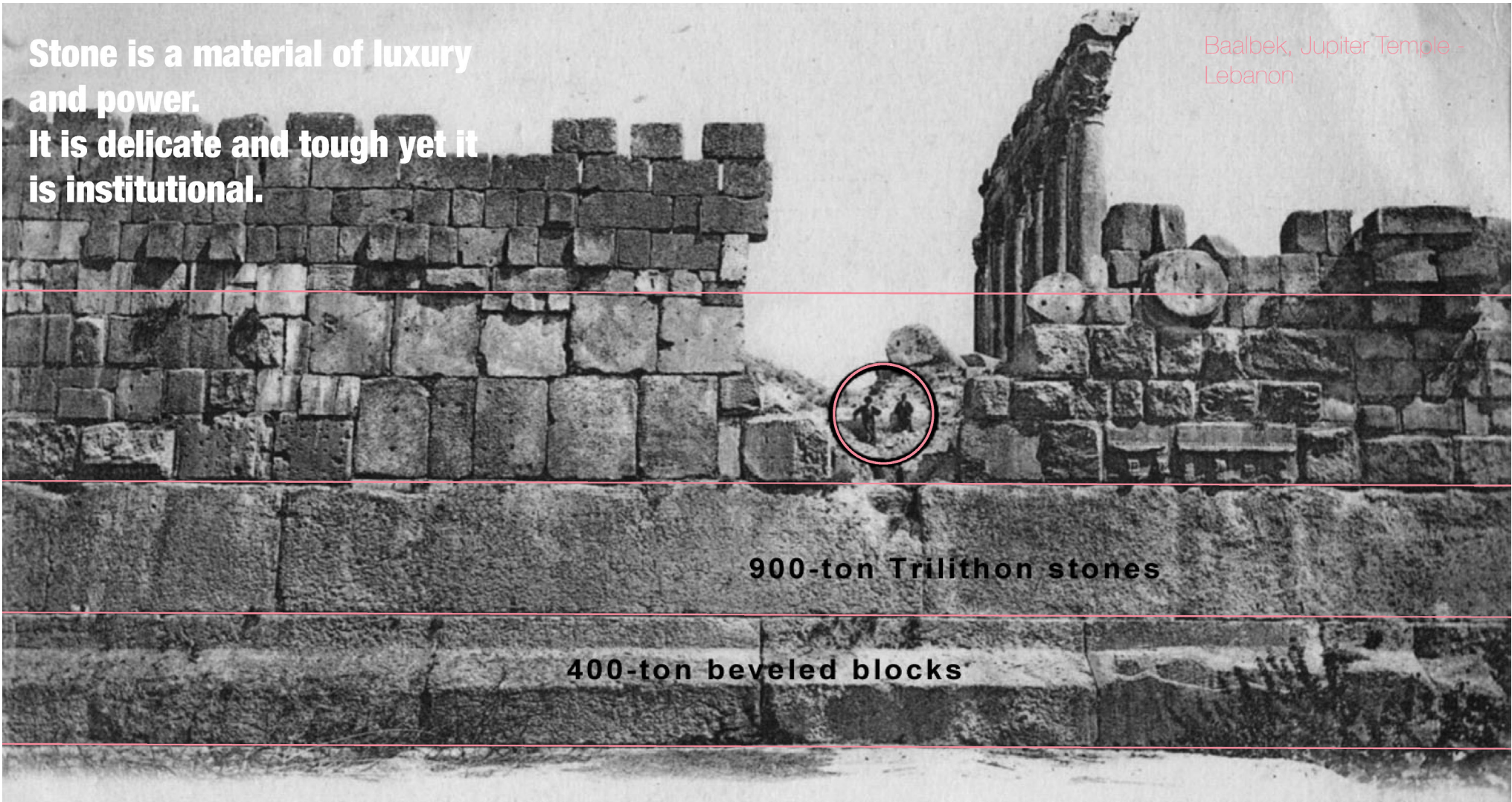
Stones never age.

Baalbek, The Pregnant stone
query - Lebanon



**Stone is a material of luxury
and power.
It is delicate and tough yet it
is institutional.**

Baalbek, Jupiter Temple -
Lebanon



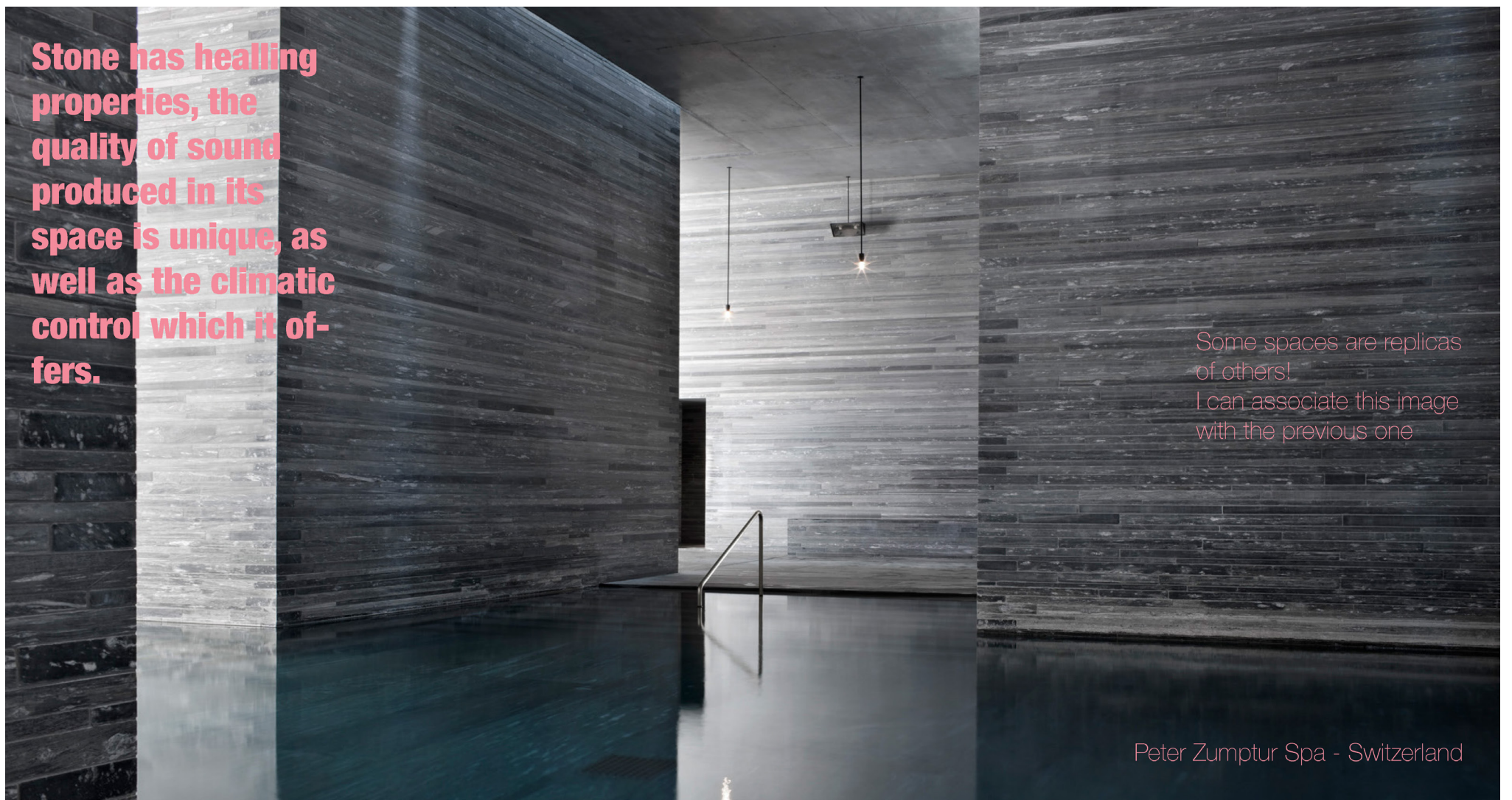
Materials helps us in identifying the architectural

- Chronology
- Morphology
- Geology
- Technology
- Typology

The feeling which stones gives is unique, beside of its visual impact. Stone work as a catalyst for sound reverberations and could emit energy based on its quality some stones are live and interact with it surrounding.

Sorpuim - Egypt





Stone has healing properties, the quality of sound produced in its space is unique, as well as the climatic control which it offers.

Some spaces are replicas of others!
I can associate this image with the previous one

Peter Zumptur Spa - Switzerland



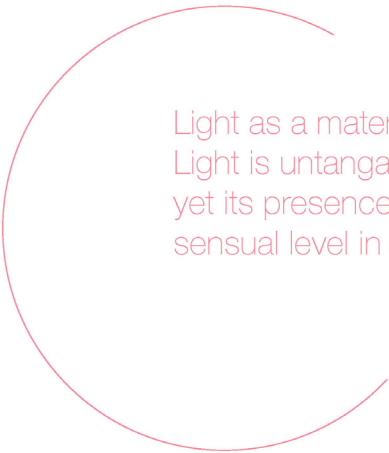
Clay:
What if a raw material has been transformed from when medium to another?

Technology in materials usage is a reflection on advancement between design and matter.



Gio Ponti





Light as a material:
Light is untangible as a construction material,
yet its presence in architecture reflects on the
sensual level in experiencing the space.





Miguel Angel Aragonés
Mexico City

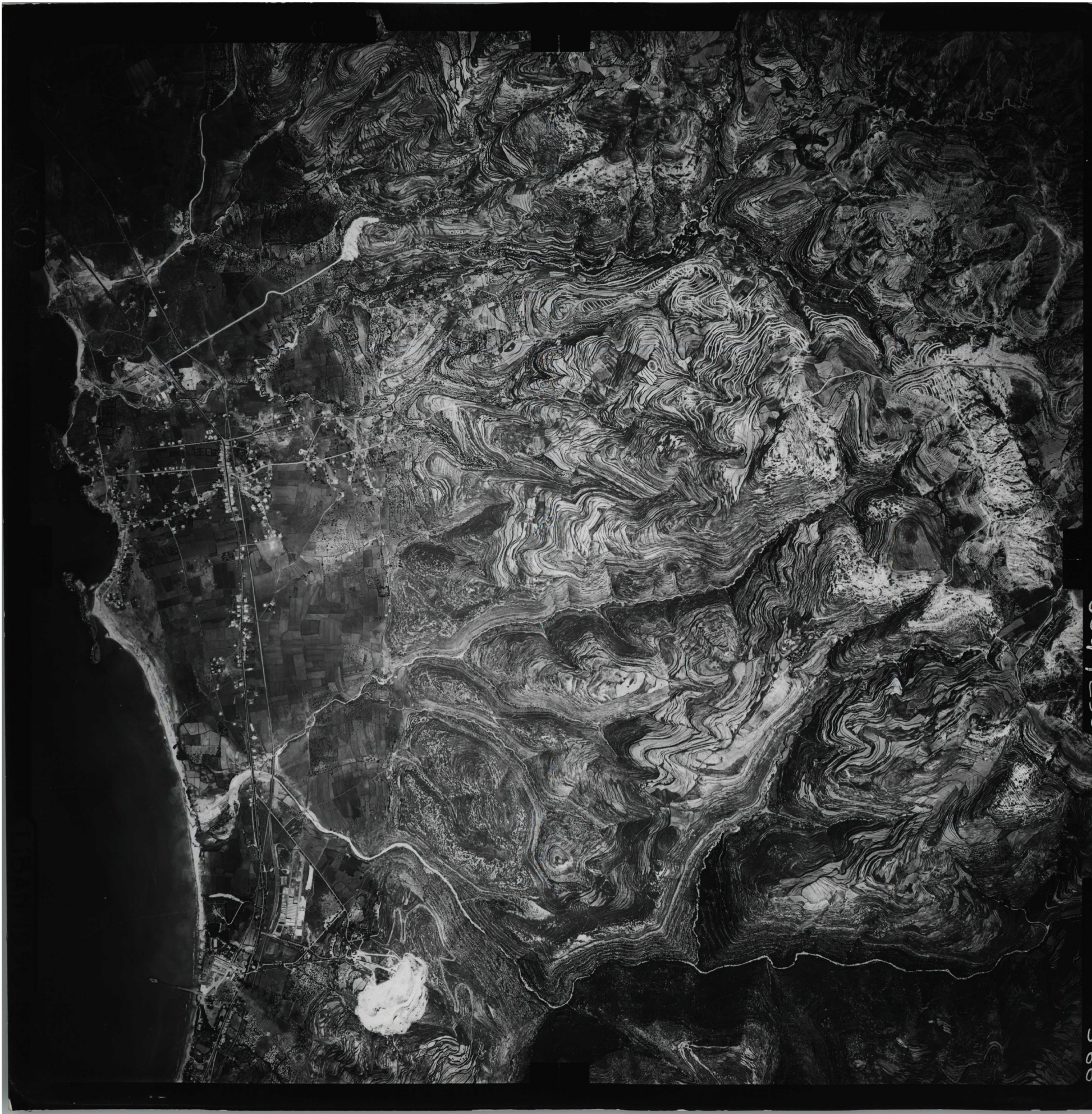


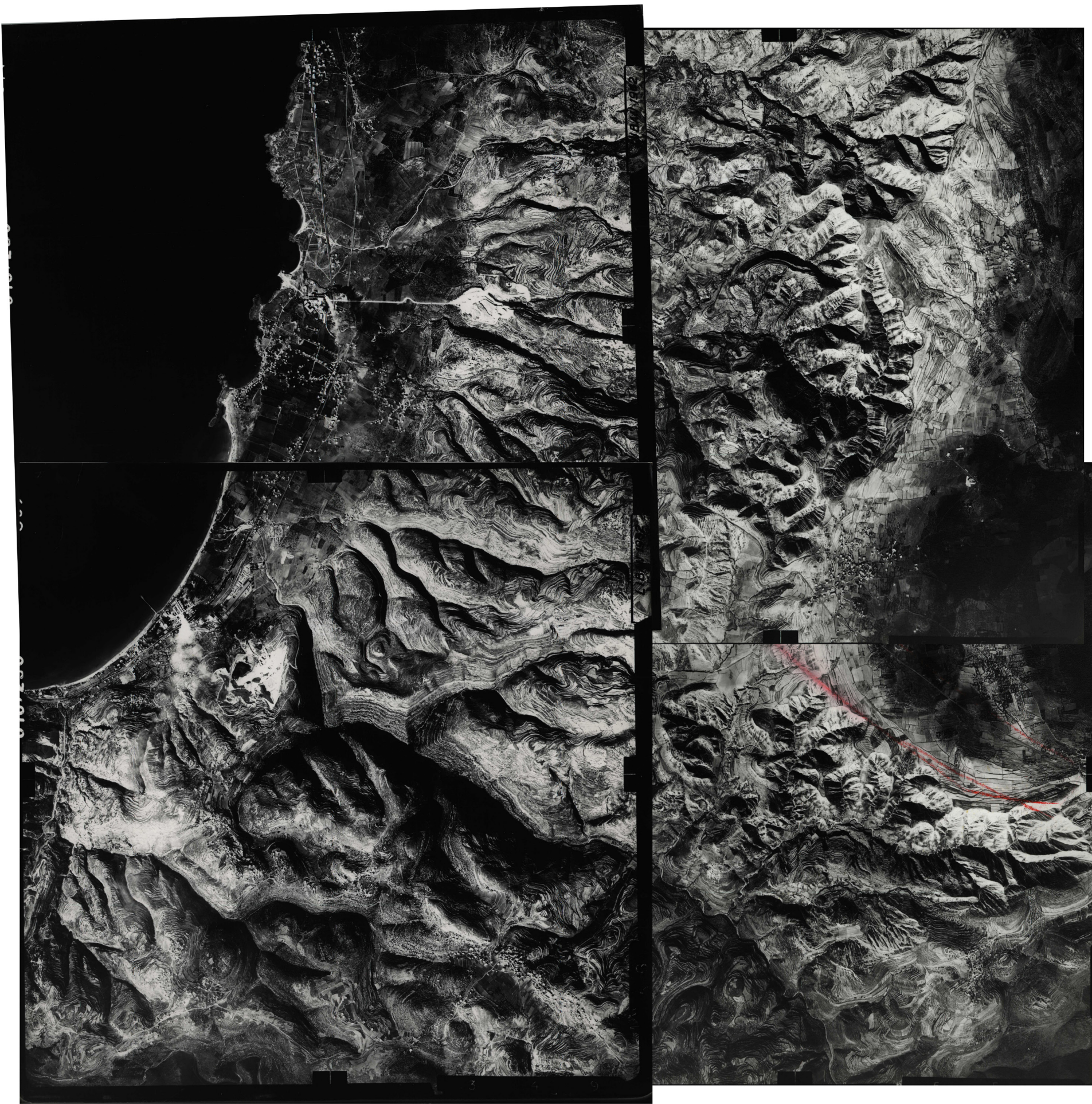
- Water is also part of materials. When it transformed from one medium into other it could have a constructive properties just like the Eglu in the north pool.
- Leather & Textiles
- Steel, concrete, & glass are modern materials.
- Grafine is the latest magic material.



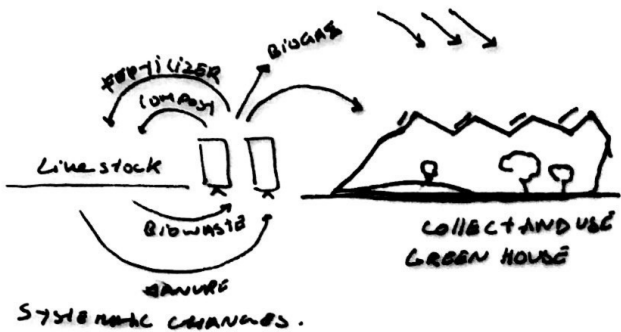


Findings and research #2





AGRO PARK. - HUB FOR AGRICULTURAL INNOVATION



- SOCIAL HALL
- ADMINISTRATIVE
- EDUCATION / R&D

AGRO

- CLASS ROOMS
- MEETING ROOMS
- WORKSHOPS / LABS
- KITCHEN / CANTEN
- SHOW ROOMS
- SHOPS / RETAIL
- TEST FIELDS
- EXHIBITION / MARKETING
- AUDITORIUM
- DISTRIBUTION
- STORAGE
- RECYCLING
- PROCESSING
- PLATFORMS

PARK

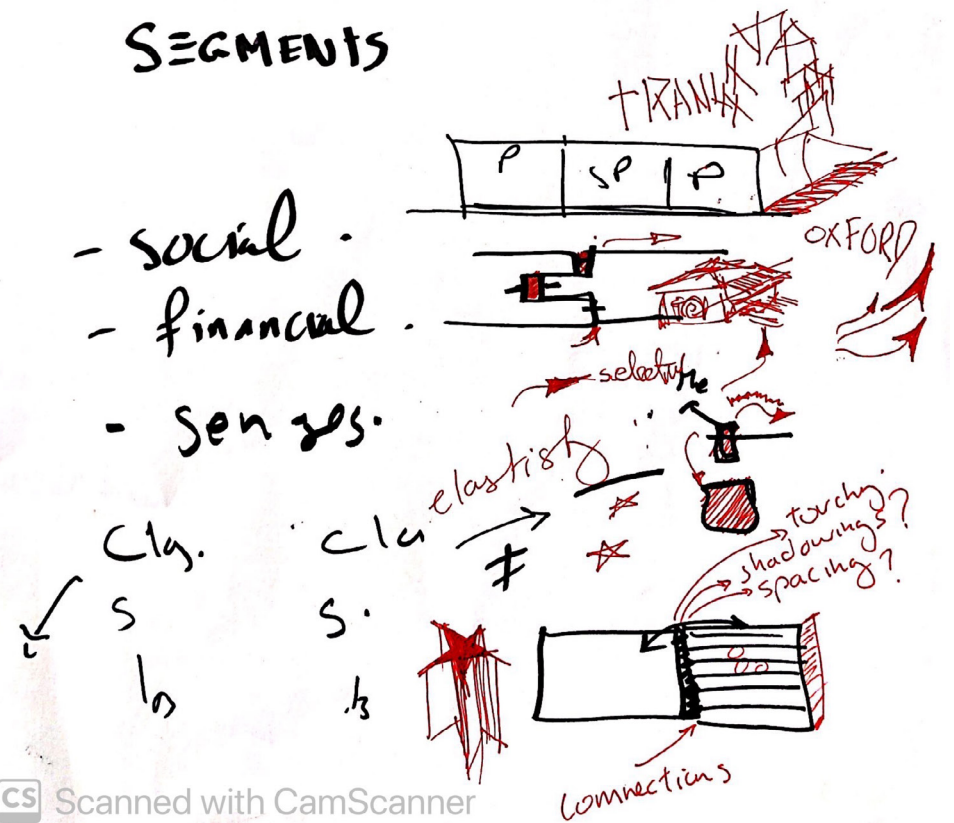
- HEART
- FLEXIBLE SPACES
- COVERED WALK
 - LONG STRAIGHT WALKWAY
 - CONVENTION PROMENAD.
- UN PROGRAMMED SPACES.
- POCKET GARDENS.
- ENERGY PARK / WATER
- OBSERVATORY.
- CONVEYOR BELT
 - BIKE LANE
 - GREEN LINE
 - CONNECTOR.

MATERIALIZATION:

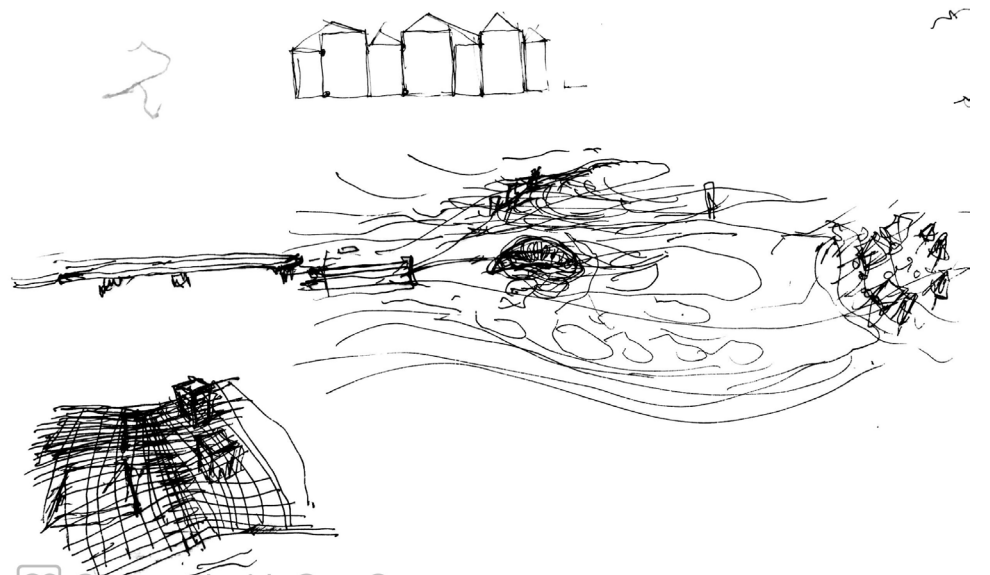
- + WOOD → STRUCTURE
- + LIMESTONE → PARTITIONING.
- + GLASS → GLAZING.
- + ALTERNATIVE → DETAILING.

SEGMENTS

- social.
- financial.
- senses.

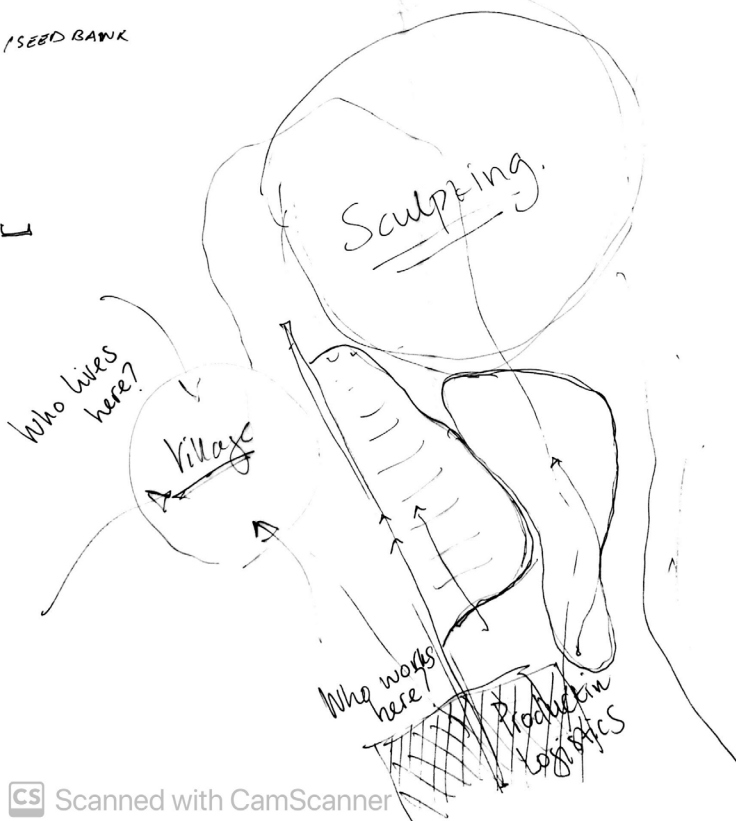


CS Scanned with CamScanner



CS Scanned with CamScanner

Brain storming #3



CS Scanned with CamScanner

PEOPLE

1929

TRANSFORMATIONS IN THE GREEN KOURA.

(100 years of TRANSFORMATION DISTURBANCE)

IF THE PEOPLE HAVE TO choose a time to stop
IT WOULD BE 1920's OF THE LAST CENTURY.

MEMORIES.

(OLIVES, FIGS, WINEGRAPES, BERRY,
Pomegranate,

- PRIDE of 2M OLIVE TREES.
- HIGH KNOWLEDGE LITERACY RATE (HIGHEST AMONG NATIONS)

OLIVE HAVE ~~HADE~~ HELPED PEOPLE STUDY ABROAD,
NUMBER OF ACADEMIC AND EDUCATIONAL INSTITUTES
IS HIGHER THAN THE NUMBER OF VILLAGES.

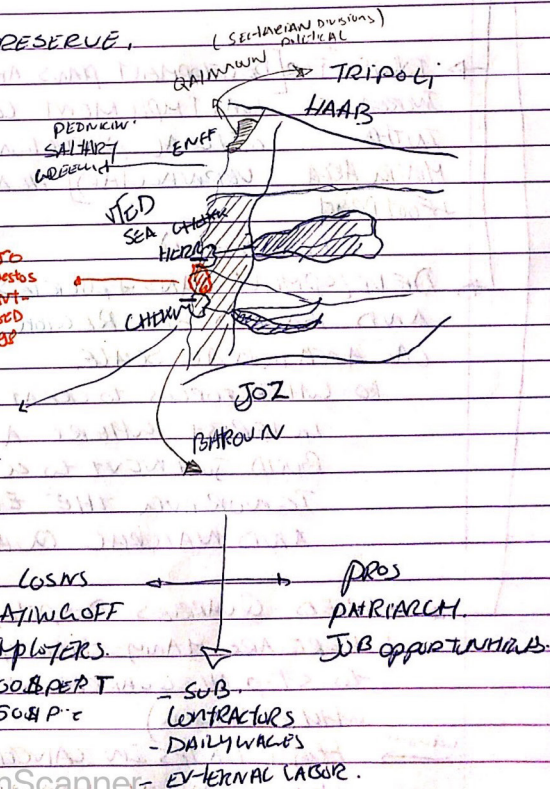
THE HIGHEST WATER RESERVE.

IMMIGRATION.
HIGH DEATH RATES.ECONOMIC VALUE OF
LAND HAS DEGRADATED
COMPARED TO ITS
CAPACITIES.

LOST OF FISHING

INDUSTRY DIE
TO SEAWATER
POLLUTION.

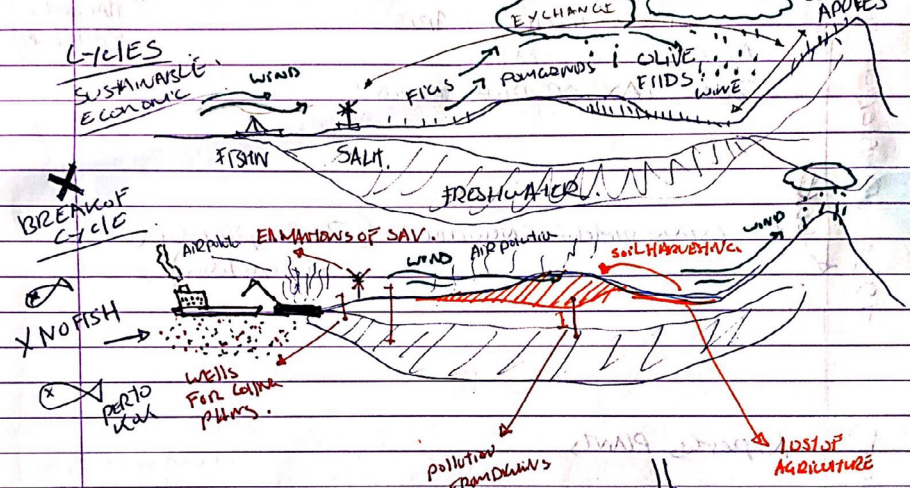
POLLUTION.

MINI
SEAPORTS
- PETROKOK -

MR. HAFEZ.

MEN USED TO WORK IN THE LAND FOR AGRICULTURE
OR FISHING IN THE SEA, WHILE WOMEN USED TO
WORK WITH SALT, AND LUTING OLIVES TO BACON
FLOATING ON THE LARGEST ~~SEA~~ LAKE AND LAKE
OF FRESH WATER IN THE MIDDLE EAST.

THE PEOPLE USED TO EXCHANGE SALT WITH GOODS COMING
FROM THE HIGH MOUNTAINS.



BUT WHY??

- Two types of soil
CALC, ARGILE
WATER supply, Heli
SEA FOR EXPORT IMPORT

PR

PROBLEMATICS.

PARTIAL DEVELOPMENT PLANS

EXPIRATION OF AREA QUARRY
ARBITRARY PLANNING
(INDUSTRIAL NEXT STEPS)
DECREASE IN LOCAL
VERNACULAR PRODUCTION.
HEALTH TROUBLES.

LACK OF POLICIES & LEGAL
IMPLEMENTATIONSILLEGAL
QUARRIES.

EXCUSE FOR [DEVELOPMENT PLANS AND POLICIES WHICH
INCREASE WAS IMPLEMENT CONTRADICTS THE DEVELOPMENT
IN THE OF LOCAL PRODUCTION (THREATENS) (OLD +
MINI AREA VERNACULAR) HEALTH THREATS.
FOOT PRINT.

(NEGLECTION).

DEVELOPMENT PLANS + POLICIES ARE PARTIAL
AND BASED ON REGION AND NOT BASED
ON NATIONAL SCALE.

WHICH FORCES TO CREATE A CONTRADICTION OF
INTEREST WHERE A RESORTS ARE
BUILT JUST NEXT TO A POISON PLANT.
IGNORING THE ENVIRONMENTAL
AND NATURAL QUALITIES.

FORCED QUARRIES DESPITE RULES, REGULATIONS & LAWS
(THERE ARE MANY MUNICIPAL LAWS AND LEGISLATION
TO STOP ALL QUARRIES & MINING INDUSTRY IN THE
WHOLE REGION).

CAUSING HIGH RATES IN CANCER. LEAD - PEOPLE IN ACTION
ENVIRONMENTAL MASSACRE.

TRANSFORMATION PROCESS

ARBITRARY, UNORGANIZED, MASSIVE DESTRUCTION
SOCIALLY, ECONOMICALLY, ENVIRONMENTALLY
HARD INDUSTRY WOULDN'T BE A SUSTAINABLE MODEL WHICH
HAVE REPLACED SUSTAINABLE AGRICULTURE

1929 - 1931. START OF PRODUCTION

Société d'entreprise et de réseaux (Union)
+ ÉLECTRIQUES PARIS
NO RULES & REGULATIONS
ZERO TAX OR DISBURSEMENT

ANTHONY
HAWK
MARONITE
PATRIARCH

ESTABLISHMENT OF NEW AREA (ZERO PLANNING OR
FORECASTING)

1950 ASPHALT PLANTS

1950 CEMENT PLANTS

(Big Hotels in the Koura plain) ARCELY 15-20 km Na
usage of seaports (Nehelwara region seaports near by, but totally)
usage of rivers (monopoly).

ENCOURAGEMENT OF PLANTING TREES KINA.

Recovering villages to work in plants

(FARMERS
FISHERMEN)

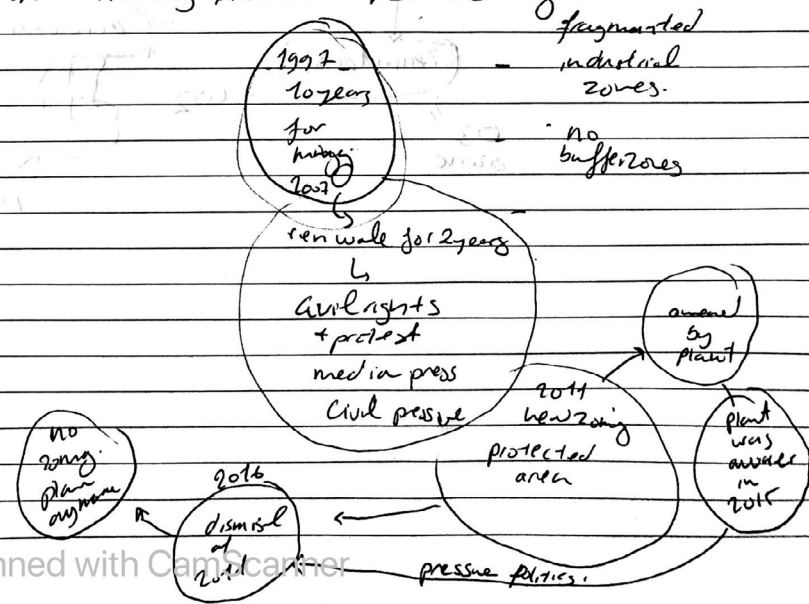
INDUSTRIAL ZONE

BANQUA of IMPROVING FOREIGN REMITTANCE (Monopoly).

③

- INCREASE IS SUBQUARINE NUMBERS.
- DECREASE IN LAND AGRICULTURE WAY + PRODUCTION.
- LAND ACQUISITION FOR CHEAP PRICES
- ISOLATING LAND AS ISLANDS.
- DECREASE IN PRICE.
- people were forced to sell their lands to pay (for health care + education)
- change in wind directions AND WATER.
- 1999 MORETH 1M SQM. 1/3 of LAND
- 2010 RENTED LANDS.

LAND ACQUISITION and Zoning

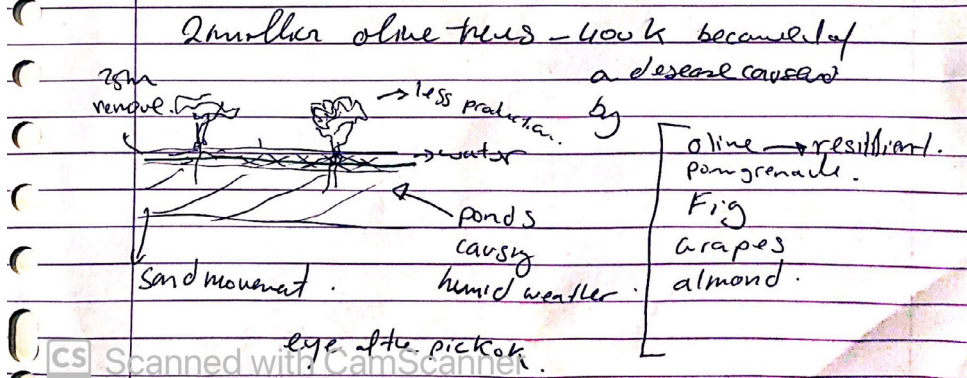


④

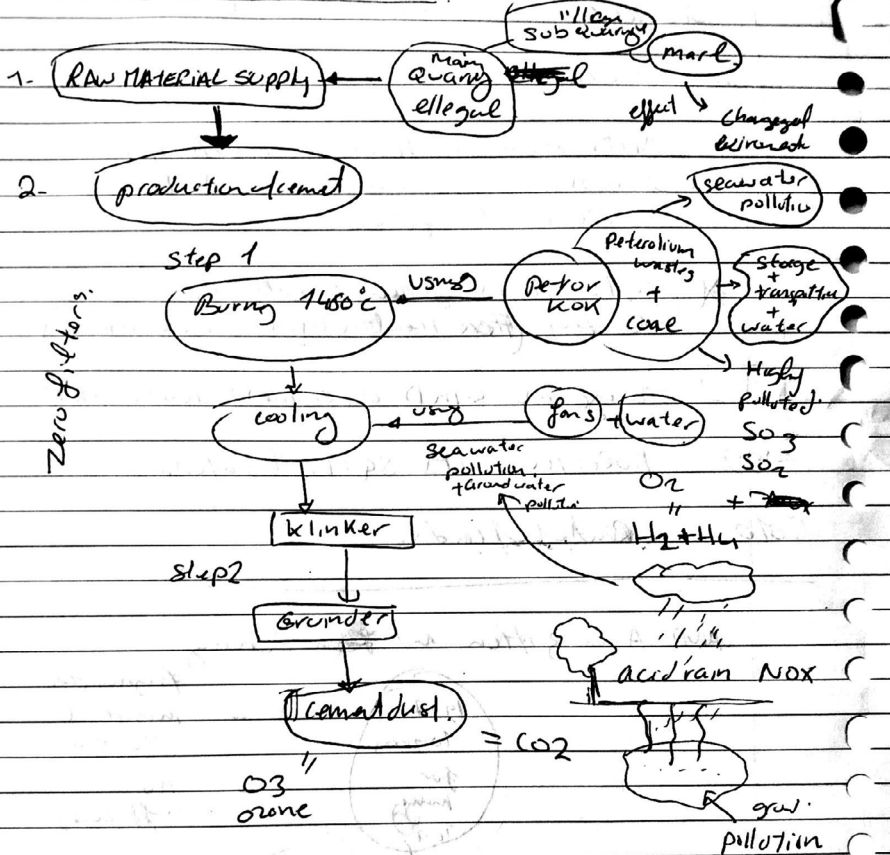
WHAT do people say?

- A whole village was contaminated with cancer + other lung several diseases lung
- 36% of total death caused by cancer.
- every 18 houses there are 11 cancer cases.
- Mostly all stories are based on the same topic and they are really sad.
- 34% - 2005 48.4%
- people used to block air vents in windows with match sticks cutting trees which hold sand.

What do nature say? 86% flood

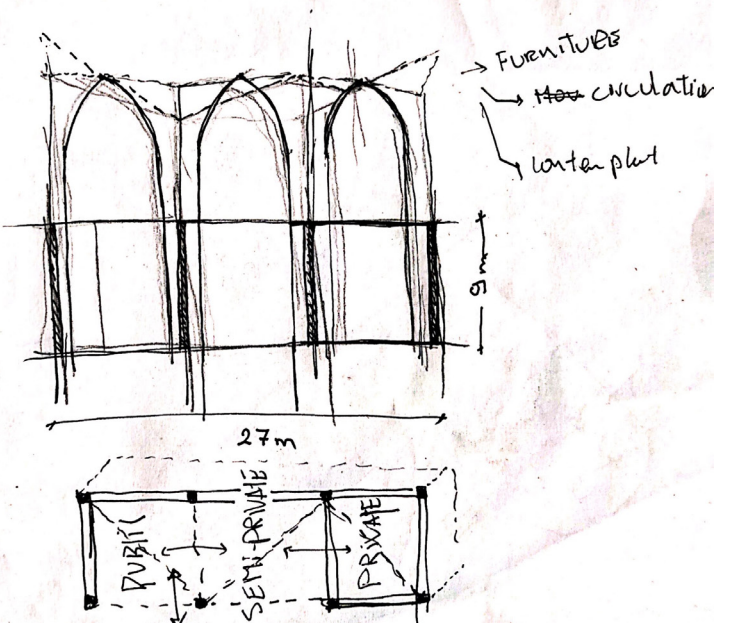


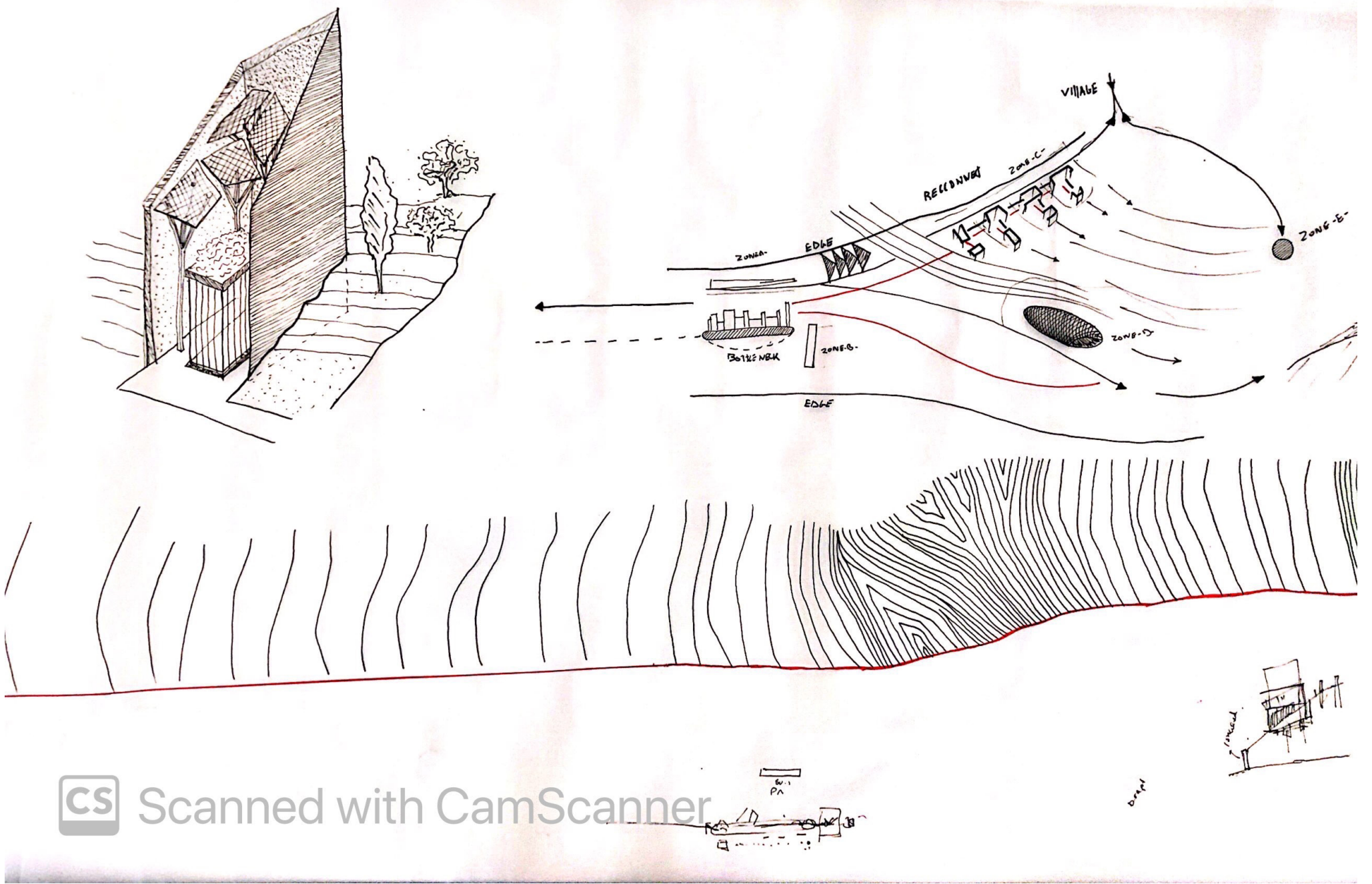
How does the plant function?



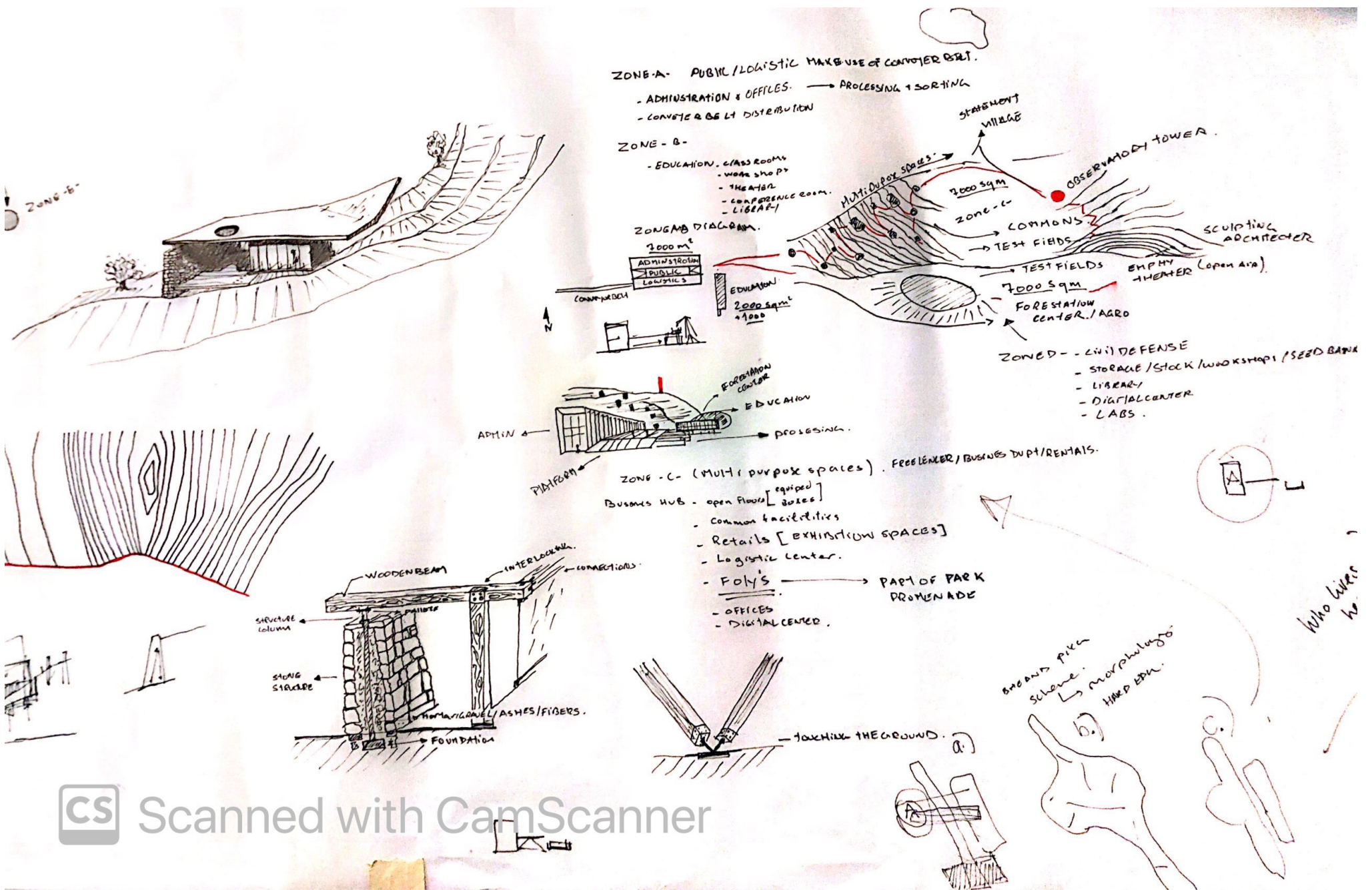
open roof

11:41
68109
52
32





CS Scanned with CamScanner



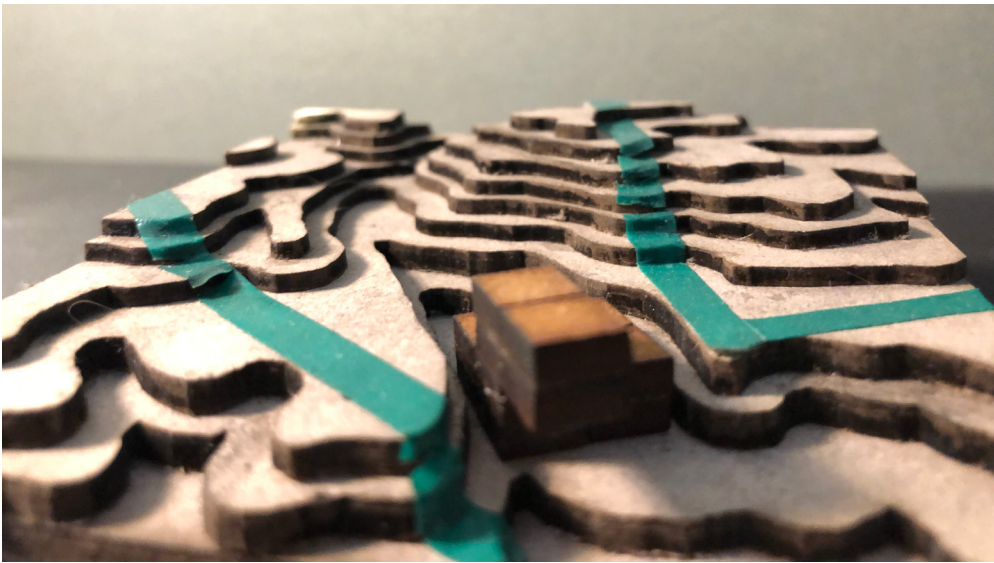
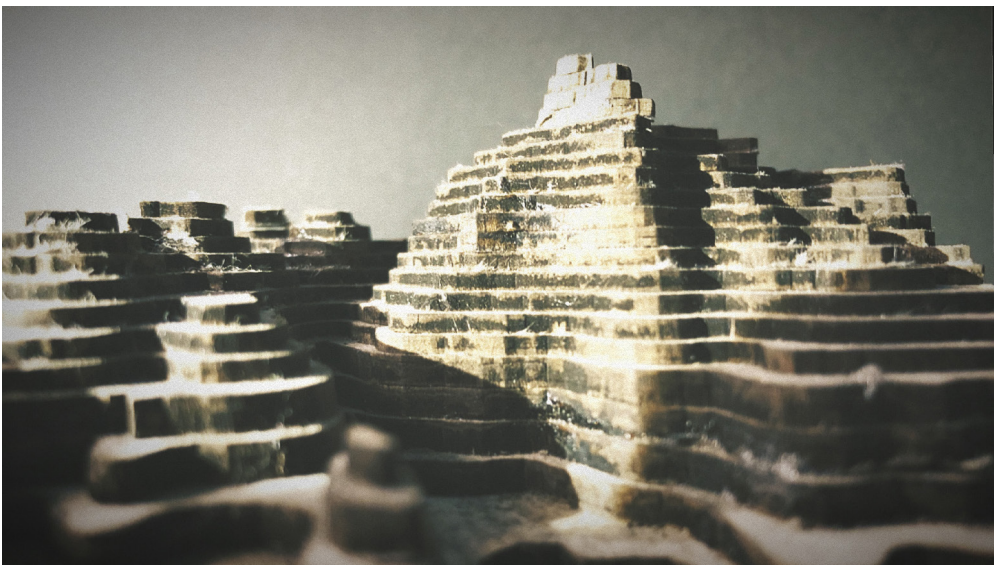
CS Scanned with CamScanner

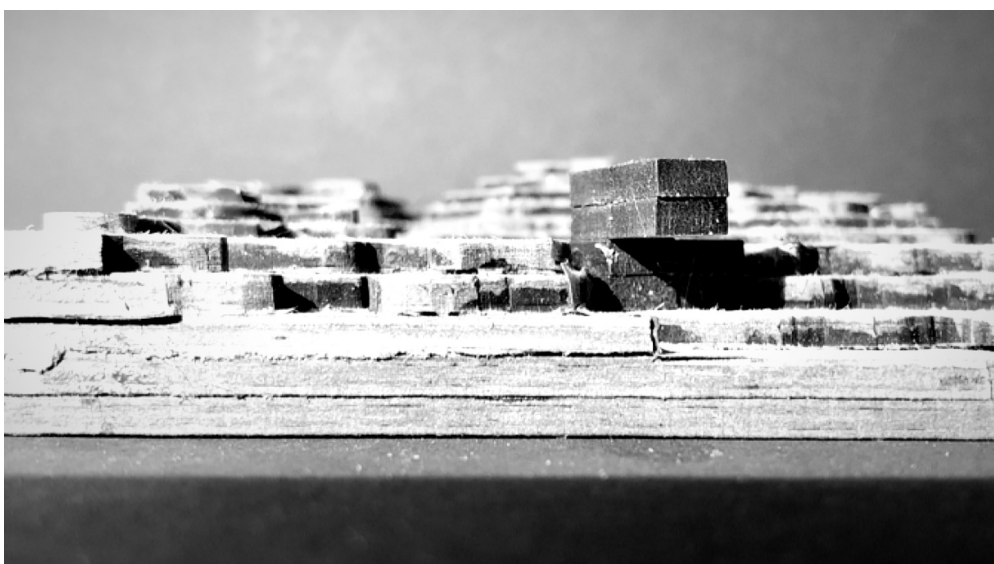
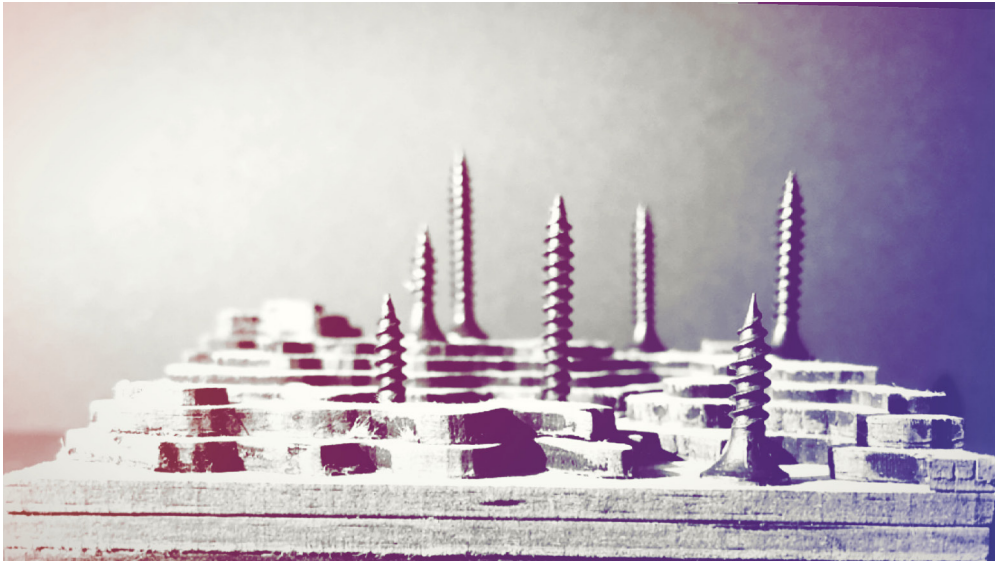
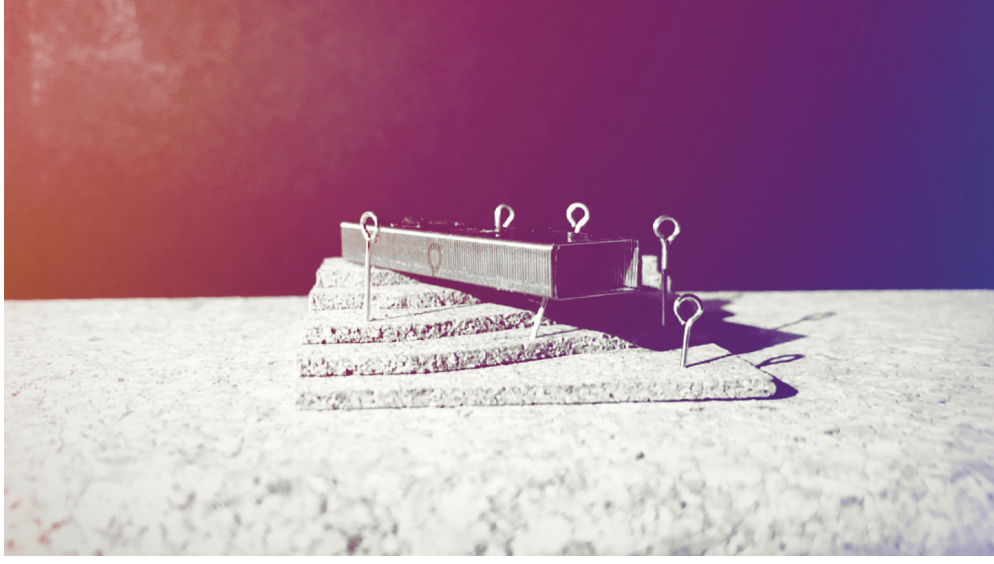
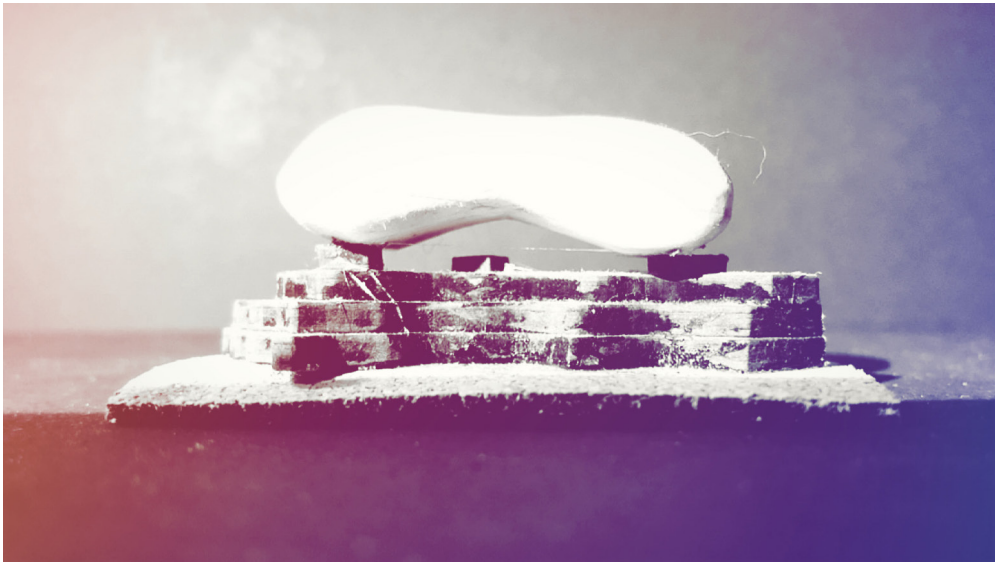
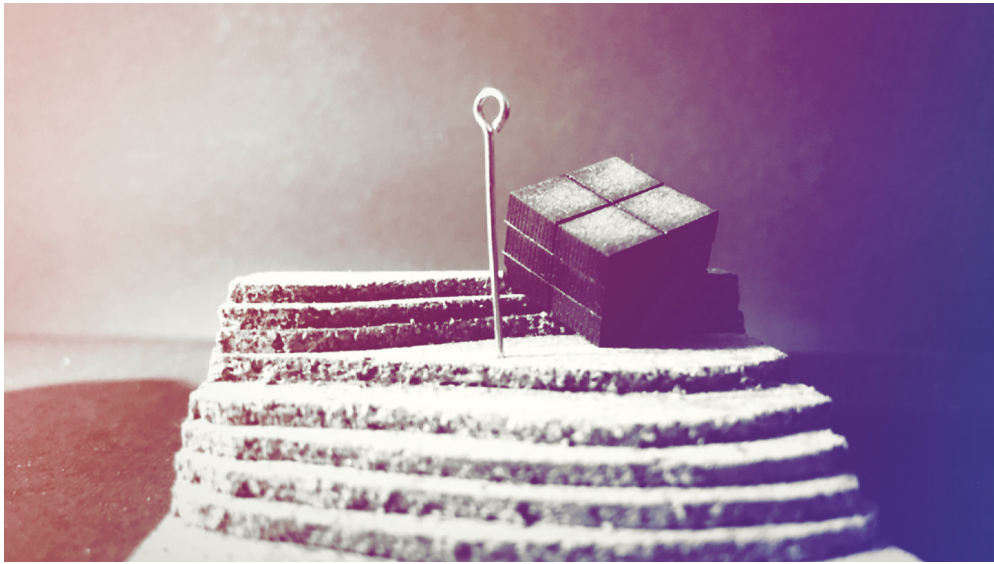


Grounding photos from site #4

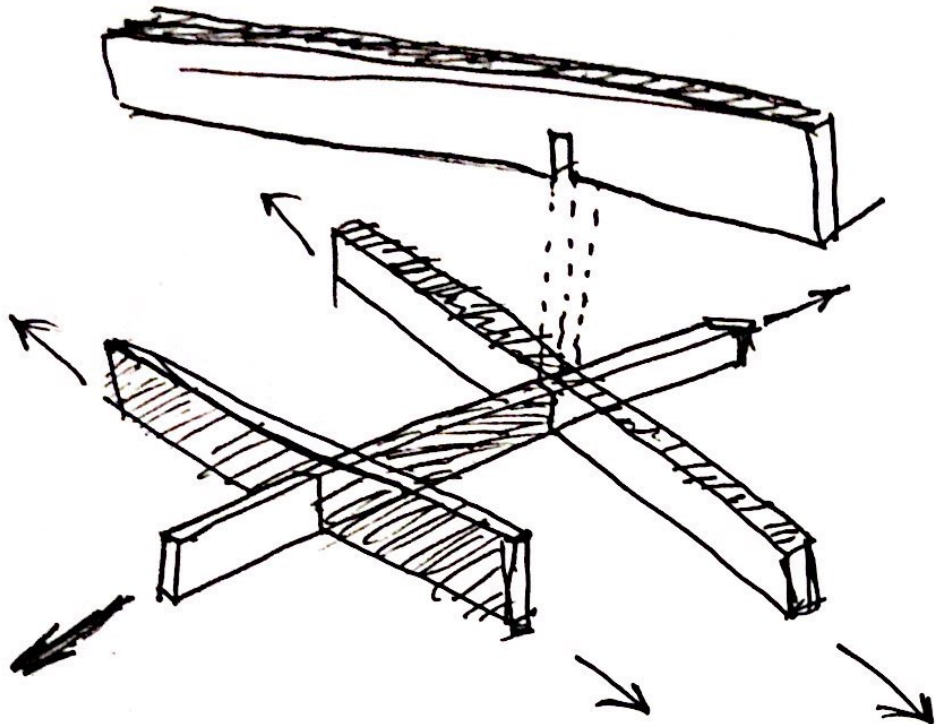


Model making testing topographies #5





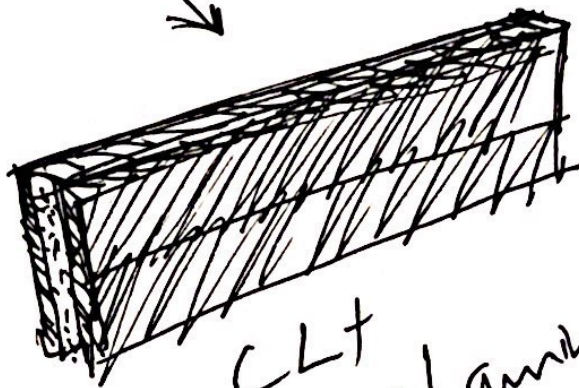
Ideation and prototyping #6



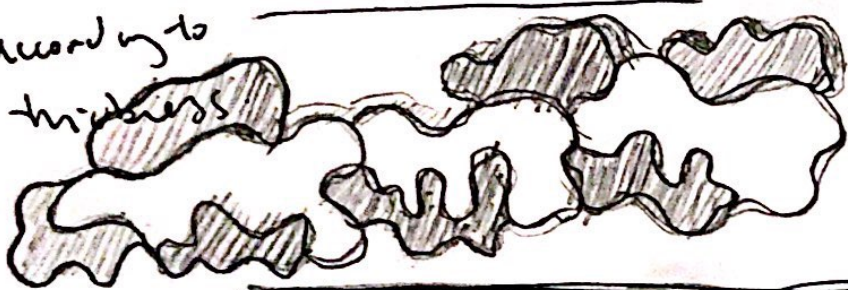
PLY

wood fiber insulation:
wood based substrate
easy calibred work
line of fire.

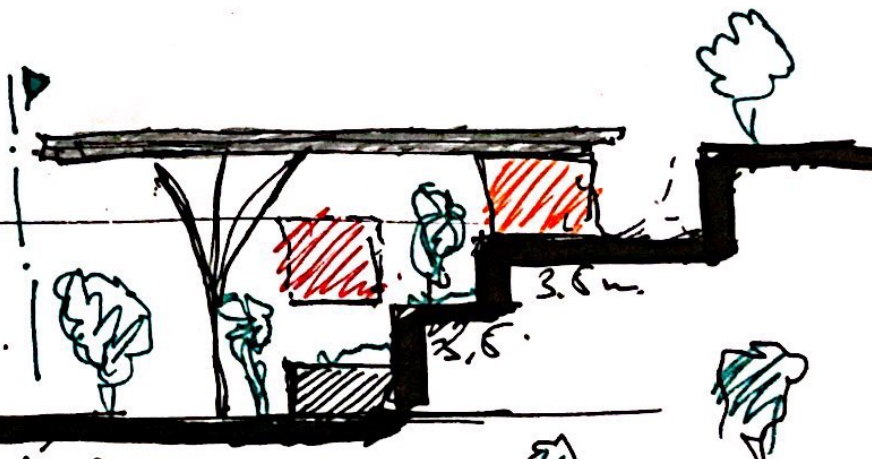
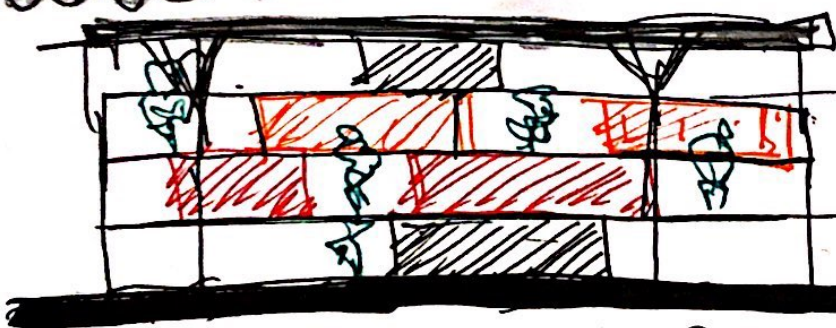
according to
thickness



CLT
CROSS laminated timber



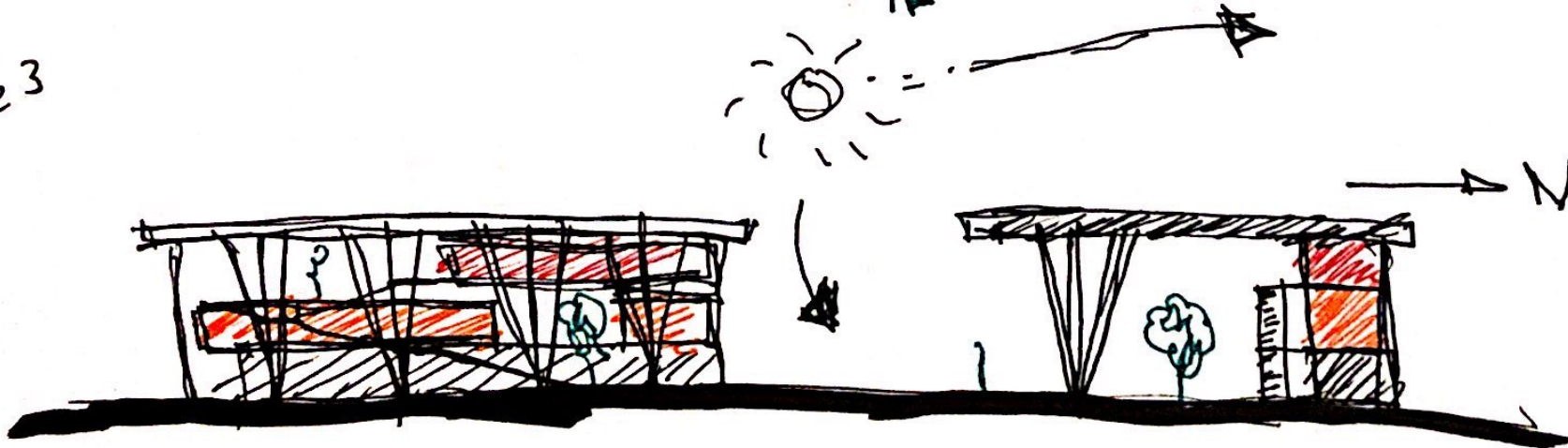
TYPE 1

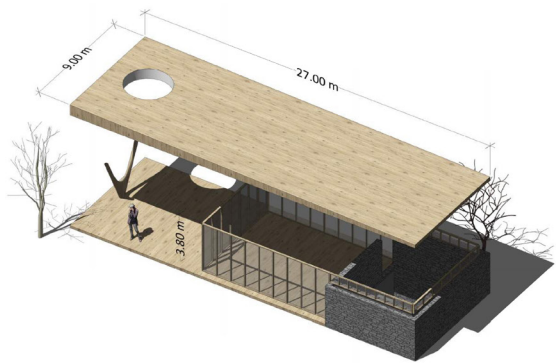
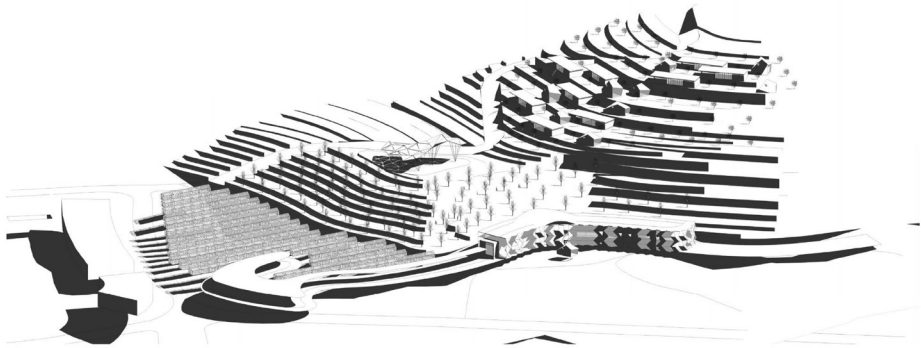
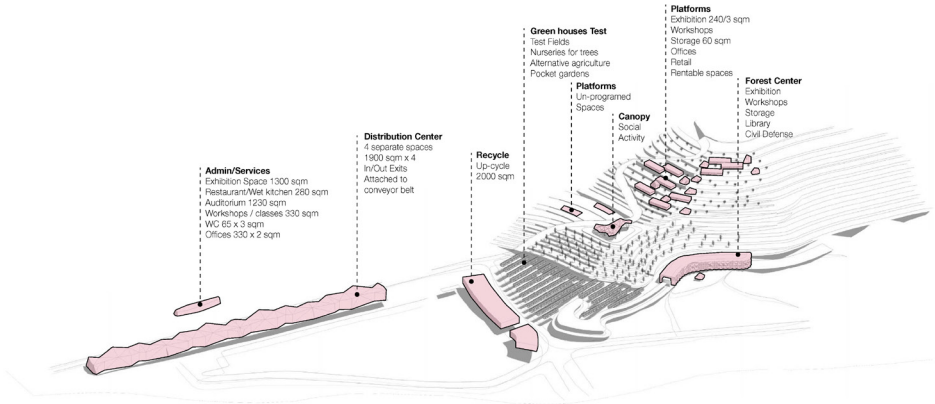


TYPE 2



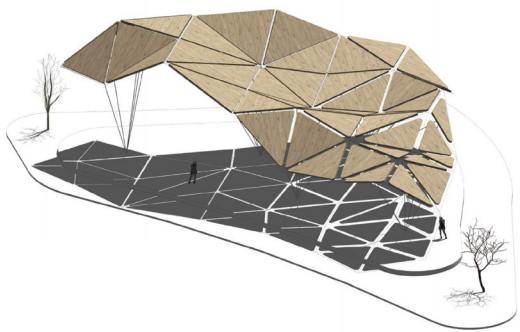
TYPE 3



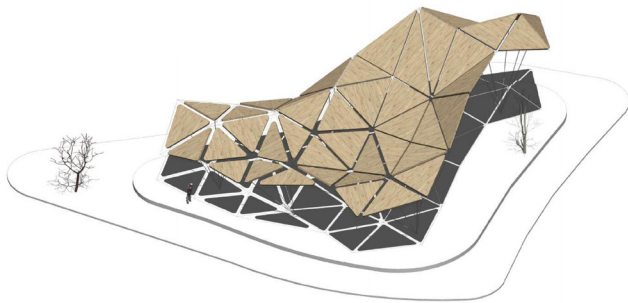


PLATFORMS

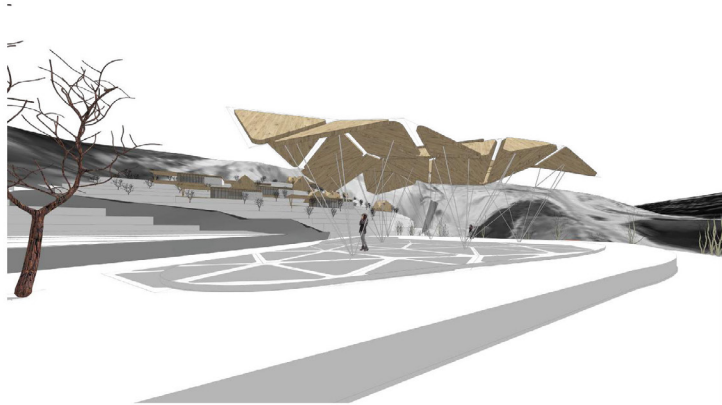
Open spaces divided into 3 parts, public, semi-public & private. To promote startups, related to wood industry and its derivatives such as furniture or product design. Or related to agricultural bio manufacturing.



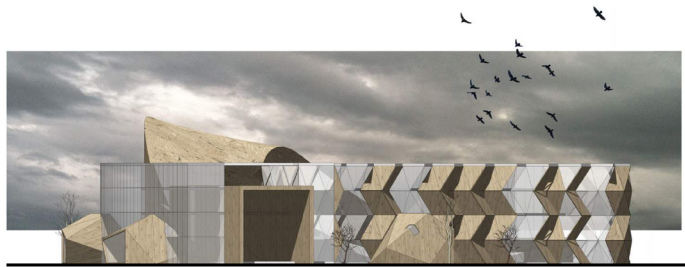
CANOPY



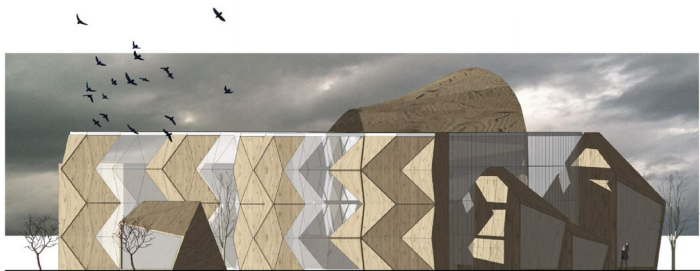
CANOPY



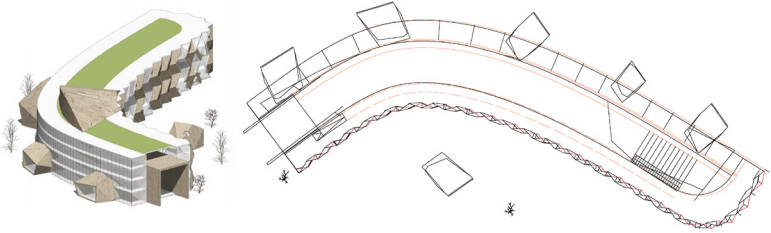
CANOPY



FOREST CENTER



FOREST CENTER



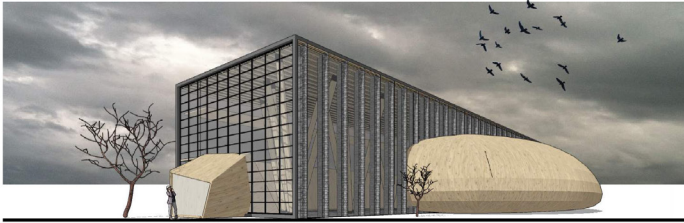
FOREST CENTER



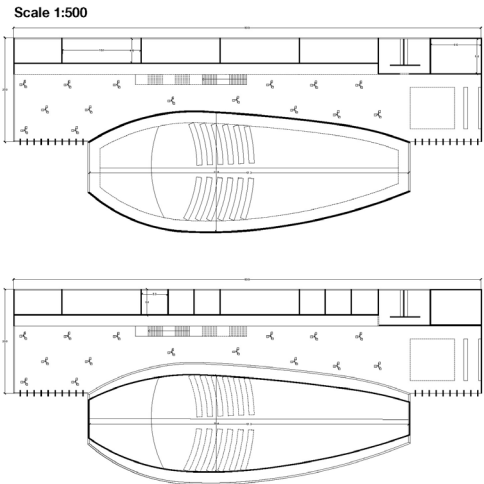
FOREST CENTER



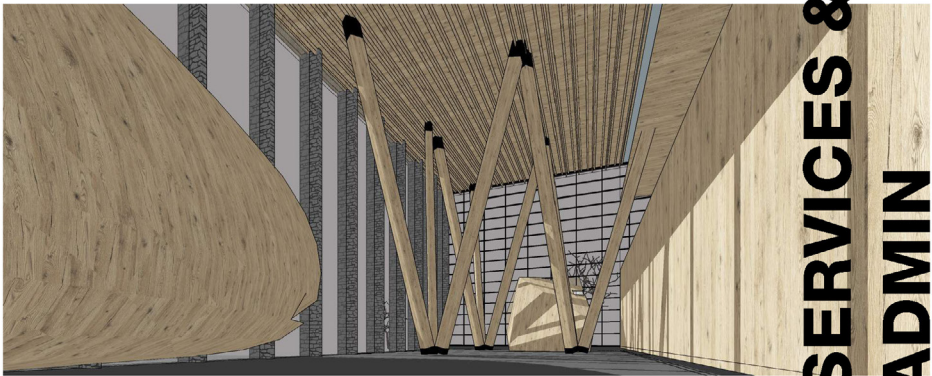
SERVICES &
ADMIN



SERVICES &
ADMIN

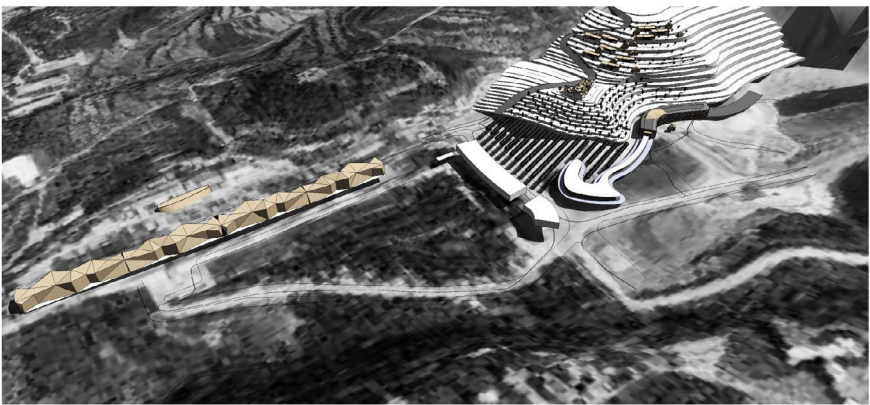
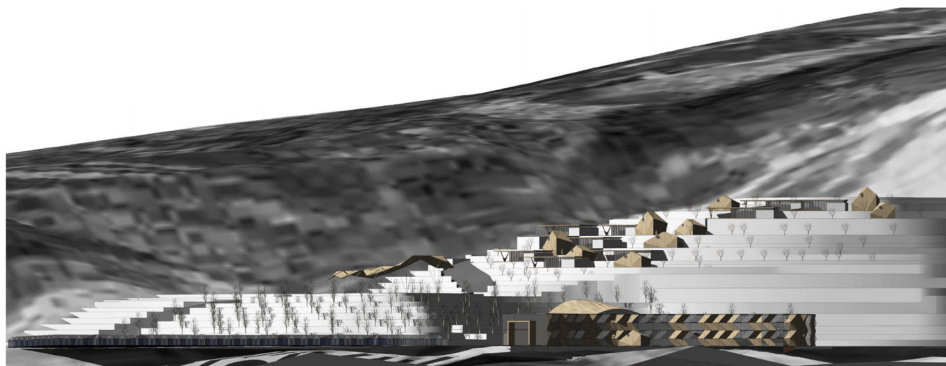
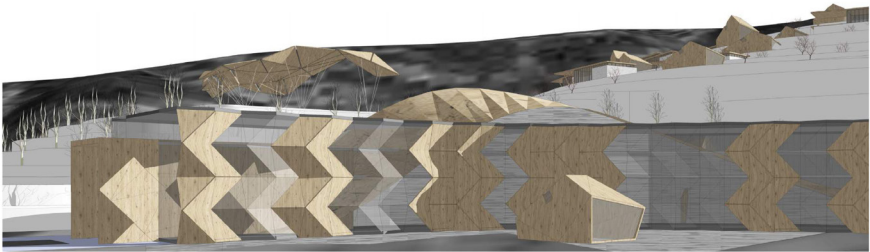
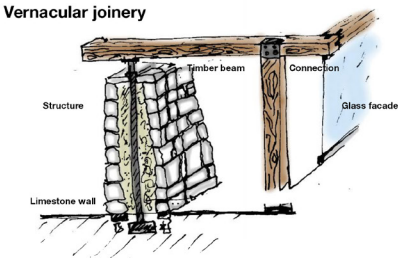


SERVICES &
ADMIN

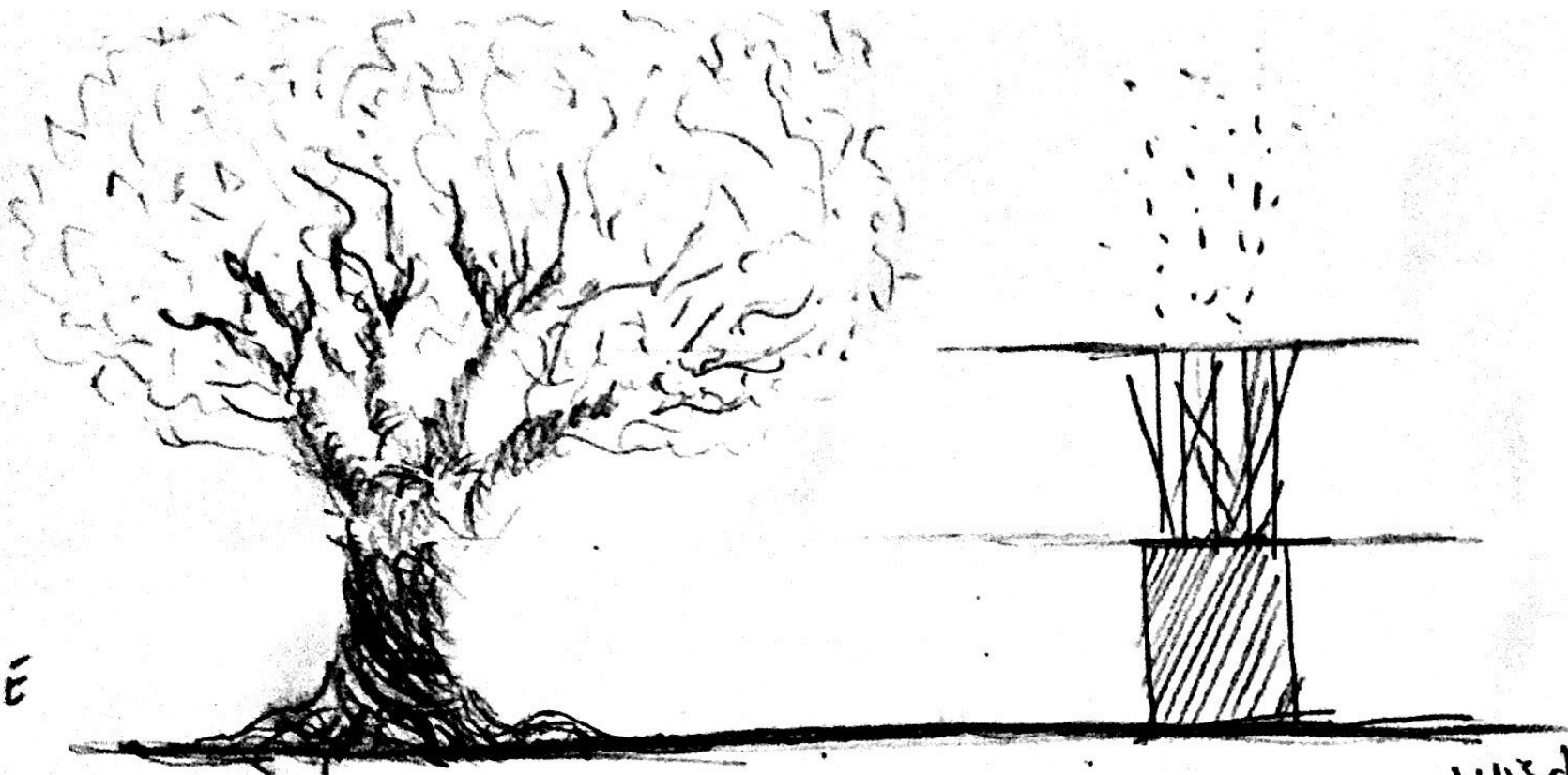


SERVICES &
ADMIN

Schematics

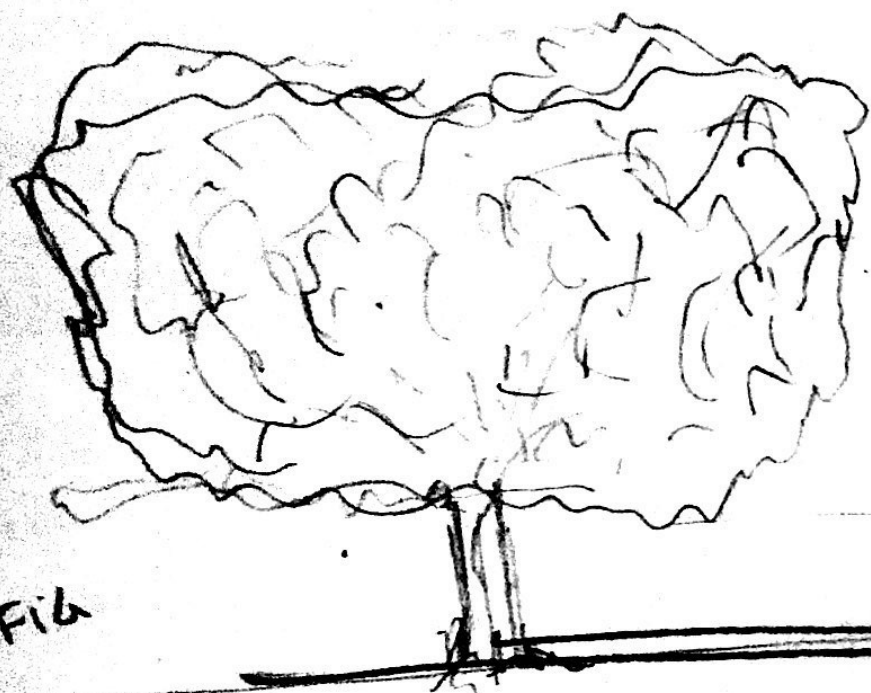


OLIVE



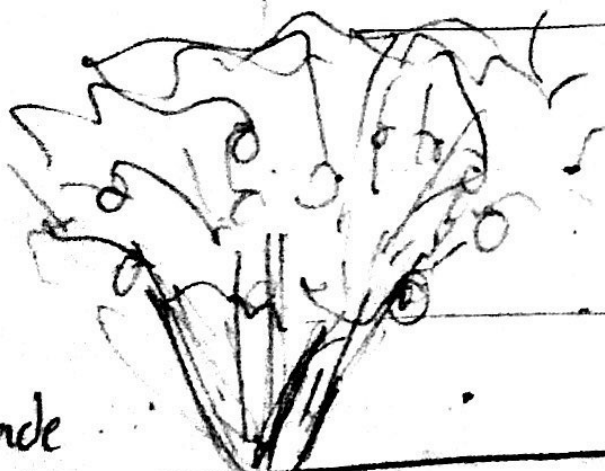
wisdom

Fig

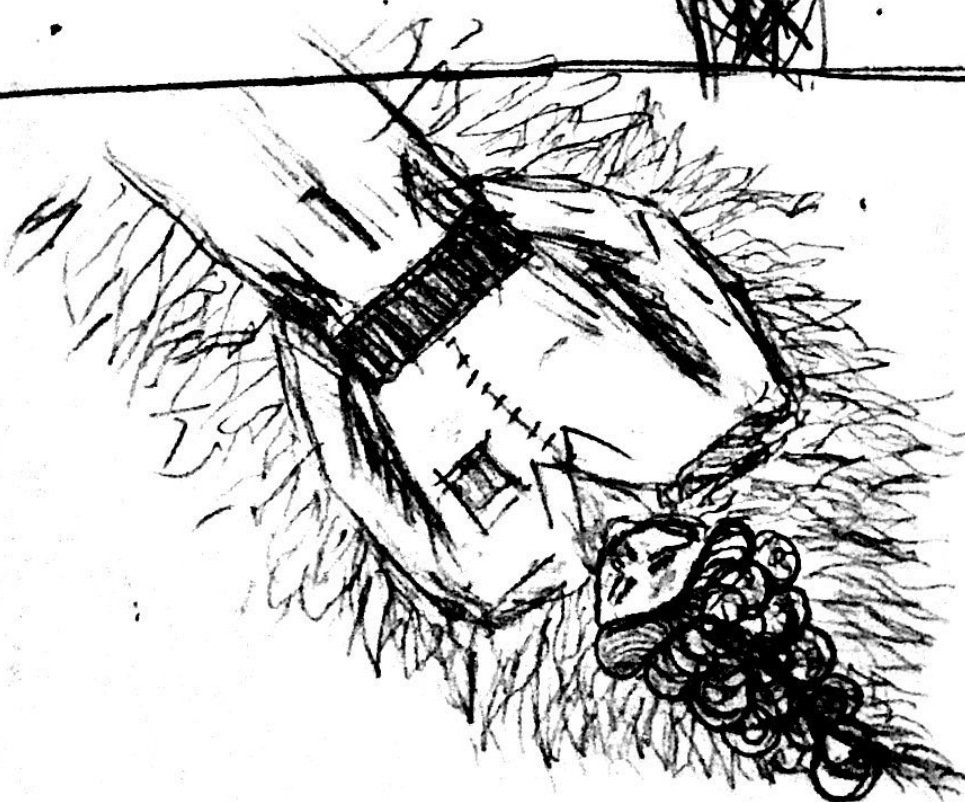


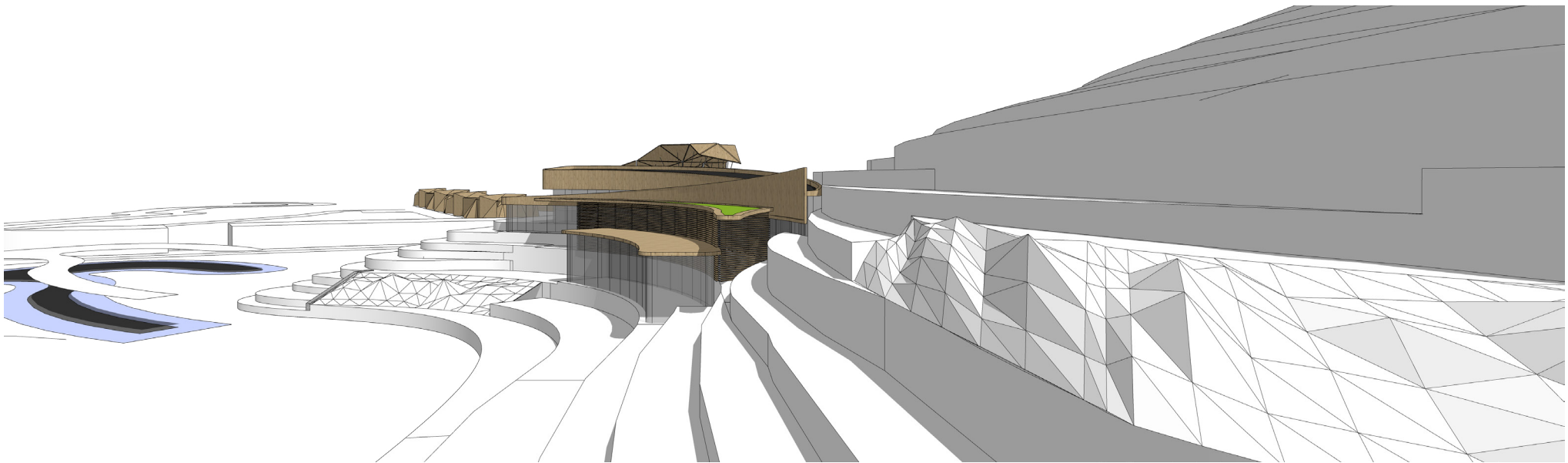
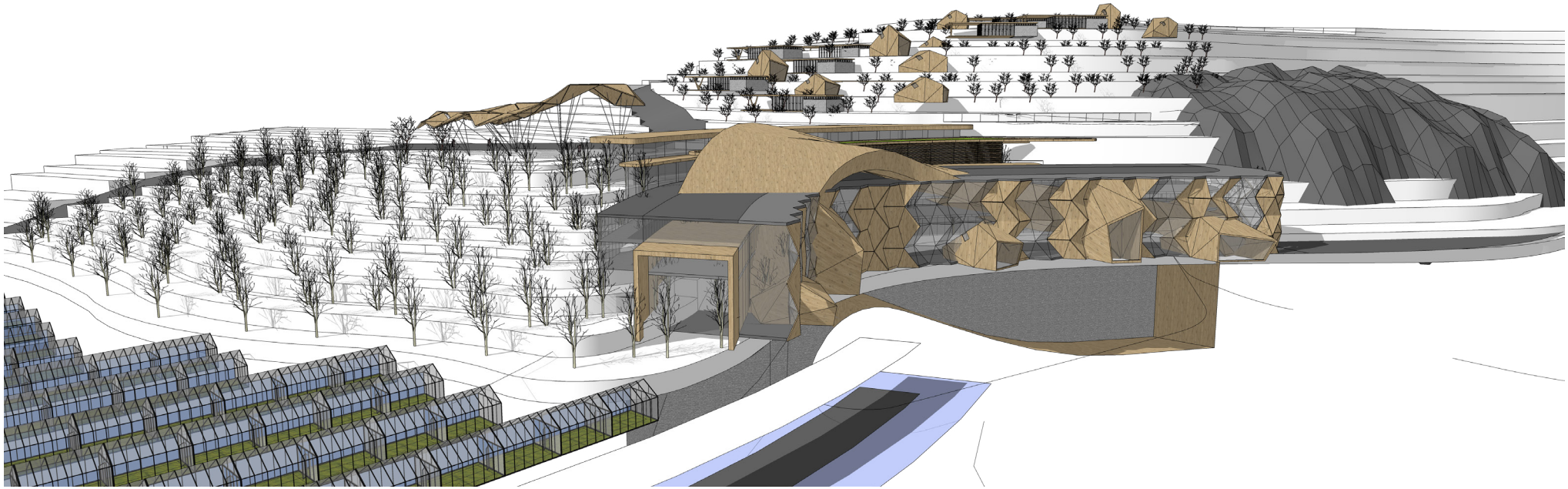
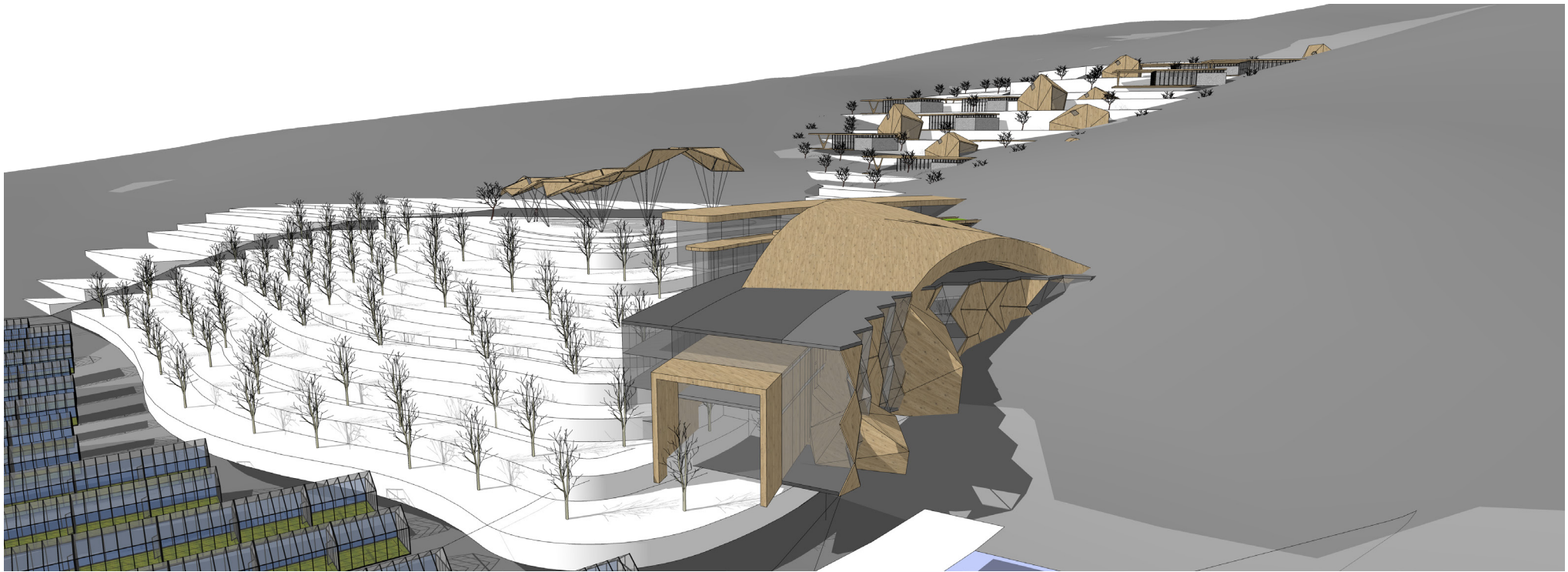
beauty

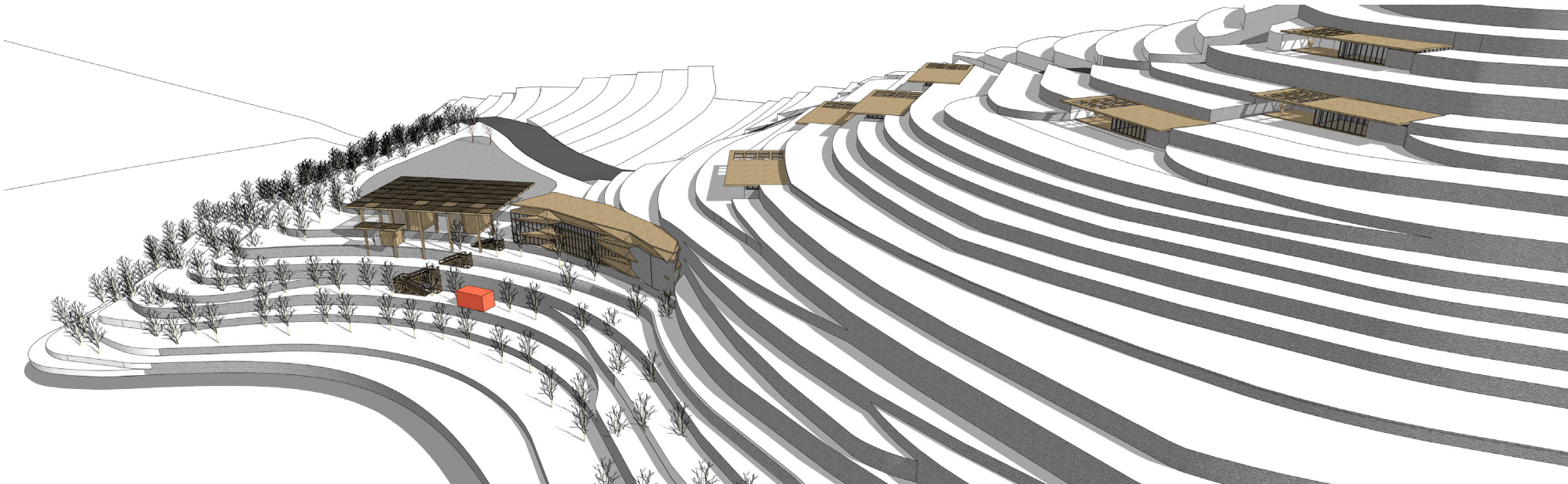
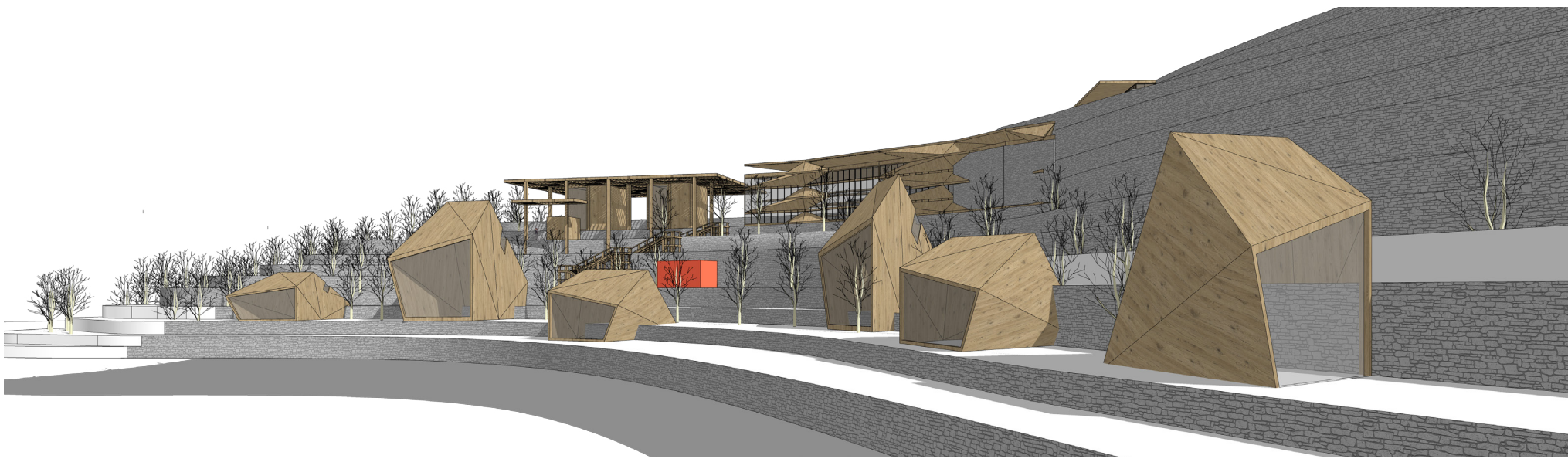
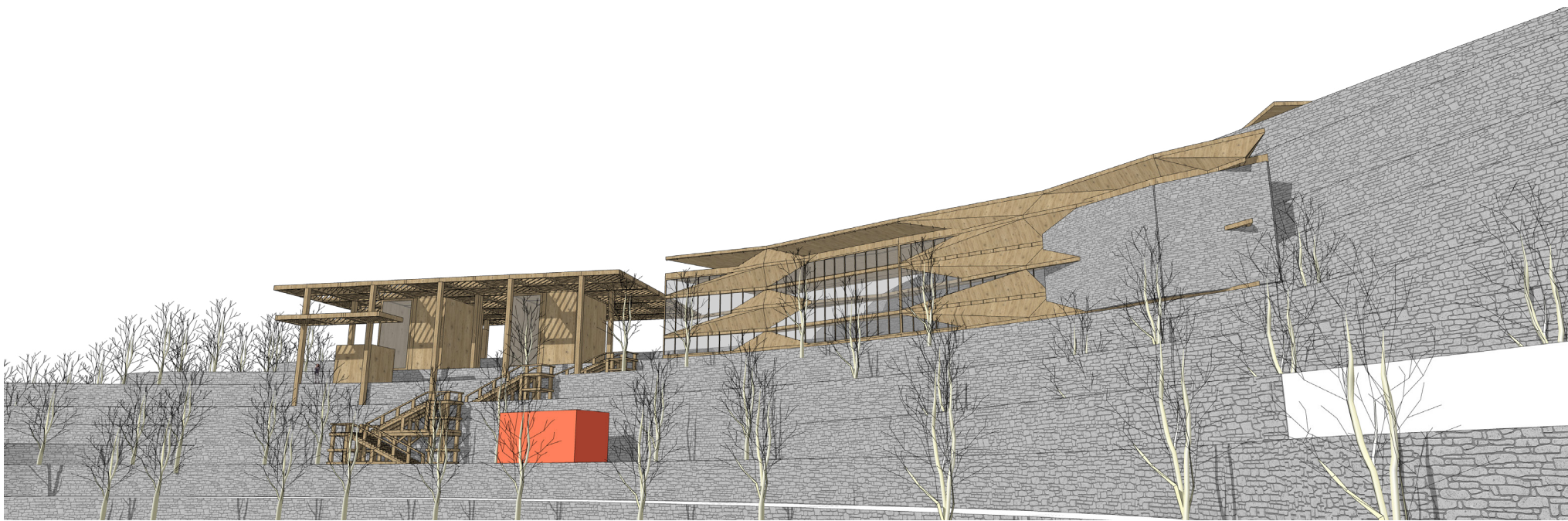
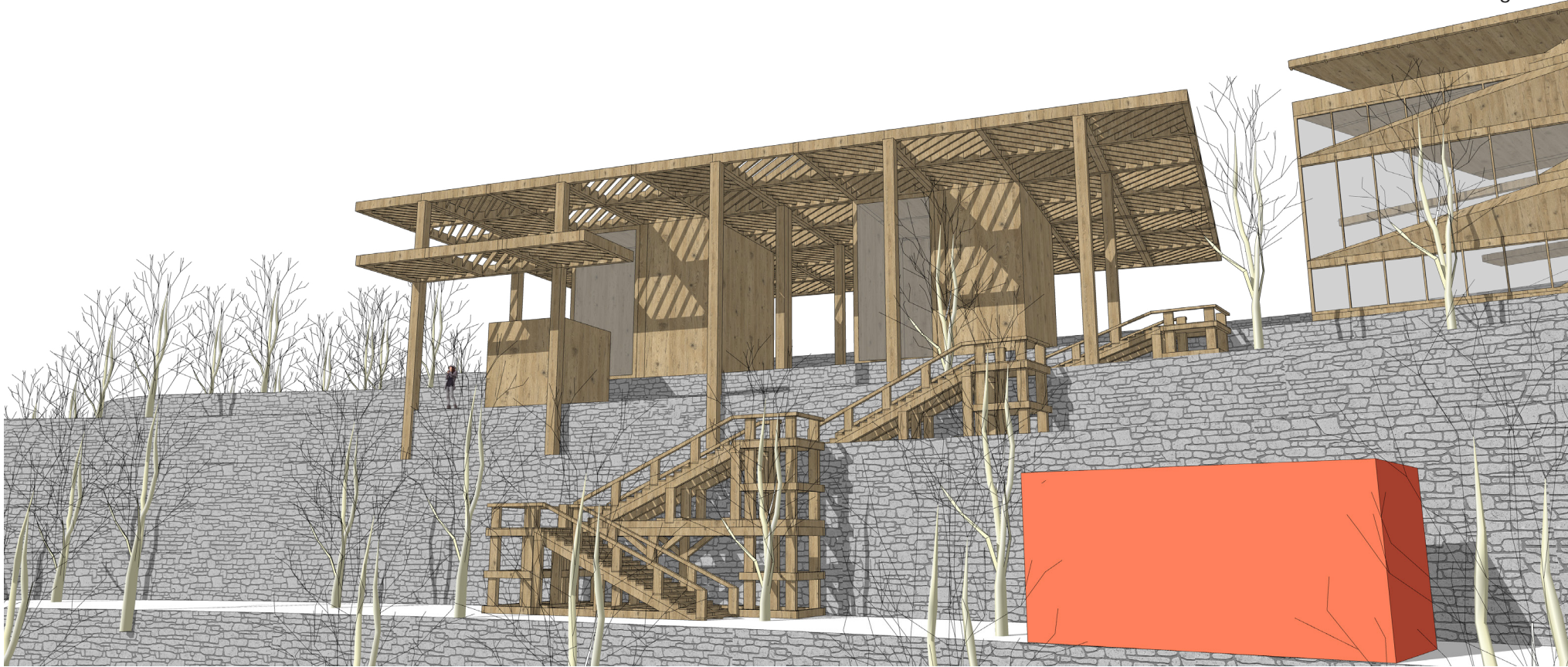
Pomgrenade

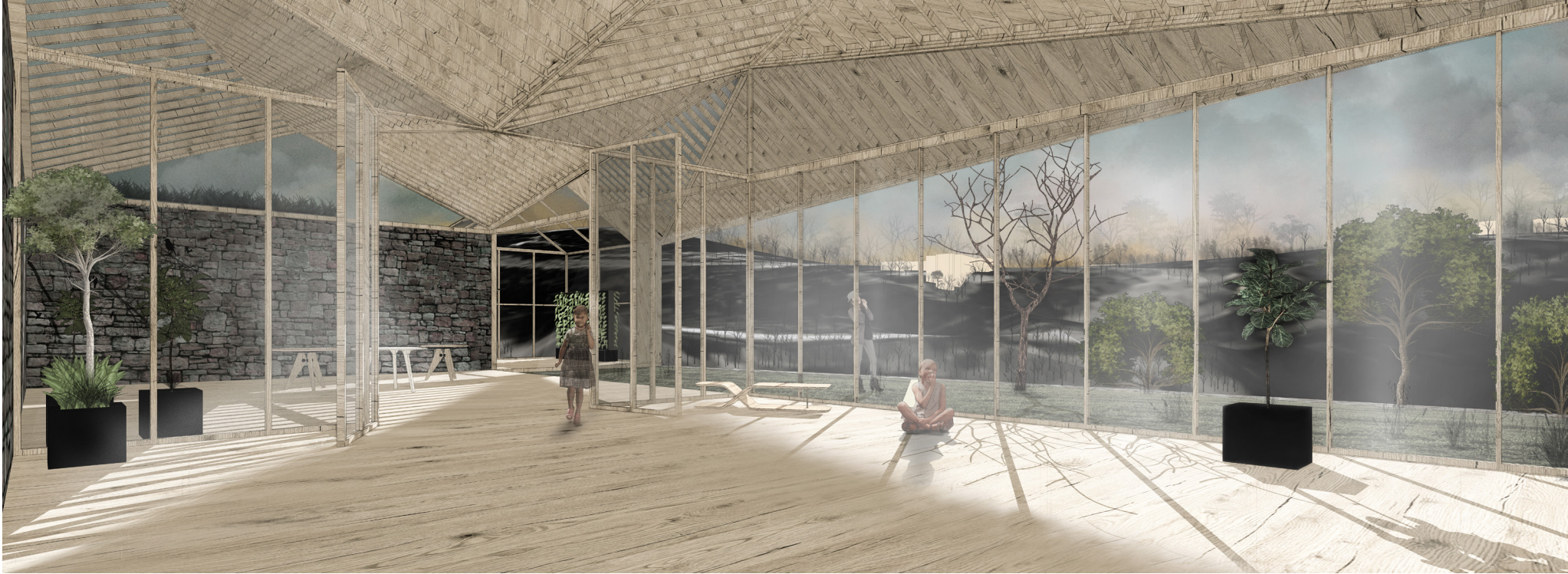


Power



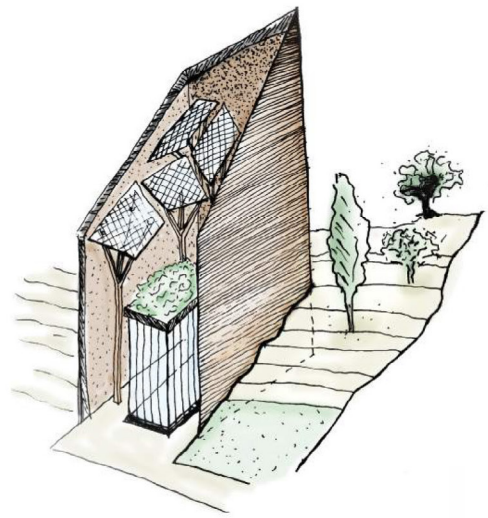




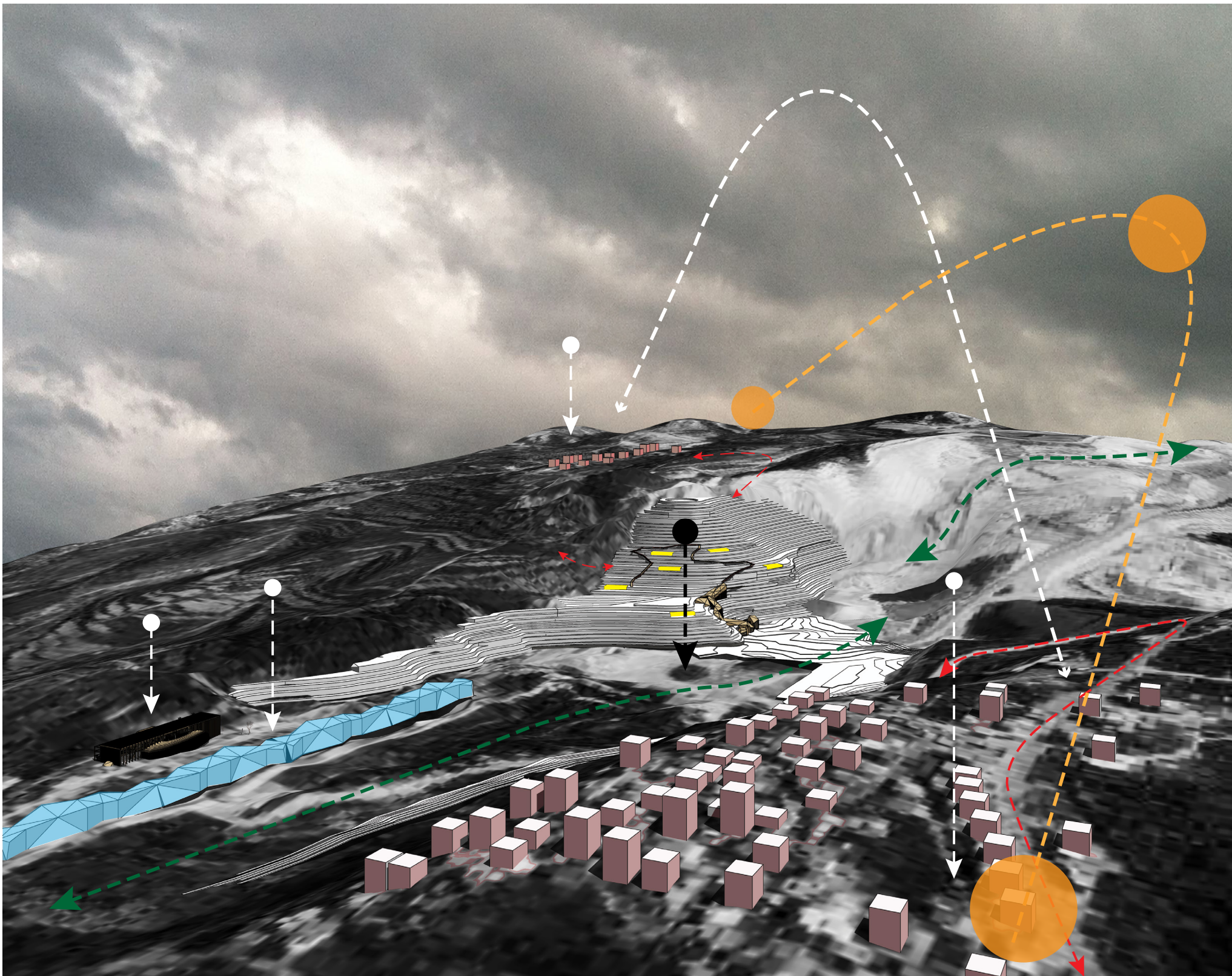
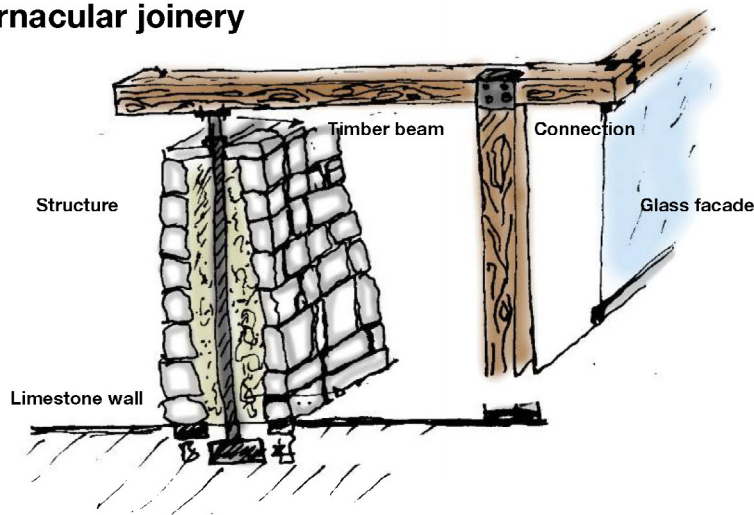


Visualizing #7

Schematics



Vernacular joinery



Thank you!