P5 report, 28-06-2018
Graduation 2017-2018

From emergency landscapes to | **ecologies of co-habitation**

Agricultural production, the normality in a state of exception

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Colophon

Title	From emergency landscapes to ecologies of co-habitation
University	Delft University of Technology
Faculty	Architecture in the Built Environment
Master-track	Urbanism
Supervisors	Dr. Ir. Hamed Khosravi Al-Hosseini
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Pages	116
Date	28-June-2018

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Wadi-el-Delem & Qab-Elias (Author's image, November 2017)

"You have your Lebanon and its dilemma. I have my Lebanon and its beauty. Your Lebanon is an arena for men from the West and men from the East. My Lebanon is a flock of birds fluttering in the early morning as shepherds lead their sheep into the meadow and rising in the evening as farmers return from their fields and vineyards. You have your Lebanon and its people. I have my Lebanon and its people"

Kahlil Gibran (2011)

Preface

As a designer I have the responsibility to meet the environmental, humanitarian and technological demands associated with our new geological era. Because of the high complexity underpinning these demands, it is and has been an everyday struggle to unravel and apply certain aspects of it. I am not under the illusion that this thesis is going to be ground-breaking in dealing with this complexity. Rather, I am looking for new ways to approach problems associated with it or derive from this increasing complex (global) societies. In the case of forced migration, I take distance from approaching the resettlement processes in the neighbouring countries from the perspective of the obvious problems that occur there from. I reflect on these problems by approaching them from their broader context. By being aware of the global forces that underlie the phenomenon in the first place and by gaining further insights in local characteristics that influence its appearance in the second place. The latter by unravelling the human ecologies of a territory from an environmental, social, economic and historical perspective. Not only will this be explanatory, it also uncovers the fundamental layers that underlie many of the problems. That in turn offers opportunities for strengthening a particular territory, by elimination or reinforcement. The overall aim of this thesis and my personal motive is to create a better balance between humans, their natural landscape and between themselves. Trite but true: to plan for future generations.

The project has been informed by the site-visit in October 2017. Which was an unforgettable experience to Lebanon and the Beqaa valley. Lebanon is a country rich in culture, landscapes and people. Yet, also a territory where extremes take place next to each other.

Terminology

Asset	*Valuable things that can be acquired, developed, improved and transferred across generations*
Cohabitation	*State of living together, and with the environment, in harmony*
Ecology	*The set of relationships existing between complex systems and their surroundings or environment*
Environment (natural)	*The surroundings or conditions in which a person, animal or plant lives or operates.*
Forced migration	*A general term that refers to the movements of refugees and internally displaced people as well as people displaced by natural or environmental disasters, chemical or nuclear disasters, famine or development projects*
Host community / country	*Refers to the country of asylum and the local, regional and national governments, social and economic structures within which refugees live.*
ITS	*Informal Tented Settlements*
Livelihood	*A means of securing the necessities of life.*
Phenomenon	*A fact or situation that is observed to exist or happen, especially one whose cause or explanation is in question + the object of a person's perception*
Prime agricultural land	*Land with soils that represent the highest level of agricultural productivity; they are uniquely suitable for intensive cultivation with no conservation hazards*
Reciprocity (Reciprocal relationship)	*A mutual or cooperative interchange for mutual benefits*
Rehabilitation	*The action of restoring something or someone to its former or new condition*
Social inclusion	*Social inclusion is the act of making all groups of people within a society feel valued and important.*
Well-being	*The state of being comfortable, healthy, or happy*

Readers' guide

1. Introduction
This introduction elaborates on the relevance of this research, the problem statement, the research questions, the goal, methodology in the theoretical framework.

2. Context
Chapter 2 elaborates on the information that has been processed for this research. This includes detailed maps and information about Lebanon, the Beqaa valley and Qab-Elias. In specific on the natural, economic and social layers of the territory.

3. Analysis
Chapter three answers the first research question, which is concerned with a descriptive, in-depth spatial analysis of the context: *"What are the opportunities and challenges of the physical territory, based on a desired balance between nature and agricultural production?"*

4. Synthesis and concept
Chapter four is reflective and prescriptive and will answer the second research question: *"How to benefit from the opportunities and address the challenges of the spatial territory, for maintaining prevailing and establishing future economies and forms of living, based on agricultural production?"*

5. Design
Chapter five elaborates and reflects upon the previous findings by the means of design, answering the following sub-question: *"What are the socio-spatial implications of the proposals for maintaining prevailing and establish future economies and forms of living based on agricultural production?"*

6. Conclusion
This chapter will answer the main research question: *"How can a holistic landscape approach contribute to new insights on maintaining prevailing and establishing future economies and forms of living based on agricultural production, for a specific (spatial) territory?"*

1

Introduction

Chapter 1 introduction

Readers' guide chapter 1:
1.1 Discusses the research framework including its relevance, goal and research questions.
1.2 Discusses the methodology of this research and explaining the three main steps of this research.
1.3 Discusses the theoretical framework and the literature on which the research approach is based.

1.1 Research framework

The research framework elaborates on the personal motive for this thesis project and its social and scientific relevance. Based on the problem analysis, it will put forward the main purpose of the project. This problem statement is supported by a hypothesis and its subsequent research questions.

1.1.1 Motivation

The personal motive of this thesis project derived from the discourse on the topic of forced migration established and maintained by the media. Which in turn, triggered me to engage in the buddy program in Delft, a program where a Dutch citizen is linked to a Syrian newcomer. That in turn, led to an increasing interest in the origin of the Syrian newcomer I was connected to. It also became clear to me, that my Syrian friend was somewhat 'privileged', as his family could afford to send two of their sons to the supposed safe haven of Europe. That many of his compatriots are in a more indigent situation, led to the dedication of this thesis project. At first, by shifting the attention towards the more vulnerable people exposed to the Syria crisis. Now, the natural landscape and its resources has a more prominent role, as it is the carrying layer for both the economic and social landscape. This approach better fits the Delta Urbanism studio in which I participate and carry out my research. Also, this approach is aiming to serve mankind on the long run. My role as a designer is then to be the choreographer of the landscape, for facilitating a more balanced ecology.

1.1.2 Social relevance

What started off in March 2011 as a war between supporters and opponents of Syria's president Bashar Al-Assad, has turned over the years into a more intensified and complex battle. With a large number of people displaced, the war in Syria resulted in one of the worst humanitarian crisis in recent history. In 2016, over four million people had already fled to the nearby countries. On top of that, in Syria itself, over six million people who were forced to leave their home are being internally displaced (3RP resilience program, 2016).The majority of the Syrian people lack proper access to education, shelter, food, healthcare, water or sanitation (Hamill, 2017). It is social relevant to engage in a topic which concerns the situation of forced displacement, as it has many implications for both the people who flee their country as well as the country of arrival. It is concerned with vulnerable groups of people, subjected to a lack of human rights, helplessness and in some cases racism.

Lebanon distinguishes itself as a host country from the other adjacent countries, as one out of four inhabitants is either from Palestinian or Syrian origin (UNHCR, 2017). Over one million (in mid-2016) Syrians and refuge in Lebanon, a number that is expected to be higher as the Lebanese government instructed to stop registering new arrivals (Alabaster, 2016; Hamill, 2017). In contrast to Jordan, Iraq and Turkey, the country implemented a "no camp" policy (Hamill, 2017). Instead, the camps in Lebanon are informal and often small, scattered across certain territories of the landscape. Although this would suggest the freedom of movement, municipalities have imposed - among others- curfews on the Syrian communities. This makes it an interesting case, as it is to a certain extent intertwined with an existing social system. Unlike, for example, the often isolated formal camps we find near the border of Turkey and in Jordan.

1.1.3 Scientific relevance

In general, research has been done by various national and international institutes from an environmental, economic

and social perspective on the impact of the Syria crisis on the neighbouring countries. Spatially, the impact has been mapped by aid agencies, to indicate the most vulnerable areas, through which assistance and development programs can be adapted accordingly. Research within the area of expertise of urban planning and design, are, however, mainly concerned with the camp itself. Though a progressive, distinctive way of approaching the phenomenon is carried out by the local government resilience programme carried out by the Dutch municipalities association. Their spatial proposals take into account all the communities inhabiting a specific territory, as well as the impact on the environment. Nevertheless, these projects are all of practical nature and seem to lack the connection to theory.

The scientific relevance of this research is related to its approach, a way of thinking, that does not eliminates the phenomenon of forced migration from its broader context. In contrast to other research on the (spatial) implications of forced migration, that generally delineate the problem or implications isolated. This while the understanding of complex systems asks for an holistic landscape approach that goes beyond reductionism (Li, 2000). Something that can be achieved by reflecting upon the phenomenon within the territory, by examining its connections and dynamics. Opportunities for dealing with the implications of the phenomenon can emerge, by revealing some of its complexity.

1.1.4 Problem Analysis

The geopolitical instability in Syria has led to an increased disturbance of the environmental, economic and social situation in Lebanon. Layers that are all connected to each other. The rapid increase in populations caused overstretched situations, especially in the already deprived parts of the country

The natural landscape is facing environmental degradation, due to an increase in uncontrolled human activities and all the implications of such. With a devastating impact, not only on nature, but also on the activities dependent on nature. An example of such is the deprivation of the quantity and quality of water and fertile soil, that ensures food security and the maintenance of rural livelihoods. Besides, both the natural landscape as well as land for agricultural production are competitive with the establishment of uncontrolled urban-rural settlements. This indicates a lack of urban-landscape management, which can impact the country on the long term.

The phenomenon has several implications of the social layer of the territory. The Syrian communities are dealing with the many restrictions that are imposed upon them, making it hardly able to meet their basic needs. This marginalisation unavoidable results in the dependence of many on aid agencies and the engagement of others in informal economies to be able to meet their basic needs (Errighi & Griesse, 2016, p.11). Social tensions between the host population and the Syrian newcomers also emerged, because of an increased competition on the job market (Errighi & Friesse, 2016, p.6). Social exclusion of the Syrians population, scan prove harmful for the entire country on the long term.

In order to overcome the complexity of the phenomenon and its resulting problems, the situation is largely being dealt with in a self-contained way, that is detached from its context. A more comprehensive approach for safeguarding the environment and addressing the economic and social disruptions, allows the phenomenon to be understood in connection with and as part of the whole. This holistic, problem-solving addresses the phenomenon concerning Syrian communities in Lebanon and its impact from a different perspective.

1.1.5 (Problem) Statement

The inflow of the large numbers of people into Lebanon as a result of the geopolitical instability in Syria is depending for a great part of the inherent landscape. Resulting in several disruptions on environmental, economic and social level. The resettlement and integration processes itself, however, is managed as a self-contained phenomenon, approached as a temporary event. The neglect of its broader context and its prolonged character causes a non durable situation. The imbalance between the environmental, economic and social layers of the territory therefore asks for an holistic landscape approach to address the pressing problems that Lebanon is facing from another perspective.

This can be achieved by the conjunctive perspective based on agricultural production, serving as the normality in a state of exception. By implementing new and improving existing forms of agricultural production, rural livelihoods in Lebanon are established and protected. Agriculture production relations between the different communities are improved, with and in respect to the environment, in order to achieve social inclusiveness and to maintain the necessities of life. The natural landscape will serve as the strong foundation that supports these economies, by specifying the use of land appropriate to its natural conditions.

1.1.6 Hypothesis

By identifying the most suitable locations for nature, agricultural production and urbanisation future development concerned with agricultural economies and the affiliated forms of living can be guided. By improving existing economies based on agricultural production, rural economies are maintained and the impact on the environment can be reduced. The introduction of new agricultural economies can function as the catalyst for guiding future urbanisation. It also enables the inclusion of temporal or new communities into existing social systems. In short, ecologies of cohabitation are created through agricultural production, by safeguarding and enhancing nature, the production landscape and the inhabited communities.

1.1.7 Research questions

Main research question (chapter 6, in general)
How can a holistic landscape approach contribute to new insights on turning *emergency landscapes* into *ecologies of co-habitation?*

Main research question (chapter 6, specific)
How can a holistic landscape approach contribute to new insights on maintaining prevailing and establishing future economies and forms of living based on agricultural production, for the specific territory?

1.1.8 Sub questions

First sub question (descriptive, in-depth analysis of the context, chapter 3)
What are the opportunities and challenges of the physical territory, based on a desired balance between nature and agricultural production?

Second sub question (prescriptive and design, chapter 4)
How to exploit the opportunities and address the challenges of the spatial territory, for maintaining prevailing and establishing future economies and forms of living, based on agricultural production?

Third sub question (reflection on the design, chapter 5)
What are the socio-spatial implications of the proposals for maintaining prevailing and establish future economies and forms of living based on agricultural production?

1.1.9 Goal and objective

This thesis uses a holistic landscape approach to find new opportunities, while addressing the burdens, but not departing from them. New questions will arise after unravelling the context in wherein the implications of the phenomenon of forced migration take place. The structure of the questions however are already have been adapted to the findings after the contextual analysis. The goal is therefore to guide the development of future human settlements, in such a way it protects the natural landscape, safeguards prime agricultural landscape and benefits existing and new agricultural economies. The ambition is to create ecologies of co-habitation, where communities enter into reciprocal relationships with each other and their environment.

1.2 Methodology

1.2.1 Methods

In order to achieve the goal of this research as previously described multiple steps have been taken. The needed steps were as follows:

- Information gathering (context)
- Analysis
- Design

This research uses three different ways to collect data, explained in the following paragraphs.

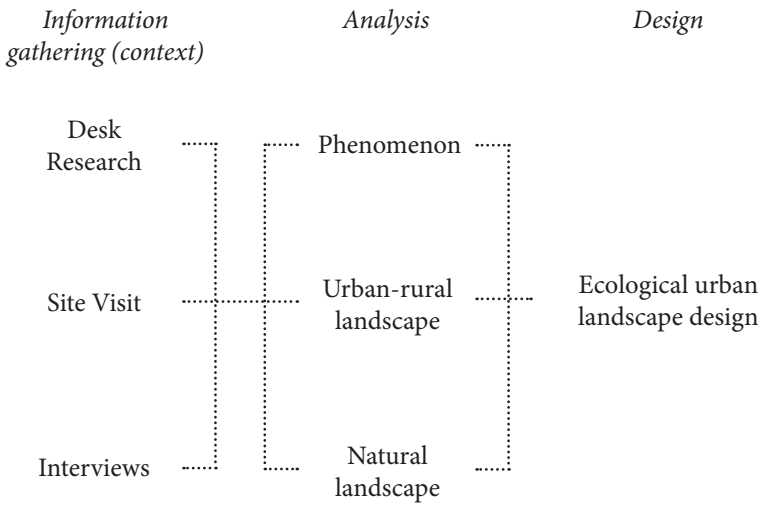


Figure 1.1 : research methods

1.2.2. Information gathering

Desk research

The case-study for carrying out this research is the western part of the Beqaa valley, with in specific the municipalities of Qab-Elias and Wadi-el-Delem. A solid analysis on the context has been done to get insight in the dynamics of the territory and the relationships established within agricultural production. It should be noticed that, at the beginning of this study the aim of the research was similar, yet the narrative of agricultural production was not yet determined. Only after the site-visit in October 2017, it became clear that the focus on agricultural production would be the leading topic, combining the different layers and scales. Because there is very little information publicly available and online about this territory, maps, data and a general profile of the territory has to be constructed on forehand.

Case-study

The choice for the rural territory of the western part of the Beqaa valley is in the first place, because of the many Syrians who fled to this part of the country and started to inhabit Informal Tented Settlements. A given that can be identified spatially by means like Google Earth. The political, religious and economic motives of the newcomers for settling in this particular area is also fascinating. The economic motive is related to job opportunities in sectors that are concerned with low-skilled jobs. An example of such is agriculture, which many of those living in the valley depend on for their livelihood. That the territory is for a great part exploited for agricultural purposes has therefore attracted large part of the Syrian population to this particular area. The natural landscape enables for these economies to exist, making it the most important component of the territory. It allows, as the carrier of all layers and the connector of all scales, for the holistic approach intended in this thesis. The water spatially connects all the layers and scales,

carried by a wide variety of landscapes, all the way up the mountain down to the valley. Finally, the western part of the Beqaa valley is a territory in which marginalised communities have lived over centuries, where different religious backgrounds are capable to live in harmony, and where people are connected by means of agricultural production or by a shared culture for the love for food.

Qab-Elias and Wadi-el-Delem show the dynamics of the territory on a lower scale, making it a representative case for a rural town in the valley. The town of Qab-Elias is located on the edge between mountain range and the plain of the Beqaa. It therefore includes a wide variety of different landscape typologies, the whole water-cycle can be addressed and it exhibits the consequences of the rapid demographic change as the result of the Syria crisis. Again, it includes a population with a mixture of religious backgrounds, practices different political systems and showcases the most important agricultural economy of the valley. In short, a holistic landscape approach can be tested on this territory.

Site-visit and interviews
The project is informed by the site-visit carried out in October 2017. This has led to prioritising certain topics brought forward during the desk analysis. Some of the observations are included in the appendix, other are dissolved throughout the text. The engagement with the Lebanese people as well as the territory will strengthen the research. The talks with the communities are not prepared, as the site-visit will be on an informal basis and many of it will be left to fate. Meetings between professionals and the access to the American University of Beirut, however, will be scheduled in order to make the most out of my time when I am on location.

1.2.3. Analysis

Layer-model (figure 1.2)
The layer approach is a popular spatial concept in Dutch planning, also called strata approach, that links spatial elements to specific time rhythms (Roggema, 2014; Hagens, 2006). Originally three layers of spatial dynamics where distinguished by De Hoog, Sijmons and Verschuren in 1998; the layer of substrate, the network layer and the human occupation layer (van Schaick & Klaasen, 2011). Although it introduced itself in 1998 in the Netherlands, the layered model itself was not new and finds its foundations in the work by Ian McHarg. In this thesis the layer approach is being used as a method for decomposing and analysing the current ecology, in order to get insight in complex landscapes. The layers set conditions to other layers in order to create synergy between them. In other words, the layer approach as an analytical tool allows to describe reality. The proposed layer-model incorporated the horizontal model also used in "the guide for Environment in Spatial Plans for the urban region Haaglanden" (Stadsgewest Haaglanden, 2003). This has been done to grasp the size and shape of the spatial structures. In addition to the spatial layers of the natural landscape and the urban-rural landscape (networks and occupation), a third layer has been added that goes beyond space as a concrete material. It is concerned with the spatial implications of the phenomenon of a certain moment in time. In this case, thus, the implications of displacement on the productive landscape of the western part of the Beqaa valley. Wherein the natural and urban-rural landscape are also approached from the perspective of agricultural production.

1.2.4. Design

The design will find its basic principles through previous research. Research that aims for a better balance between the different communities and between them and their environment by the means of agricultural production. The design showcases the findings that the analysis puts forward, rather than offering a solution for a specific problem. The design covers several layers, from the regional to the neighbourhood scale. They are connected by both the natural landscape as well as the networks of the urban-rural landscape. The backbone of the agricultural production system.

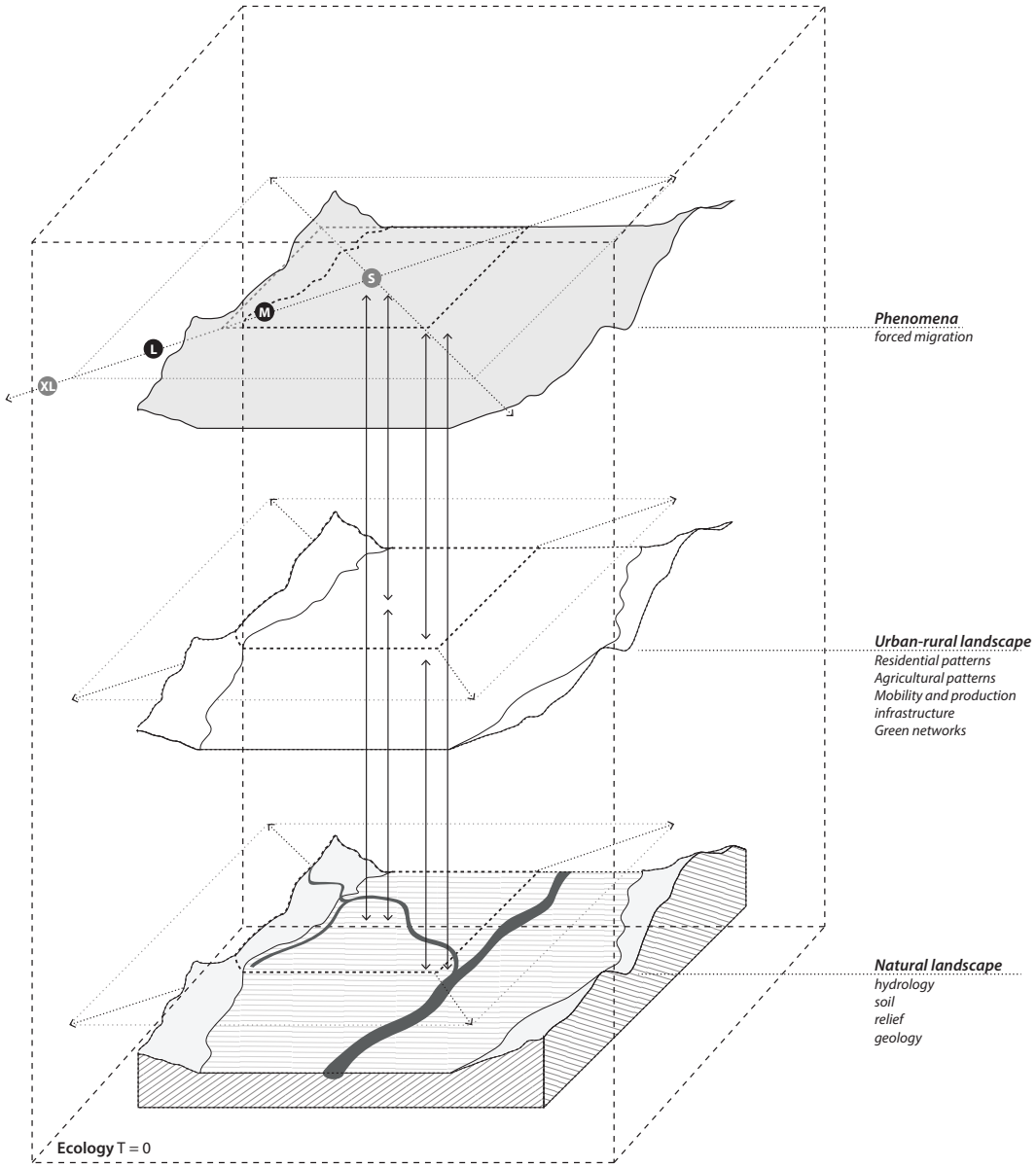


Figure 1.2 : layer-model

1.3 Theoretical framework: ecological urbanism

In this chapter the literature is being discussed that supports answering the following question: *How can a holistic landscape approach contribute to new insights on maintaining prevailing and establishing future economies and forms of living based on agricultural production, for the specific territory?* Throughout the whole thesis, extra literature is being used to support decisions made in favour of existing and new economies and forms of living based on agricultural production.

1.3.1. Holistic landscape approach and ecological thinking

In this thesis project a holistic landscape approach is being used. An approach that, instead of merely focussing on the parts and how they connect for immediate performance, is engaged in a relational and contextual way. Holism is a fundamental argument in landscape ecology, that underlines landscape as something that "must be considered, studied and treated as a system and cannot, without danger to humanity, be studied in discrete units" (Makhzoumi, 2016, p.463). The holistic perspective expands the meaning of landscape from the visible to the invisible and even the intangible. According to Koh, a landscape approach can be summarised as 'landscape is what, and landscape is how' (Officer, 2013, p.9). The analysis part of this thesis project is based on this definition, as it not only addresses what can be observed, but also includes the its intrinsic value of the landscape. The marginalised Syrian communities are therefore not approached from its demarcated perspective, but rather from a holistic reading of the landscape that can indirectly contribute to their needs and concerns. Thus, by reconnecting humans to its most basic life-sustaining relationships. In this way, not only the Syrians are included and addressed, but society as a whole, as well as its dependency on the natural landscape.

1.3.2. Ecological design

Eventually, the holistic reading of the phenomenon will therefore lead to an ecological design in which the Syrian communities are not operating independently. In contrast to the situation of many refugee camps. Lebanon in general, and the Beqaa valley in particular offers an excellent territory for this approach, as its landscape to some extend already exhibits this contiguous and fluid characteristics. For example, the Syrians started to inhabit vacant buildings in existing towns, Informal Tented Settlements are scattered throughout the (agricultural) production landscape and shared cultures are present. Departing from the landscape therefore allows for the contextual thinking, wherein "the ecological design showcases a holistic view of the human-environment and by the evolutionary and open-ended view of culture" (Officer, 2013).

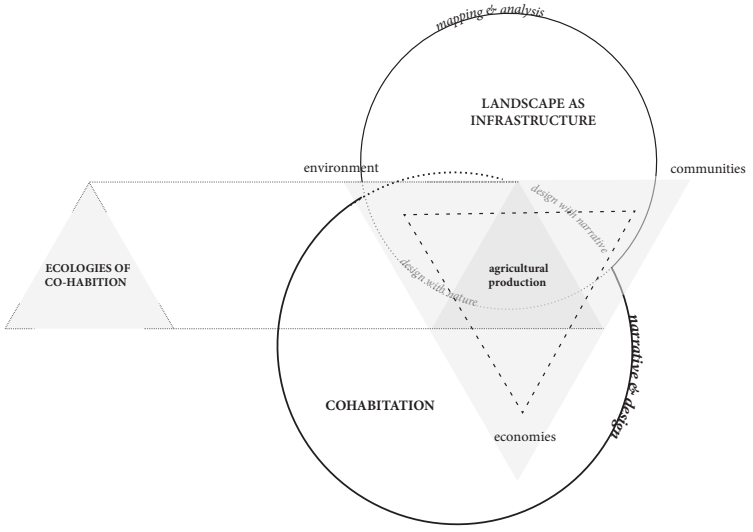


Figure 1.3: Theoretical framework (Author's scheme)

To overcome or address the problems associated with the phenomenon, solutions are therefore proposed departing from an holistic reading of the landscape. The landscape, however, can be subdivided in several components. According to Makhzoumi (2016), between the physical component, its processes and its embedded cultural perceptions and preferences. This thesis reflects upon the three, but distinguished the terminology between the natural landscape, the urban-rural landscape and the social relations of the phenomenon itself. These three layers are linked by the narrative of agricultural production, that also encompasses the three components Makhzoumi (2016) is referring to. It allows for a holistic approach that combines people to each other, as well as to their interacting with the environment. The layer-model is the tool that is being used for the holistic landscape approach, in order to achieve to goal. The goal is to create an ecology of cohabitation. In specific, maintaining prevailing and establishing future economies and forms of living based on agricultural production.

1.3.3. Ecologies of cohabitation

In this sub chapter ecologies of cohabitations are further explained (figure 1.3). The overarching goal of the project.

Ecologies of cohabitations are established by maintaining prevailing and establishing future economies and forms of living based on agricultural production, based on the assessment of the specific territory. Ecologies of cohabitation merges the principles of 'landscape as infrastructure' and 'cohabitation' together and aim for.

Agricultural production

Agricultural production has proven to be a normality in the exceptional situation. It includes environmental, economic and social values and connects different layers, scales and time-spans of the territory. Therefore, the creation of ecologies of cohabitation by the means of agricultural production addresses the burdens of the landscape caused by the phenomenon of displacement and unravels new opportunities.

Agricultural production, as a result from human exertion upon external nature, is in this thesis referring to the primary production sector concerned with the direct extraction and exploitation of natural resources. Other modes of production, such as the production of goods and the provision of services are a derivative of this primary production. In the design proposal these derivative economies are included, but in the analysis part not. The basic presumption of ecologies of cohabitation is the efficient use of production factors.

Production factors are the input for the production process, including instruments of labour and subjects of labour.

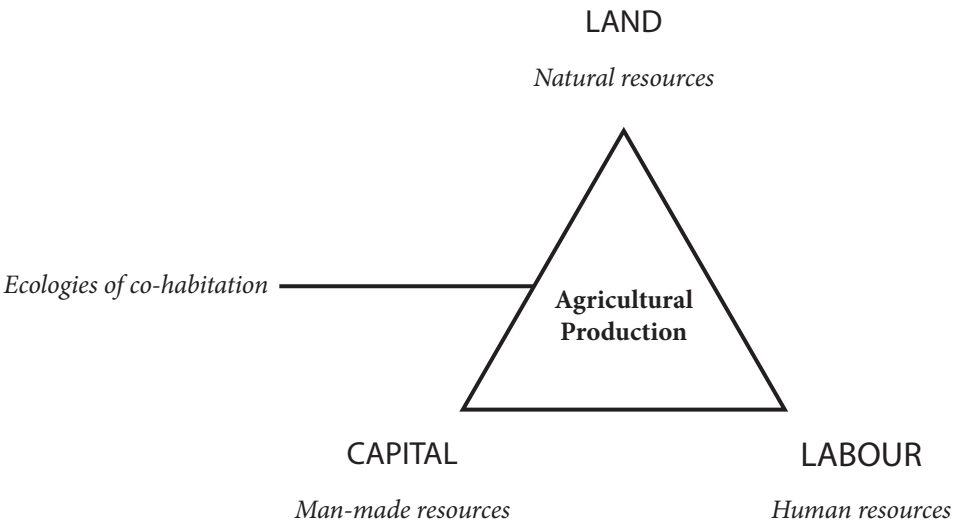


Figure 1.4: Agricultural production system (Author's scheme, based on Marx, Engels & Arthur, 1970)

Labour, the bearer of which is man, enables to activate other production factors. It is the indispensable component in the (agricultural-) production landscape that serves people to meet their needs and is therefore a presumption of their existence. The capacity to perform labour, however, is highly dependent on other components of the (agricultural-) production landscape. Examples of such are the instruments of labour, the subjects of labour, the human labour power and the (agricultural-) production relations. The subjects of labour include the natural resources and raw materials of the natural landscape. The human labour power and production relations are part of the social landscape. The instruments of labour include physical non-human inputs used for production and visible in the economic landscape, such as tools, factories and infrastructure. Production relations are the relations humans enter into with each other in using the means of production to produce. The use-value that is created in this agricultural production system, based on the theory of Marx (source), is considered to be 'real wealth' rather than economic value. It comes from the satisfaction of genuine human needs (Noonan, 2011, p.120). Chapter 3 will provide an analysis of the production landscape of the territory of interest. This in order to unravel the components of the territory in favour of agricultural production, in other worlds the assets; "valuable things that can be acquired, developed, improved and transferred across generations" (Moser, 2006, p.5).

Landscape as infrastructure: the natural resources and raw materials as a condition for the production of use-value.
The land comprises soil and water, that are intimately linked to one another. Water and soil determine land-based activities and can affect each other in quantity and quality. Soil allows and provides the basis for natural vegetation and crops, being fundamental for humans and other living organisms. Reflected upon from a holistic landscape approach, agricultural production is highly dependent on this hybrid system. Whereas soil, is a resource bound to a specific place, water is fluid and part of a cyclic process. Land is the essential component for sustaining rural livelihoods by the provision of food, energy and material (Braimoh & Vlek, 2008, p. V). In short, preservation of soil and water conditions is necessary to keep the entire ecosystem functioning.

With an increasing pressure on land to provide in the subsistence for human beings, more efficient and effective land-use methods should be used. The competition for land suitable for agricultural production, asks for the efficient allocation of land resources. According to Braimoh & Vlek (2008, p. V) "*Assessment and management of soil quality for land-use planning is increasingly important due to increasing competition for land among many land uses and the transition from subsistence to market-based farming in many countries. The major challenges include predicting land-use suitability and assessing land-use impacts on soil quality to sustain land productivity*". Soil and water are the resources for agricultural development as a means of securing the necessities of life. By integrating this natural layer in urban planning, co-prosperity between the environmental, economic and social layer can be achieved. Mainly to secure food and to support the well-being of the rural communities living in the Beqaa valley.

Cohabitation: labour and production relations.
All the untapped potential of the inhabitants living in Lebanon, can be deployed to establish a socially inclusive production landscape. In an (agricultural-) production landscape, the relationship between people and nature is determined by human labour. Labour is referred to by Karl Marx as following (Holt, 2009):

> "Labour is, first, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature. He confronts the materials of nature as a force of nature. He sets in motion the natural forces which belong to his own body, his arms, legs, head and hands, to appropriate the materials of nature in a form adapted to his own needs. Through this movement he acts upon external nature and changes it, and in this way, he simultaneously changes his own nature, and subjects the play of its forces to his own sovereign power".

The human labour power, also referred to as labour-capacity, is the mental and physical capabilities of a human being that he sets in motion whenever he produces as use-value of any kind (Thomas, 2010, p.49). Unlike labour, the labour-power is a capacity not yet performed, a potential. It is a distinction made by Marx that separates the capacity to do work from the physical act of work.

Social inclusiveness differs from the ambitions in communist ideology to establish a social equilibrium, because it is not aiming for an equal distribution of resources but rather the possibility to participate in the production system, to - at least - support oneself on a minimum level. From that position one can evolve from the state of exception into, what is being perceived as the norm. Labour-power, however, is not merely a material property of the worker. In the capitalist mode of production labour-power is also a commodity, in which the production of use-value is an exchange-value (Thomas, 2010, p.49). It depends on the social organisation that underlies a production system, how and in what way the labour-power is being exploited. In the analysis part of the thesis, these social relations of the (agricultural) production landscape are examined.

Productive landscapes, agrarian urbanism & Utopian designs
Pioneer models of productive landscapes go back to the nineteenth century of urban planning. Examples are the concepts of Ebenezer Howard and Frank Lloyd Right (Akyol & Tunçay, 2013). Whereas Howard focusses in his Garden Cities concept on urban food growing in general,Wright proposes a new kind of city based on the geometric lay-out of agricultural land. The proposed decentralised centralities of the Garden City as well as the decentralised plots of Broad acre city are both devoted to food production for its inhabitants to be self-sufficient. Howard's proposal derives from the ambition to better balance urban and rural occupation, as well as balancing human needs and nature, while Wright aims for a more healthier environment. Where Howard proposes a design scheme as an alternative for the possible harm of industrialisation, Wright argues against inhuman circumstances of American cities. Likewise, this thesis aims to respond to critical conditions on the environmental and social level, by offering an alternative concept of living and working on land, responding to the expulsion and marginalisation of both environment and the rural Lebanese and Syrian communities living in the Beqaa valley. The concepts put forward by Howard and Wright are inspiring, but not necessarily guiding. After all, these concepts are utopian ideas largely based on an intuitive approach. The general principles that underpin these utopian ideas could be, after adaptation to the specific characteristics of the location and the dynamics of contemporary times, inform the design proposal.

1.3.4. Demarcation

In this thesis a demarcation is used for land. Land as a biophysical entity is both the result of lacking data, as well as the personal choice to emphasize on the opportunities and challenges rather than the limitations of the territory and a line of thought put forward in the graduation studio. The definition of land 'beyond' the scope of this project, includes the geopolitical component of land as a commodity. Land can be commodified in various ways and forms the basis for a wide range of productive activities and living (Niewöhner et. al, 2016, p.3). As governance and power (relations) determine decisions taken on land and water use and thus shaping social, material and scalar relations (Bruns et. al, 2016, p.328) it does include the analysis on the (agricultural-) production relations examined in chapter three. In chapter two on the context of the case-study and in chapter five on the implications of the design, this definition of land is also briefly discussed and reflected upon. Secondly, land as a source of meaning, is also referred to in both chapter two and chapter five. As the initial choice for the case-study was based on the co-existence of different religions and beliefs, Lebanese and Syrian communities and the symbolic of Informal Tented Settlements. In short, the basis of the (design) project is determined by land as a biophysical entity and informed or inspired by the other definitions.

2

Context

Chapter 2 context

2.1 Lebanon

2.1.1 In general

The Republic of Lebanon as we know it today, wasn't always characterised with the administrative borders defining the current territory. Its origin dates back since the beginning of the State of Greater Lebanon created by the France in 1920. The country knows a long history of shifting borders, starting from the Neolithic time period with the Mesopotamia (Fertile Crescent), towards the Ancient period with several kingdoms from the Phoenicians to the Romans, to the medieval period with the Islamic Crusaders, the Early modern period of the Ottoman Empire to the state of Greater Lebanon. During the Ottoman Empire, before the establishment of Greater Lebanon, the Beqaa valley was part of the province of Syria, which was ruled from Damascus (Afsahi & Darwich, 2016, p.192). In other words, the fertile territory of the Beqaa is well-known among both Lebanese and Syrian peoples. Also in recent years, before the outbreak of the civil war in Syria, the Syrians were not unknown to the country. Either for job opportunities in the agricultural sector or because of their occupation since the beginning of the civil war (1975) until the year of the assassination of the Lebanese premier Rafic Hariri in 2005. The large influx of Syrians from 2011 on, was therefore not welcomed by everyone. Whether public or clandestine, the social relations between the Lebanese and Syrians population have a long history.

2.1.2 Environment

Ultimately, The environment of Lebanon formed its conditions for living, production and nature. A geological fabric that dates back from the Early Jurassic to the late Middle Paleocene-Holocene and defined the country's landscape scenery (Lateef, 2007). Together with its humid Mediterranean climate, this geological fabric, resulted in a large amount of water resources, fertile grounds and high biodiversity (DAR-IAURIF, 2005, p. I-4; Raphael, 2013, p.13). This diverse landscape has resulted in a highly diverse agriculture, from quasi-tropical production in the coastal area, to orchards on high altitudes and many possible agricultural products in between.

2.1.3 Economy

Lebanon is seen as one of the gateways of the Middle-East to the rest of the world, due to its favourable location between different continents and proximity to the Mediterranean Sea. Therefore most important trade cities can be found in the coastal areas, and the main trade routes between the coastal cities and the most important cities of its hinterland (including Syria). Mainly in the past, this geological location has favoured its economic development, where in the last decade its subjection to several disruptions has caused economic hardship. It was only before the outbreak of the civil war that the country was one of the most important players of its region (DAR-IAURIF, 2005). During the civil war the country was not able to keep this strong position, as other Arabic countries took over the market. Besides, much of the country's infrastructure got destroyed during that same time period, which slowed down the economic recovery (Winslow, 1996).

Today, the economic sectors of Lebanon can roughly be divided into services, industries and agriculture, with real estate, construction, finance and tourism traditional being the main drivers (The World Bank, 2016, p.12). The service-sector remains the largest contributor to the economy of Lebanon, while agriculture covers approximately five per cent. According to The World Bank (2016, p.25) both the agricultural and industrial sector are experiencing much undeveloped potential. While agriculture occupies large part of the country's land. The main crop production regions

are the coastal strip, the Akkar plains in the north, the central Beqaa Valley, the mountainous region and the hills in the South. Although half of this surface could be cultivated, the levels of productivity differ.

2.1.4 Society

Although similar in traditions and cultures, Lebanon has a large variety in tribes and beliefs. These different communities have been in conflict with each other throughout history, with the exception in the period prior to the country's independence. This is highlighted with the Communal Pact of National Identities (Mackey, 2006), that supports the union of communal differences between mainly the Shi'ite, Sunni and Druze Muslims and Orthodox and Maronite Christians. Caused by internal tensions that resulted in the Lebanese civil war, this pact seemed to be renounced. By the end of the war in October 1989 this pact reinstated, with the addition that the country was an Arab country 'in belonging and identity' (Fakhoury Muhlbacher, 2009, p.164). This pact is important, as it underpins the power divisions and therefore political landscape of the country. Despite the fact that these power relations exist, it does not directly imply a relation between religion and politics. In many of the regions and towns different religious backgrounds have lived in harmony with each other for centuries. Unfortunately, like in many countries around the world, religion is a political weapon. Parts of the territory of Lebanon do show large majority groups with different religious backgrounds. Unlike the metropolitan capital, not everyone is accepted in other parts of Lebanon. The geographic location of these religions have therefore also been one of the motives for Syrian people to inhabit a particular area within Lebanon.

The majority of Syrians in the country are low- to semi-skilled workers, who are mainly participating in the construction and agricultural sector of the job market or who are engaged in personal and domestic services or the informal sector (The World Bank, 2016, p.15). The competition on the labour market within these sectors goes at the expense of other migrant groups rather than the Lebanese themselves. Nevertheless, also a fourth of the Lebanese population is listed as poor, of whom most of them living in the north, south or Beqaa region (BTI, 2016, p.17). This corresponds with the areas where most of the Syrian refugees have settled. These areas are the most vulnerable in the country.

2.2 Valley: Beqaa valley

2.2.1. In general

Geographically Lebanon is split through its parallel mountains into two parts, with the coastline and valley forming two different landscape typologies. The administrative borders divide the country in eight governorates (Muhafazahs), of which one of them is also the Beqaa. The Beqaa Valley borders with Syria on the eastern mountain range. Its capital is Zahle, known for its economic and agricultural wealth (Thomas, 2013, p.17). The Beqaa itself can be further subdivided in three districts, better known as Rashaya in the North, Zahle in the middle and the Western Beqaa in the south. The project-area partly covers the districts Zahle and Western Beqaa, but also includes a small part of the Chouf district (Mount Lebanon Governorate).

2.2.2. Environment

The tectonic formation or geological fabric of the territory goes back form the Early Jurassic to the late Middle Pleistocene-Holocene (Lateef, 2007). Not only do the fundamentals of the conditions of the Beqaa Valley lie in this era, the geological history showing these tectonic processes also provides insights on the Valley its physical structure and seismology (image 2.11-2.12). The environment of the Beqaa Valley features mountain landscapes and a large flat plain formed by carbonate karstic formations. These formations in turn have resulted in a variety of soil-types. The most common soil-type to be found in both Lebanon and the Beqaa valley is the Leptosols, found on rocky landscape.

Followed by Luvisols that covers approximately twenty percent of the land surface (CNRS, 2013, p.19). As mentioned in the introduction of this thesis, water are soil and inextricably linked. Soil itself has a two folded function, wherein it is not only a reserve of water, but it also influences the quality of water. The territory is well treated in the amount of water resources as a result of its geographical and topographic features. Examples are annual precipitation and fresh water sources such as springs, lakes and rivers (Raphael, 2013, p.15; Azar, 1957). The land of the territory more inwards (towards Syria) changes from semi-arid to arid (Raphael, 2013, p.13).

2.2.3. Economy

The Beqaa valley is well-known for its wide range of agricultural production. The plain is characterized by the cultivation of land-crops, while the hillsides are covered in orchards and vineyards. Historically, the Bedouin population were also apparent in the socio-economic landscape, but find itself today in a marginalised position as settled urban and agrarian populations largely define the Beqaa of today. From a regional point of view, this hinterland largely depends on the services and industry sectors of Beirut. Vice versa, Beirut is largely being fed by the agricultural lands of the Beqaa valley. The latter depends for a large part on the water resources of the country, where the crop fields are mainly irrigated by the Litani river and horticulture is for a large part rain-fed (MoEW et al, 2014). Others ways of obtaining water for agriculture is through the natural springs or by extracting groundwater using a water pump, which is also a common way of providing water for households. Due to a shortage, water is also supplemented by tankers. The further one goes to the east of the Beqaa, the drier the land is.

2.3 City-scale: Qab-Elias

2.3.1. In general

Qab-Elias is one of the towns located on the eastern edge marking the transition between Mount Lebanon range and the plain of the Beqaa. It is strategically located near a traffic crossing, that connects the inland of the country with its coastal area. Originally built on higher ground, the town is overlooking the valley and its agricultural landscape. When traveling from Beirut towards Damascus, one will first catch a glimpse of the town of Qab-Elias when crossing the eastern slopes of Mount Lebanon (Björkman, 2003).

2.3.2. Environment

The old town is a cluster of houses located on the foot of the valley of Wadi-el-Delem, a relatively high and less rocky part of the area. Visible in two of its legacies, Qab-Elias its settlements originally were build in harmony with its natural landscape. The first heritage is the Haydara altar, carved into the rock of a cliff dating from the Roman era. The second is the remnant of the Fakhreddine Fortress, dating from the Ottoman Empire (Lebanon Traveller, 2015, p.22; Björkman, 2003). On the southwest the municipality is adjacent to the Shouf Biosphere Reserve, including the Shouf Cedar Nature Reserve and the Aamiq wetland (Shouf Cedar Reserve, 2017).

The Wadi-el-Delem valley is supplemented by water in the rain season, where its surface water merges with the Hafir river, a tributary of the Litani river. The Ras el Ain spring provides the largest part of the town of Qab-Elias in water (DAI/KREDO, 2015, p.117). Today, urbanisation and agricultural practices are increasing competitive with The environment, where new urban patterns emerged - among others - in close proximity to the rivers..

2.3.3. Economy

The large majority of the inhabitants of Qab-Elias earn a living in agriculture. Many of whom own their own land

(Azar, 1957). Qab-Elias showcases the agricultural importance of the Beqaa valley with one of the four wholesale markets of the country in fruits and vegetables. The market is trading in vegetables produced in the direct area, such as eggplant, tomato, cabbage, cauliflower, potato, corn, drupes, fruits, barley and wheat (MercyCorps 20134; UNDP, 2018). Today, around sixty per cent of the Lebanese population and ninety per cent of the Syrians living in Qab-Elias depend on the agricultural sector for income (UNDP, 2018).

Marked by historic vineyards and wineries, today's landscape of the Beqaa valley represents on of the oldest areas of wine production in the world. In particular the towns located on the eastern edge are accompanied with châteaus representing a legacy that has overcome the many disruptions that the country encountered in the last decades. Two châteaus near Qab-Elias are 'Château Heritage' and 'Château Saint Thomas'. Wineries that are both owned and controlled by the Touma family, who are in the business since 1888 (Lebanon Traveller, 2015). The grapes that are not being used for the making of wine are used to make arak, another product passed down from one generation to another since the late nineteenth century. Arak is an important part of the Lebanese cuisine, in particular the Mezze, and therefore inseparable from the Lebanese culture. That the local food production is of great importance in the town of Qab-Elias showcases the annual fair that honours the Mouneh. During this period the variety of the local agri-food is exhibited.

2.3.4. Society

Village government in Qab-Elias is both based on family tribes as well as political parties. The latter is characterised by sectarianism, where those elected follow a ratio determined by the relative population of the religious groups. For example, six out of twelve are Sunni Moslem, three are Maronite, two are Greek Orthodox and one is Greek Catholic. (Björkman, 2003). Before the outbreak of the crisis in Syria, the inhabitants where almost equally divided between the Christian and Moslem religious. Today the Moslem communities are in slight majority. Family ties in the town, however, remain very important. Qab-Elias appears to be a reasonable prosperous village. There are a number of new buildings and public areas, including a huge mosque, sport facilities and a public garden. Before the outbreak of the civil war, poverty was extremely rare among Qab-Elias citizens. Migrant workers (in particular Syrian farmers) where the poorest of the town (Azar, 1957).

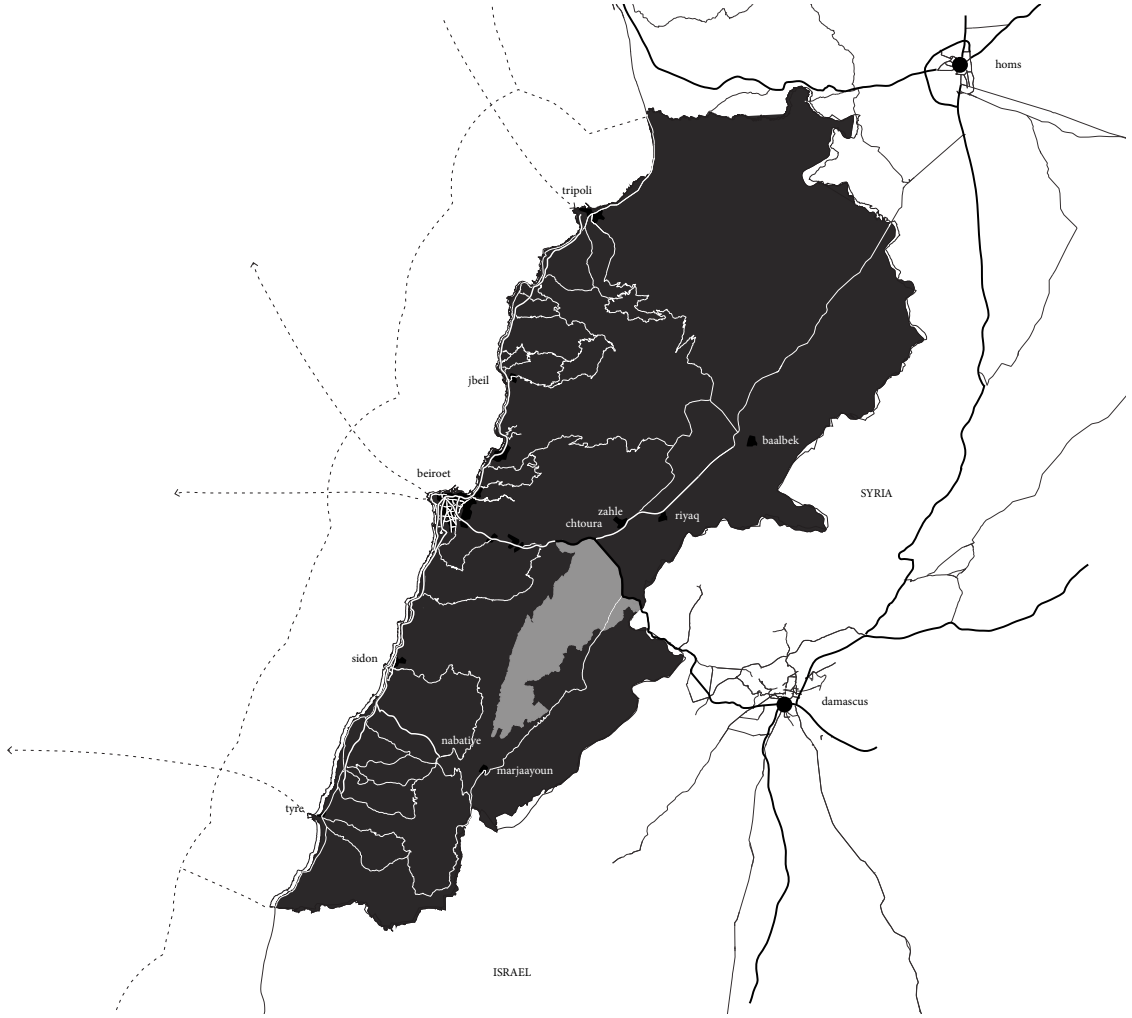


Figure 2.1: Infrastructure
Author's image, based on WFPGeoNode (2017)

Figure 2.2: Agriculture
Author's image, based on DAR-IAURIF (2015)

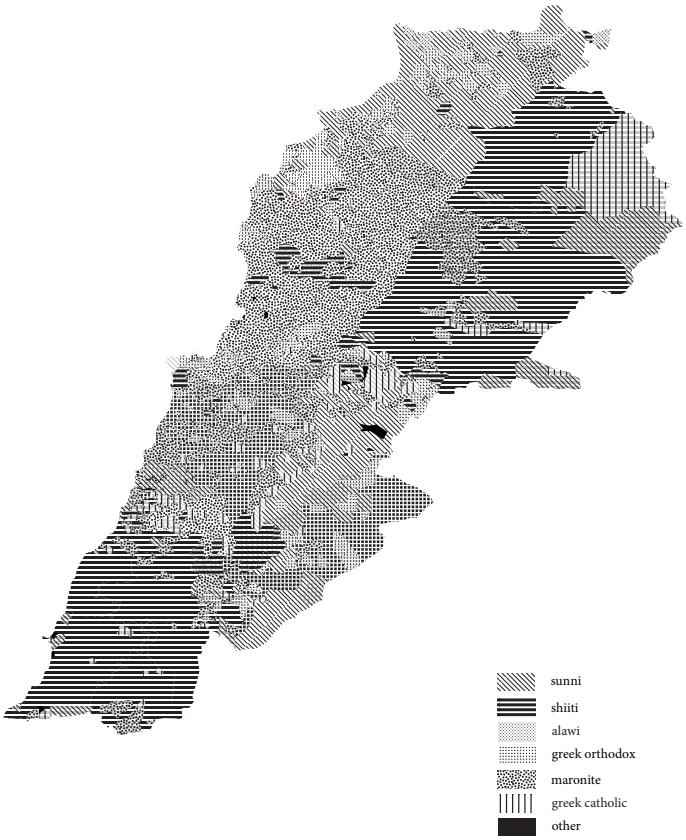


Figure 2.3: Religion
Author's image, based on Höckmann (n.d.)

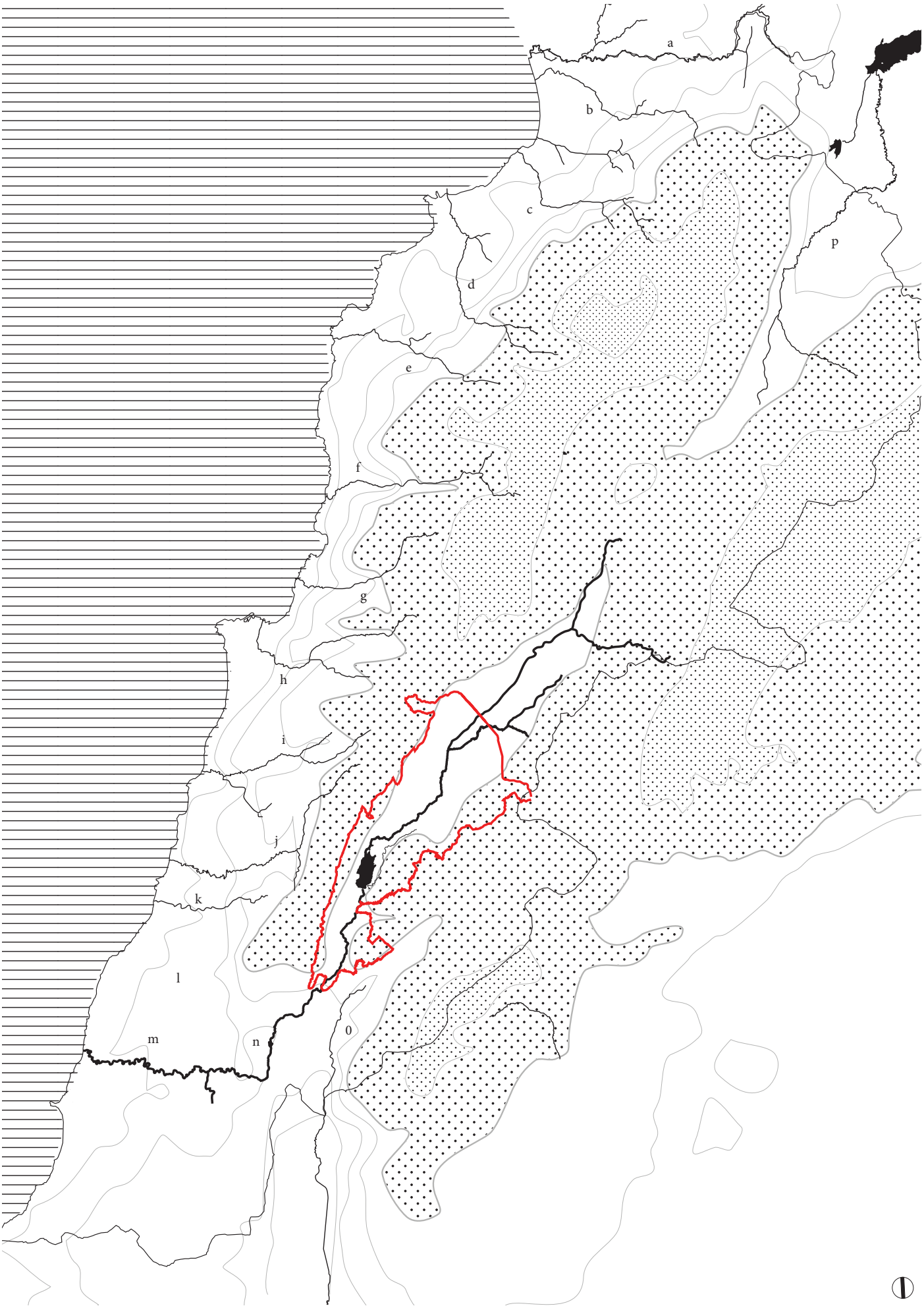


Figure 2.4: Natural landscape
Author's image, based on Faour (2015) & El-Fadel et al. (2001)

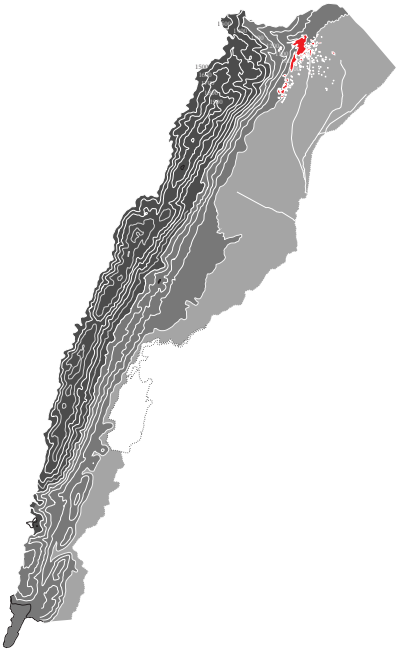


Figure 2.5 Topography
Author's image, based on © OpenStreetMap authors

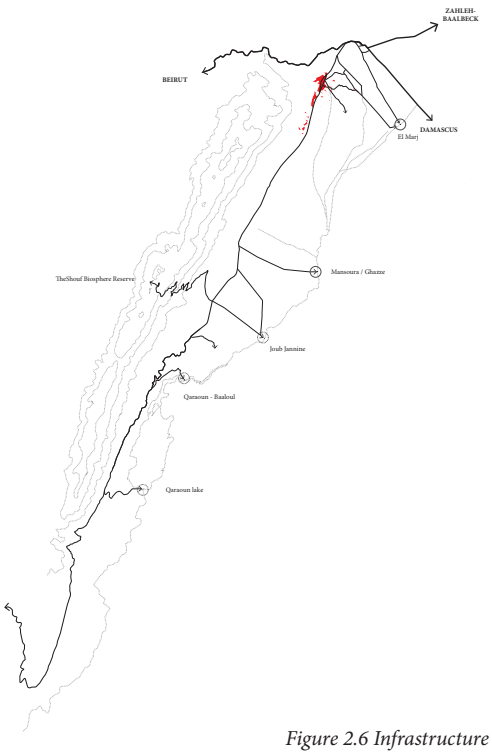


Figure 2.6 Infrastructure
Author's image based on © OpenStreetMap authors

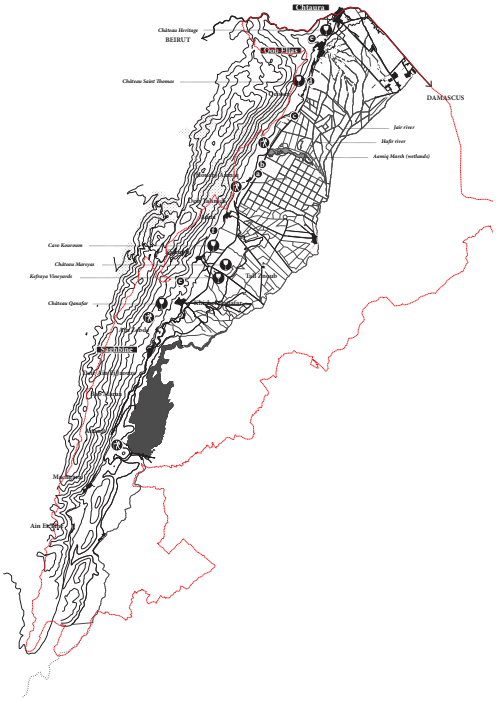


Figure 2.7 Vineyards
Author's image based on © OpenStreetMap authors

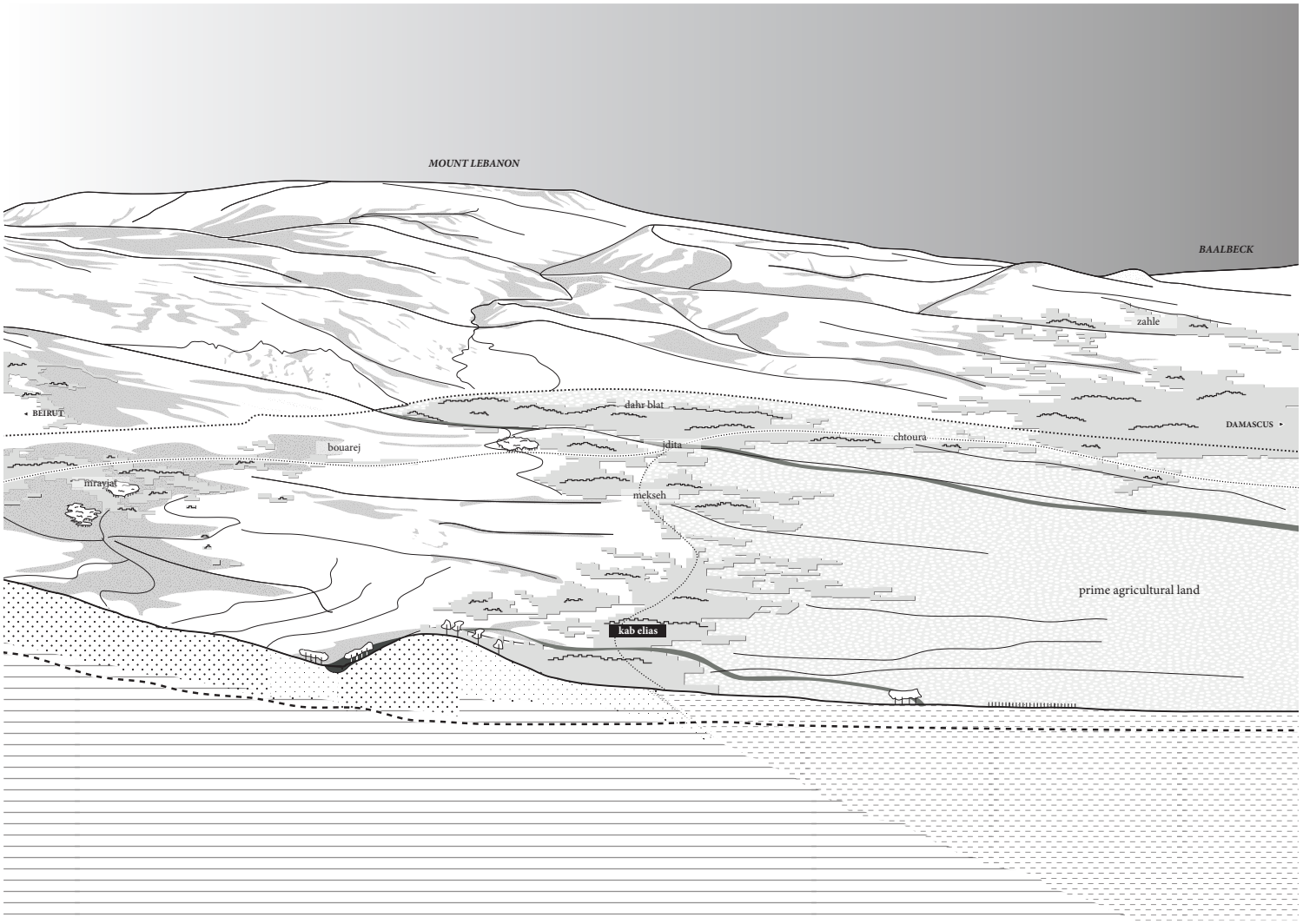
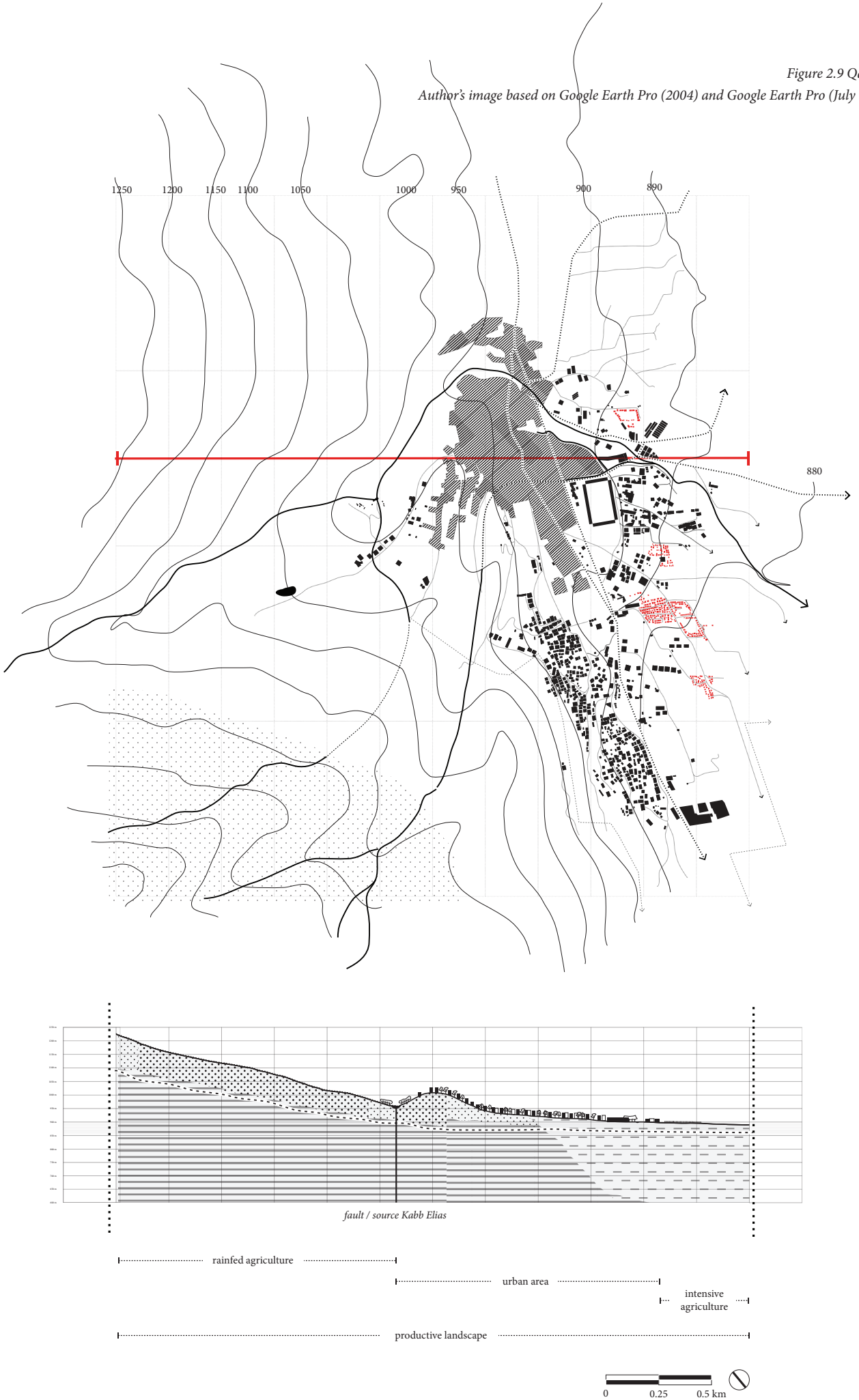


Figure 2.8 Qab-Elias town
Author's image, based on Google Maps (2017) and Google Earth Pro (July 1, 2017)

Figure 2.9 Qab-Elias
Author's image based on Google Earth Pro (2004) and Google Earth Pro (July 1, 2017)



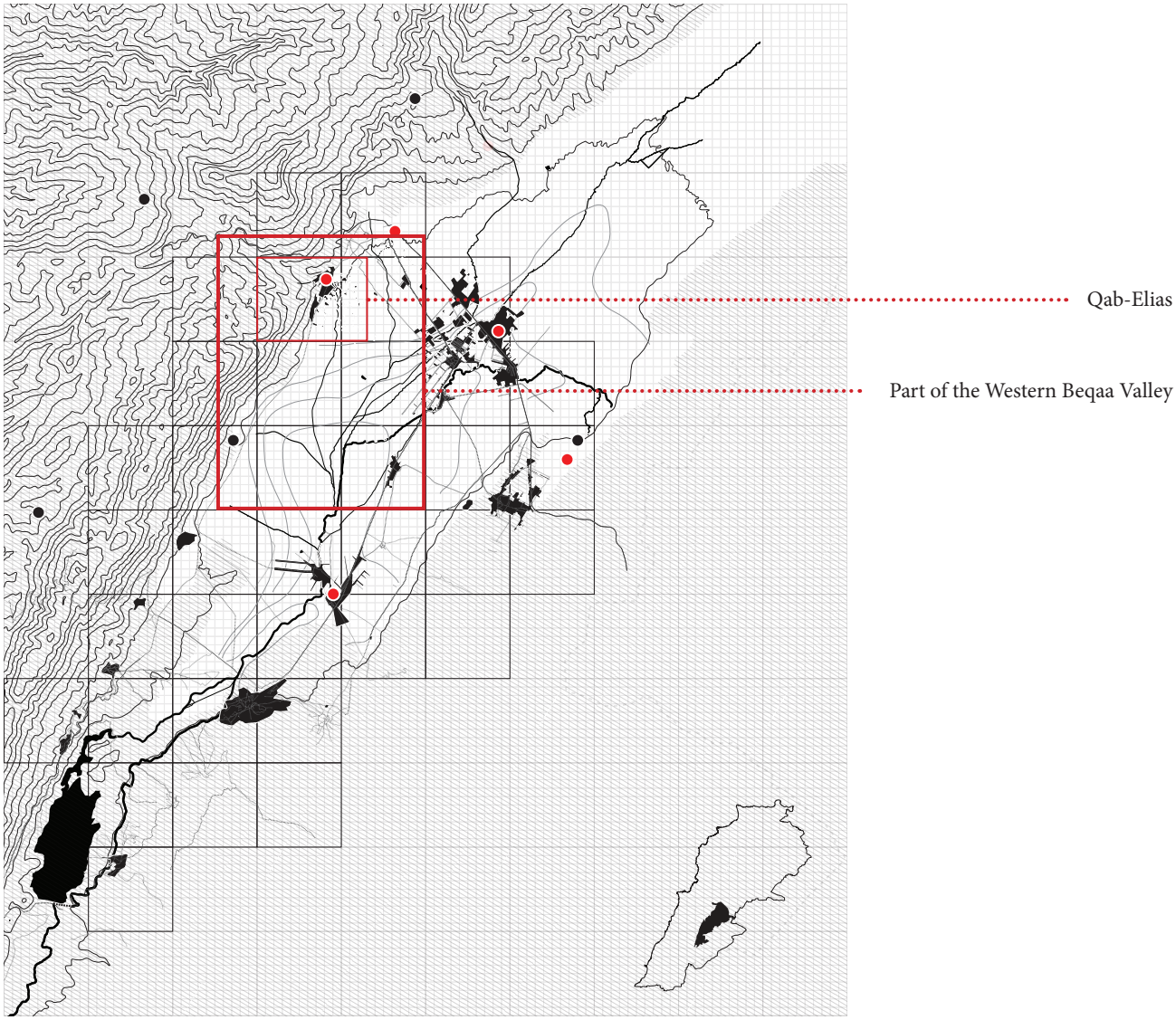


Figure 3.1 Case-studies

3

Question 1

What are the opportunities and challenges of the territory, based on a desired balance between the environment and agricultural production?

Chapter 3 analysis

The question to be answered in this chapter is the following: *What are the opportunities and challenges of the physical territory, based on a desired balance between the environment and agricultural production?* In the first paragraph the layer of the natural landscape is examined, related to the land form and ground type that affect the possibilities of farming. A suitability map for agricultural production emerges from this, which is reflected upon in the second paragraph. The second paragraph compares the most suitable areas for agricultural production with the contemporary networks and occupation patterns on the city-scale, from which conclusions are drawn about the opportunities and challenges of the physical territory. The third paragraph contains an outline of the phenomena in comparison to agricultural production, and thus is concerned with the social relations of the landscape of production. The last paragraph gives answer to the first sub-question.

3.1. Introduction

The natural landscape is a determining factor for both nature and agriculture. The possible crop types and applicable agricultural techniques depend on the composition of a specific territory. Examples of such are steepness, the composition of soil, irrigation and water availability (MoE & UNDP, 2011, p.1). The physical factors affecting agricultural production are the geology (drainage/rock-type), relief (shape of land), soil, hydrology, aspect (direction land is facing) and the climate. As the territory varies in composition and functioning, the modes of agricultural production are dependent on these different landscape entities. Balancing nature and agriculture as the basis for land use, is a derivative of the position that prime agricultural land should be reserved as such, making it intolerant to urbanisation (McHarg, 1992). In the case of the Beqaa valley, prime agricultural land is increasingly competitive with other human activities.

Step 1: technical assessment of the natural landscape

Step 2: technical assessment of the urban-rural landscape

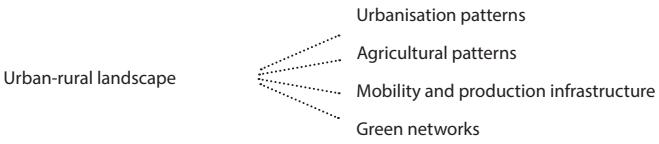


Figure 3.2. The natural and urban-rural landscape

3.2. The natural landscape

In the first paragraph the layer of the natural landscape is examined, related to the land form and ground type that affect the possibilities of farming.

The first step of identifying the areas suitable for agriculture is based on the technical assessment of the territory, a physical evaluation of the quality of the natural landscape. This is important for maintaining long-term productivity

of lands, using them optimally and in order to prevent the degradation and depletion of water and soil (Sharififar, Ghorbani & Karimi, 2013). A reciprocal relationship wherein agriculture requires soil and water and freshwater processes are indissoluble from the landscape. Respectively the land-form and ground-type are analysed on its suitability for agricultural production, shown in the maps *a* to *d*. Here soil and water play a key role, connecting nature and agriculture in an interacting system. Therefore, considerations are not merely based on the intrinsic suitability of the natural landscape for agricultural use, but take into account the natural processes that influence the performance of the entire ecosystem. Keeping in mind that natural processes perform work for man, such as natural water purification, atmospheric pollution dispersal, climatic amelioration, water-storage, flood, drought and erosion control, topsoil accumulation and forest and wildlife inventory increase. Changes to any part will affect the operation of the whole (McHarg, 1992, p.56; Bruns et. al, 2016, p.321).

By identifying the value and the land for natural-process on the one hand and the physical suitability for agriculture on the other hand, a desired balance can be established between the two. This in turn will lead eventually to the designation of space for urbanisation. The assessment appeals to the theory of Ian McHarg (1992), where water and land features are valued in relation to human use. This ranking is informative, not leading (figure 3.3).

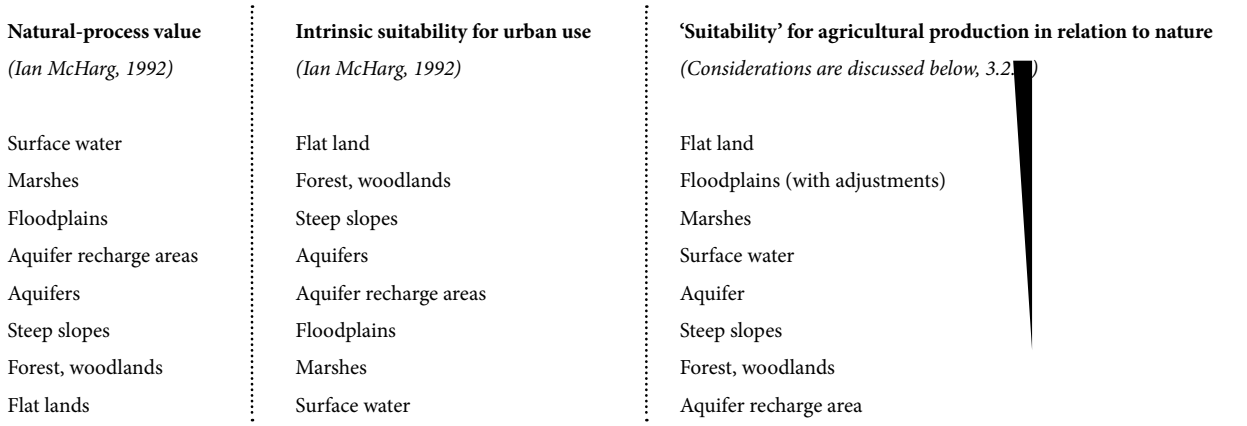


Figure 3.3. Ranking scheme

The regional-scale: Western Beqaa valley (figures 3.5 a t/m d, p. 38)
In the first map (3.5.a) the suitability of agricultural production is based on the geological fabric of the territory. It is distinguished according to four different karstic types that differ in shape and sizes and are linked to the territory's groundwater resources (MoEW & UNDP, 2014, p.XI). They are categorised based on geological age (Annex, figure 2, p.95), but distinguished by their infiltration capacity and surface water run-off. The areas with high infiltration rates, but no major surface runoff are designated for natural protection areas. Its capacity to infiltrate water for groundwater recharge, absorbed by its underlying natural aquifers, indicates the important role it plays for the maintenance of the natural system. Nature plays an important role in water purification, water-storage, flood, drought, erosion control and topsoil accumulation for the long-term productivity of land. These areas are the inlet of the ground- and surface-water, used for all land-related activities in the Beqaa valley.

The second map (3.5.b) shows the distinction between three categories, namely steeply inclined, moderately inclined and flat or gently inclined. The first category deals with a high risk of erosion hazard and flooding as a result of storm water runoff, making it unsuitable for cultivation (McHarg, 1992, p.60). Although the second category is also vulnerable to some extent, it is suitable for specific agricultural production, that can reduce the water-run off and therefore risk of erosion and flooding. Therefore soils are also often shallow and therefore not suitable for cultivation. Example of such are agricultural terraces, often planted with either fruit trees or grapevines. The valley itself is largely flat or

gently inclined, making it suitable for all types of agriculture, particular for field crops. Large part of the valley, however, is susceptible to flooding when the water table rises. The natural underground drainage system is not able to drain rainfall away fast enough. In the more urbanised areas this is also a problem, but then artificial drainage systems often appear to be clogged with waste. Nonetheless, measures must be taken on this suitable land for agricultural production, to ensure limited damage in the case of groundwater and/or river flooding.

The third map (3.5.c) is concerned with the soil-types, key for the exploitation of the land for agricultural purposes. Soil is critical for successful agriculture, as its composition determines the growing process of the crops, grasses or trees. Therefore the distinction has been made between low and high nutrient content of the soil based on the available information. Luvisols is the most favourable soil group for agricultural production, as it allows for a wide range of agriculture, from grains to orchards to vineyards due to its high nutrient content (Encyclopaedia Britannica, 2016). Leptosols on the other hand seem more appropriate for nature or urbanisation, as they are shallow and contain large amount of gravel. These soils are often found on locations susceptible to erosion, areas of drought or areas of flooding. In Lebanon the areas associated with Leptosols represent the main recharge zones for groundwater (Encyclopaedia Britannica, 2017; CNRS, 2013, p.19). Both Leptosols and Luvisols cover each a fifth of Lebanon. Arenosols have a low nutrient content, but can still be exploited for agricultural use when careful management is applied (Encyclopaedia Britannica, 2017). Regosols better fit nature and urbanisation, as it is only being limited exploited for dry land cropping. Gleysols, Cambisols and Fluvisols on the other hand, appear to be more suitable for agricultural production. Respectively for rice, field crops and trees, agriculture subjected to the limitations of terrain and climate and dry land crops, rice and pasture (Encyclopaedia Britannica, 2017).

The suitability for agricultural production in the fourth map is showing the water features of the territory. As said before, water plays an important role in providing essential physical, chemical and biological functions (Bruns et. al, 2016, p.321). It is an asset that supports life itself. The map shows only surface water, the infiltration capacity of the geological layer and includes the floodplain. Basically, most of the areas are favourable in terms of water. The area between plain and hillside can depend on the water springs the areas of the plain from the surface water (Hafir and Litani river) and the areas uphill from storm-water runoff and rainwater harvesting. The plain, however, is in some cases subjected to river and groundwater flooding, making the area vulnerable for environmental, economic and social losses.

The conclusive map (figure 3.8). shows that the darker areas are the most suitable for agricultural production, while the lighter areas are less suitable and the large white areas are excluded. It however differs in type of farming, which will be further explained in the next chapter, with reference to figure 4.6 (p.60). Different landscape typologies are hereby linked to different types of farming. The categories 1 to 3 are considered less suitable, mainly because of their slopes and type of soil. An exception is category 3 in the middle of the Plain, which is an area that is flood prone. Proper measures should be taken here when cultivating, in this specific case, field crops.

Although the natural landscape shows great opportunities for agricultural production, it also faces some challenges. Especially with regards to its soil and water resources. Improper practices, forest fires and chaotic urban sprawl has led to the degradation of the soil (CNRS, 2012). This has reduced the productivity of the land and negatively affected the composition of water. Poor wastewater- and solid waste management has caused, among other factors, surface water pollution and groundwater contamination (MoE, EU & UNDP, 2014). This in turn, effects human health, fish, wildlife and agricultural crops (MoE, EU & UNDP, 2014, p.6). In order to sustain the rural livelihoods in the Western Beqaa valley, both an efficient use of these natural resources as well as its maintenance are of great importance.

The municipality of Qab-Elias and Wadi-el-Delem (figures 3.6 a t/m d, p.39)
Zooming in to the scale of the municipality of Qab-Elias and Wadi-el-Delem shows a more specific assessment, yet

is broadly similar. It indicates small pieces of land which are more or less suitable, than the general assessment of the Beqaa valley points out. This difference is mainly based on topography and soil type. The technical analysis of the natural landscape of this scale will be of greater importance, when allocating and designing for the city.

3.3. Networks and occupation

There is already some existing transport infrastructure in place, but this is challenged by lack of hierarchical road and street systems. The hierarchy of roads should be more dependent on the function of the street and its function of performance. Category 4, for example asks for stronger connections on a regional scale (Figure 3.10). Its function is to support the distribution of goods produced by commercial farming. Small-scale farming, however, ask for strong connections between local cores that are in close proximity to each other. Although not included in this thesis, also public transport is absent or of low quality. The fruit and vegetable market of Qab-Elias has regional importance, yet is badly connected to its surroundings. It is located along a passage route, at de edge of the fine-grained street-network of the old town of Qab-Elias. This scale, on the edge between local and global forces, has a lacking road system hierarchy. This leads to frictions, especially during the whole-sale hours. In addition to the challenges, there are great opportunities to strengthen roads to their contemporary or future function. The areas suitable for agricultural production, yet not exploited yet for this purpose, are also favoured with existing roads that can be further exploited (category 4, p.41). Data on energy and irrigation networks is lacking, so no conclusions can be drawn upon.

The occupation patterns show an overlap between the land highly suitable for agricultural production and land that is also exploited as such. However, it remains competitive with other land uses, something that got worse over the years. In particular urban patterns of industry and residence started to occupy former farmland. This appearance is characterized by unplanned urbanisation and low density developments (sprawl). This has contributed to fragmentation and inequality. Other forms of urban forms can be envisioned in conjunction with new agricultural economies.

3.4. Phenomenon

There is an increasing pressure on the natural landscape, the infrastructure (networks) and the productive land (agricultural production, occupation) as a result of rapid growth in population. A disturbed balance between people and their living environment and between people themselves has occurred. The rapid (unnatural) demographic increase acts rather as a catalyst for the visibility of an existing situation, than being the only cause of the identified problems such as environmental pollution and degradation, and economic and social instability. Lack of institutional frameworks, compliance and management has contributed to the shrinkage of productive agricultural land, large scale cutting of trees, and increasing water scarcity, the contamination of the territory and a further deprivation of the biodiversity (UNHCR & UN-Habitat, 2014; MoE, EU & UNDP, 2014).

The Syrian communities are dealing with the many restrictions that are imposed upon them, making it hardly able to meet their basic needs. This marginalisation unavoidable results in the dependence of many on aid agencies and the engagement of others in informal economies to be able to meet their basic needs (Errighi & Griesse, 2016, p.11). Those who did engage in on the job market follow social networks that is pre-dating the beginning of the Syrian conflict. Social networks that are established before the outbreak of the conflict, when there was a demand for Syrian workforce in sectors with labour shortages (Errighi & Griesse, 2016, p.11). Large part of the Syrian communities find shelter through these former established migrant worker networks (UNHCR & UN-Habitat, 2014, p.8). Many of the Syrian workers are active in sectors like retail trade, domestic agriculture and construction. Those in the construction sector find jobs in the cities like Beirut, where they rent a house or have found shelter in abandoned garages or buildings (UNHCR, 2018). Those inhabiting the rural area, are mostly engaged in the agricultural sector. Twenty per cent of them are living in informal tented settlements, low cost housing constructions found on illegally transformed

plots by local farmers (UNCHR, 2014). The ITS are scattered throughout the landscape, occupying large part of the agricultural productive land and threatening the already fragile environment (Trovato, 2017, p.2; MoE, EU & UNDP, 2014, p.11).

The seasonal Syrian workers thus are familiar with the country and its job environment. Recently, however, they are officially not allowed to proceed work anymore. "The pledge not to work" legislation has reduced the opportunities on the job market. Yet, many of the Syrians find themselves working in economies operating on an informal basis. But it are not only Syrians that are affected by the new legislation, Lebanese employers that demand on this labour force are facing shortages (Errighi & Griesse, 2016, p.12). Also Lebanese and migrant communities are suffering from the competition on the labour market, as Syrian workers accept lower salaries and a poor working environment. Social tensions between the host population and the Syrian newcomers, because of this labour competition, has therefore also increased. Other causes of social tensions are the inequality in international and national aid support, whereat mostly Syrians are supported by basic needs.

As explained above, the exclusion of Syrian communities and the lack of institutional frameworks for the communities depending their livelihood on agriculture has contributed to the continuation of the downward spiral. A downward spiral of the environmental degradation, economic instability and social tensions. Social exclusion of the Syrians populations can prove harmful for the entire country on the long term.

3.5. Conclusion and reflection

The question answered in this paragraph is: What are the opportunities and challenges of the territory, based on a desired balance between the environment and agricultural production?

The assessment of the territory for the suitability of agricultural production, based on a desired balance between environment and agricultural production, has shown that there is still land available that has no major intrinsic value for nature. Land that can be exploited for either agricultural production, settlements or a combination of both. In the first place to release pressure on the contemporary prime agricultural land, to prevent further environmental degradation and to establish new agricultural economies. The latter, to secure the necessities of life of all the inhabitants of the Valley, with in particular food and well-being. Thirdly, to overcome the social tensions between the various communities by means of agricultural production.

To prepare the land for new agricultural economies and affiliated forms of living, structural measures should be taken concerning the accessibility of the land and its readiness for agricultural production and habitation. Existing agricultural economies can be strengthened by applying a stronger street hierarchy for the distribution of the agricultural products. Besides, rather than the sprawl of the urban fabric, other urban forms are envisioned to profit maximum from existing infrastructures and services. Finally, integrating everyone in the agricultural production system does not only contribute to the ability for Syrian communities to support themselves, but can also benefit the country on the long run.

The opportunities that arise on the basis of the assessment rely on the exploitation of unproductive land. Nevertheless, there still needs to be dealt with the efficient allocation of land resources, as both agriculture and households appeal to the country's soil and water resources. Therefore, measures must also be taken for improving prevailing agricultural economies and affiliated forms of living in order to succeed in dealing with natural resource scarcity.

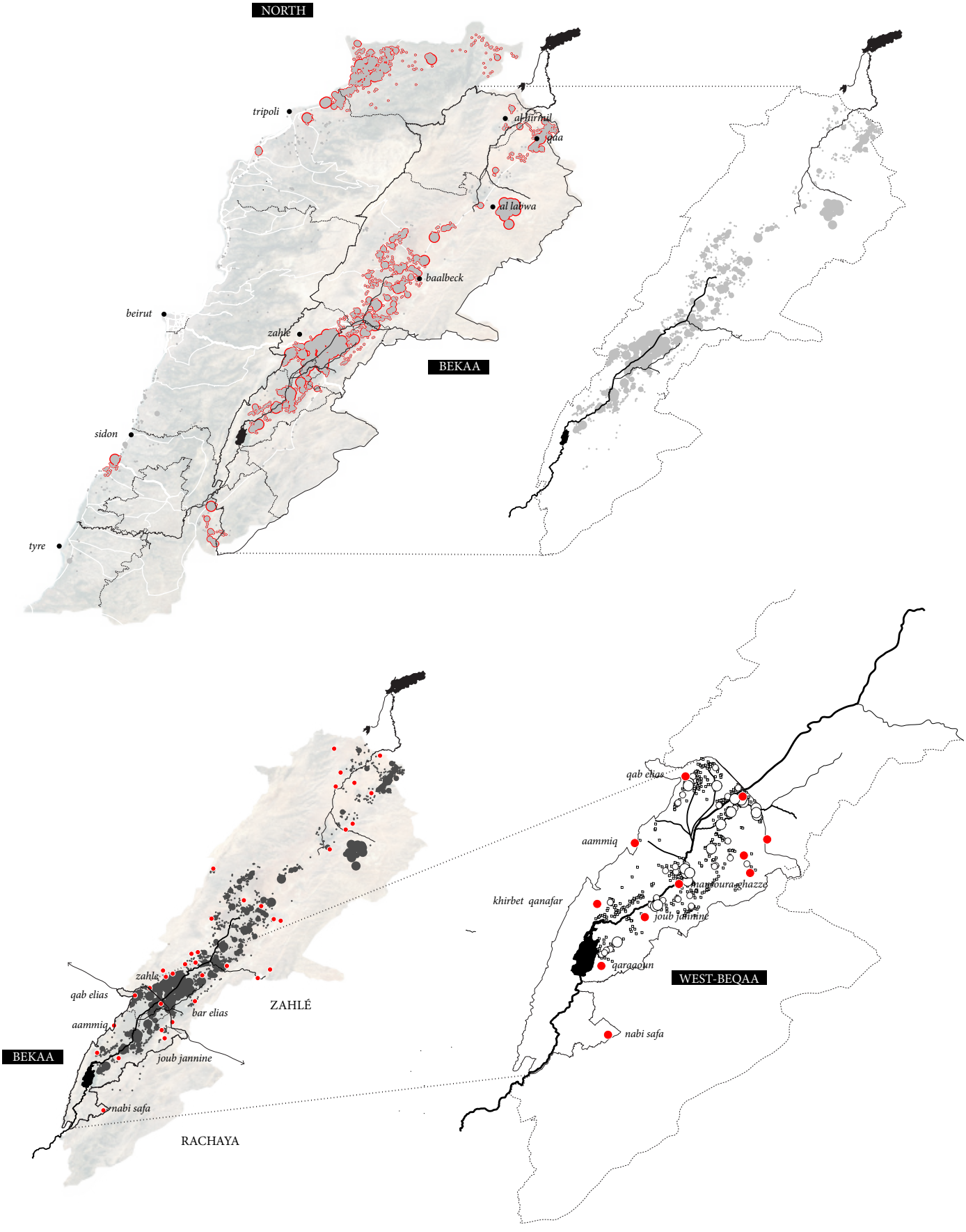


Figure 3.4. Informal Tented Settlements on the territory of Lebanon
Author's image, based on UNHCR Lebanon (2016) and Council for Development and Reconstruction (2017)

Figure 3.5.a Landform, suitability for agricultural production (based on geology)

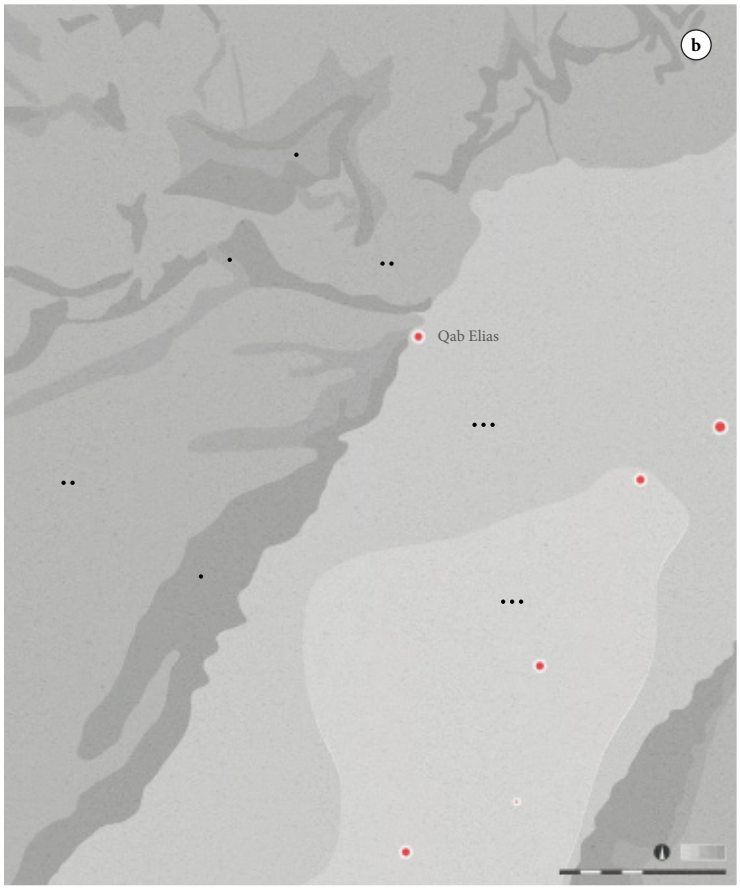


Figure 3.5.b Landform, suitability for agricultural production (based on topography)

Figure 3.5.c Groundtype, suitability for agricultural production (based on soil-type)

Figure 3.5.d Groundtype, suitability for agricultural production (based on hydrology)

Source: Author's images, based on configured maps by Author (Annex, p.96)

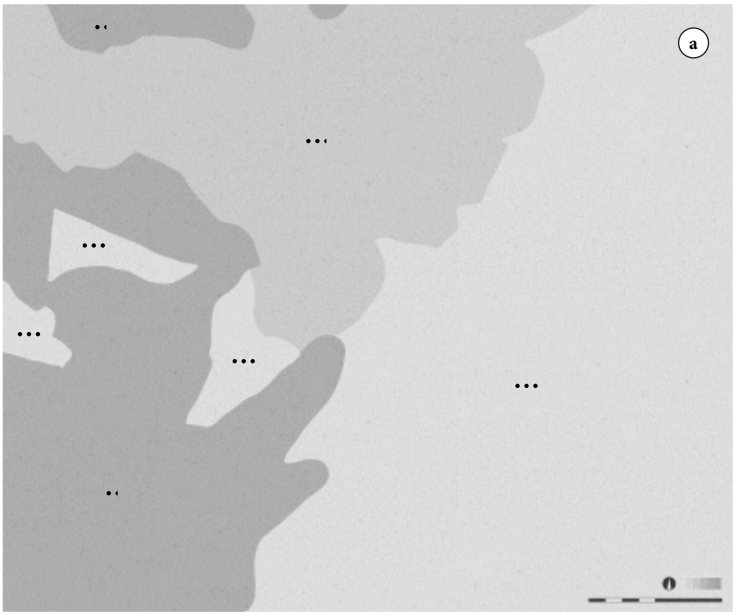


Figure 3.6.a Landform, suitability for agricultural production (based on geology)

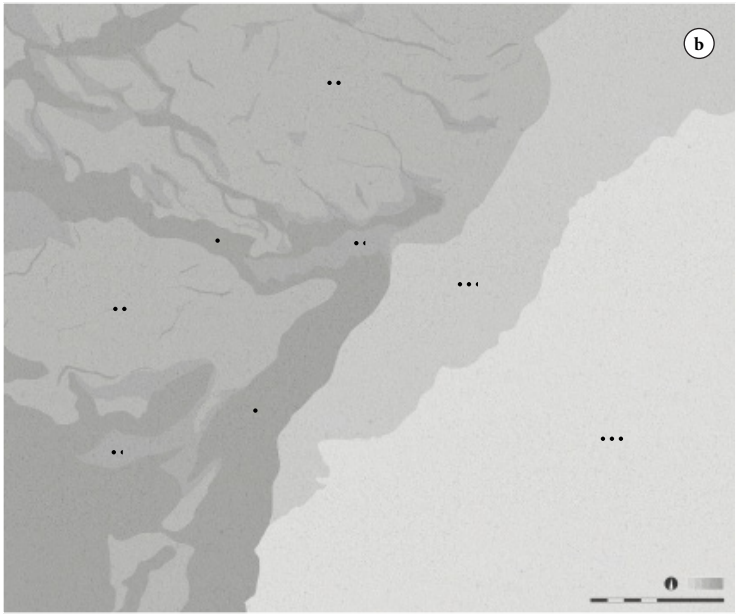


Figure 3.6.b Landform, suitability for agricultural production (based on topography)

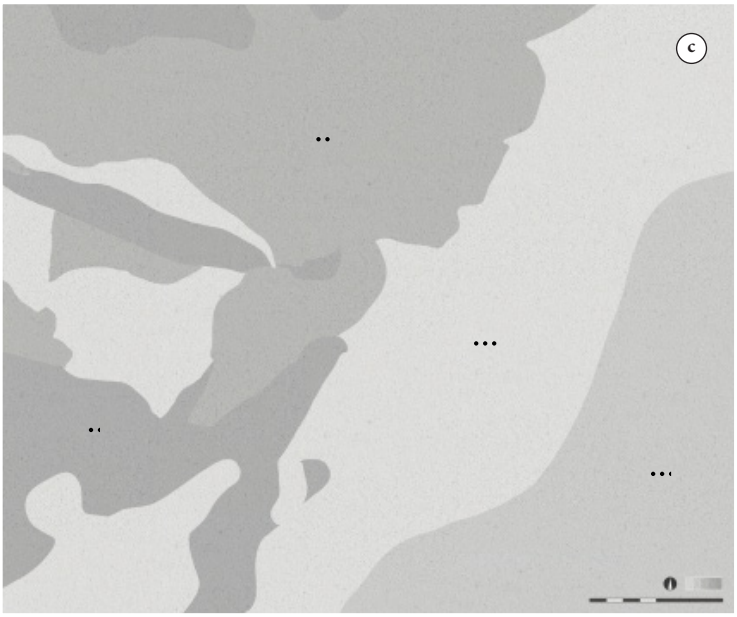


Figure 3.6.c Groundtype, suitability for agricultural production (soiltype)

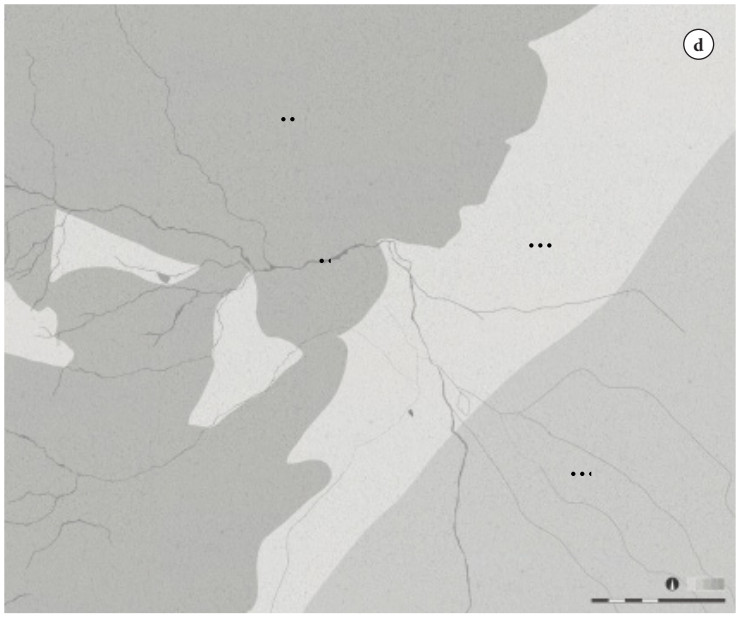


Figure 3.6.d Groundtype, suitability for agricultural production (based on water features)

Source: Author's images, based on configured maps by Author (Annex, p.96)

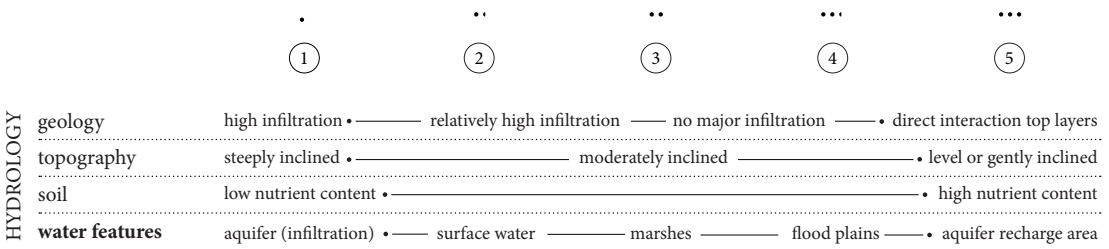


Figure 3.7: The motive behind the analysis (the analysis of the analysis)

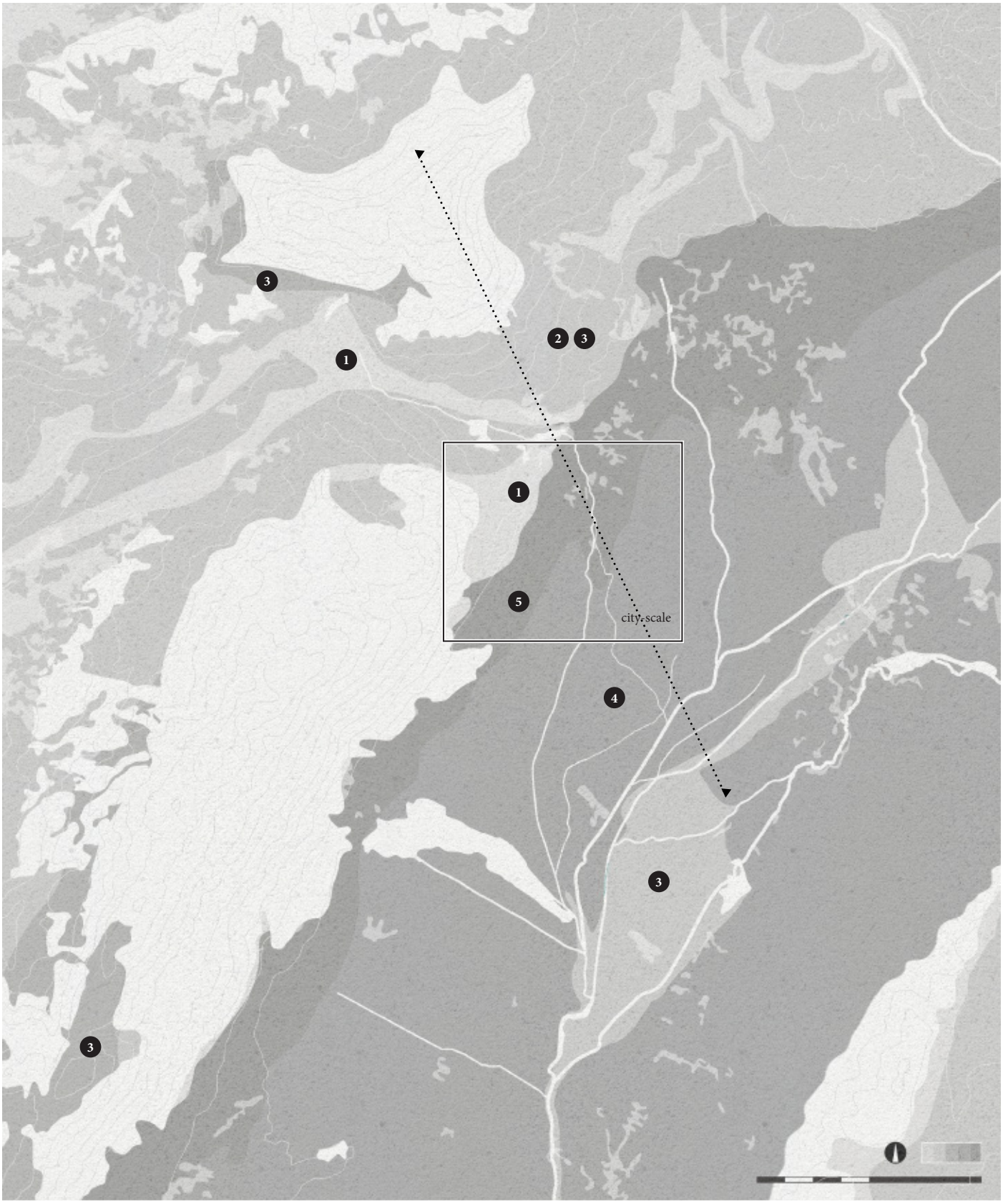


Figure 3.8: Suitability map for agricultural production. Explanation can be found in figure 3.7 (Author's image, based on figure 3.5 a to d)

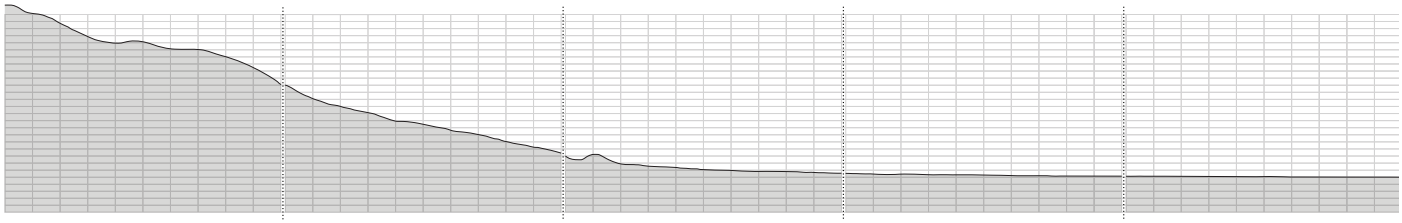


Figure 3.9: Section territory of the Western Beqaa (Author's image, based on Google Earth)

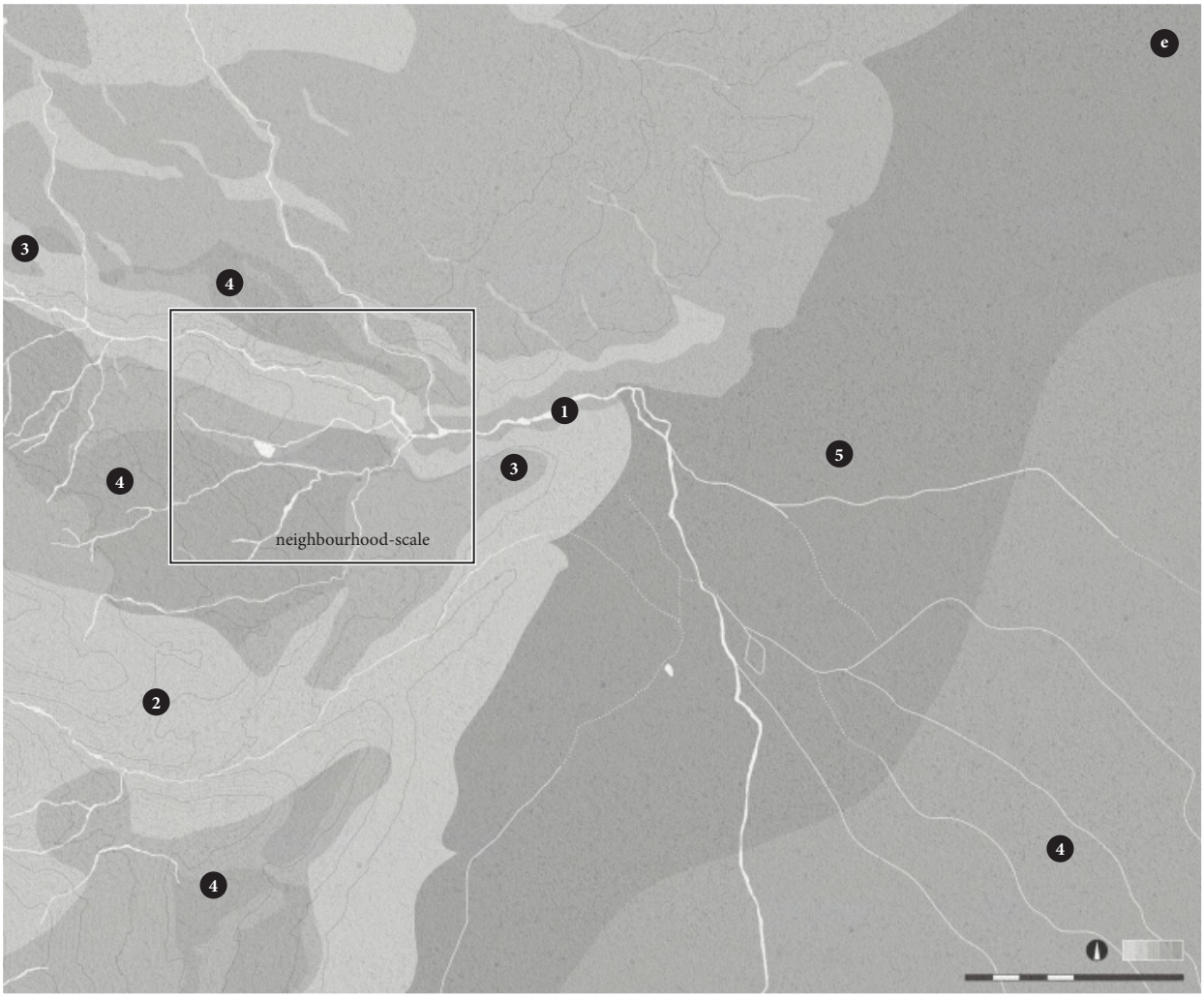


Figure 3.10a Suitability map for agricultural production. Explanation can be found in figure 3.7 (Author's image, based on figures 3.6a to d)

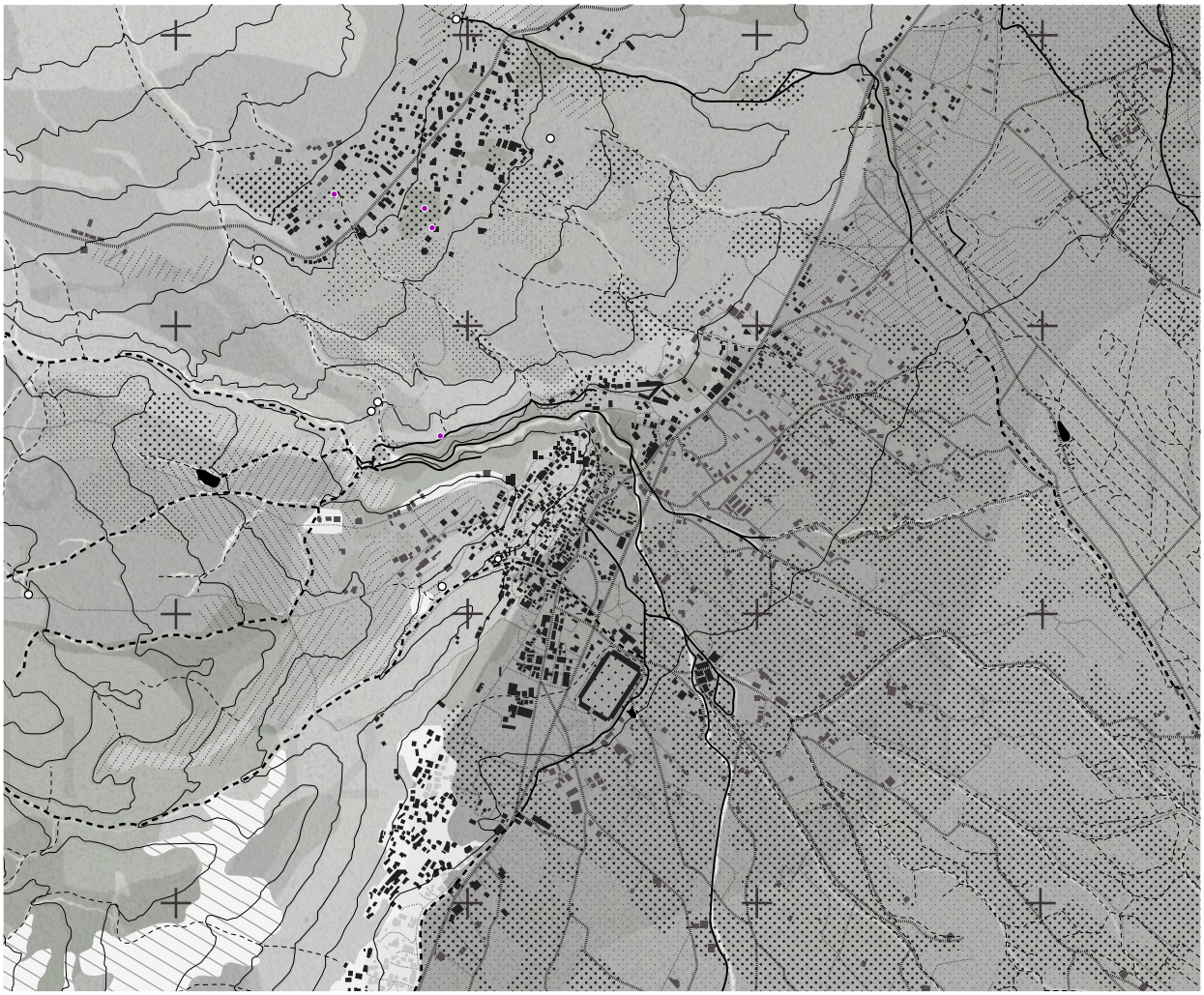


Figure 3.10b Conclusion agricultural suitability compared to existing situation (Author's image, based on MoE, MoA, CNRS, LEDO & NCRS (2003) and Ministère de la Défense (2005))

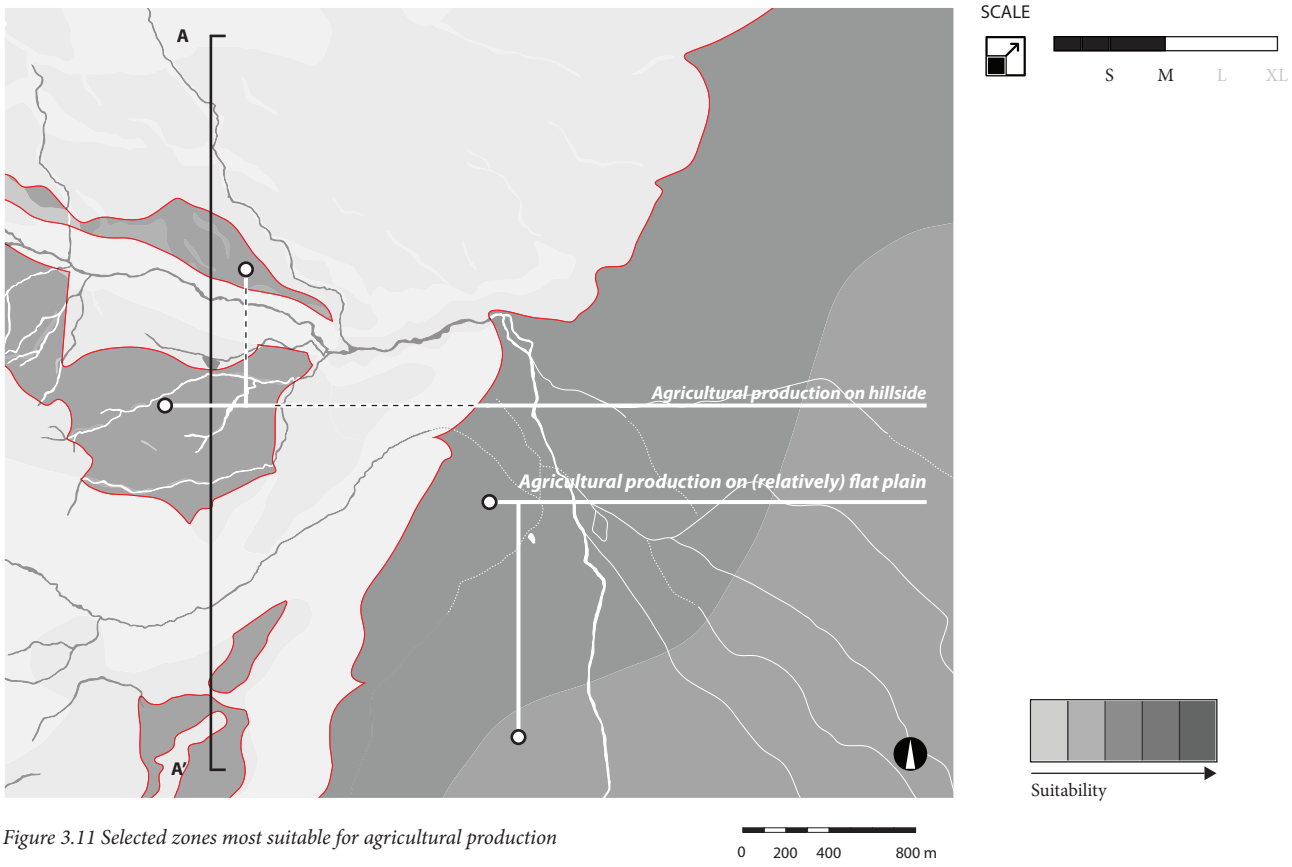


Figure 3.11 Selected zones most suitable for agricultural production

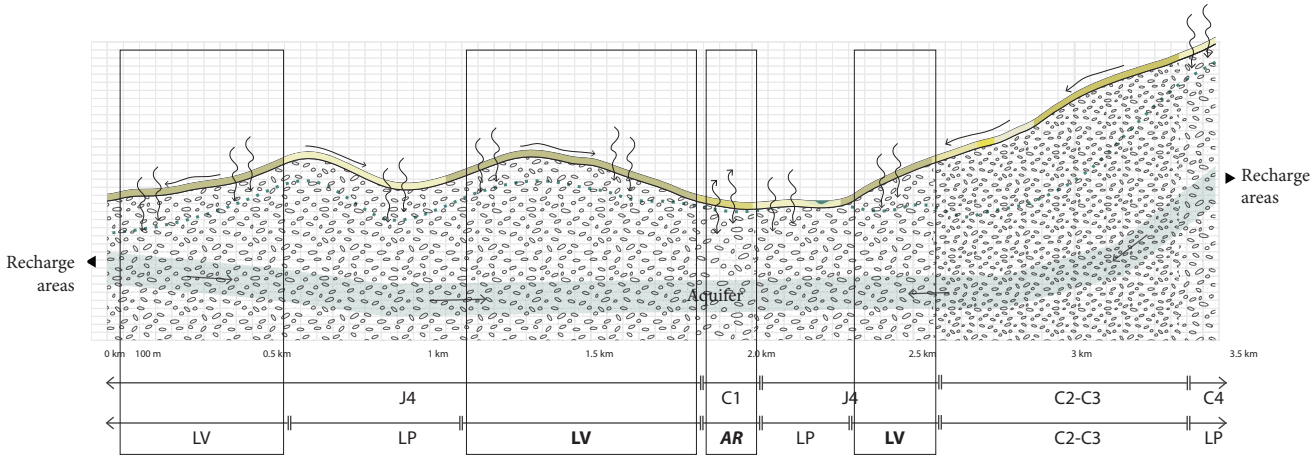


Figure 3.12 Section A-A': the Valley and the Town (see Annex for explanation on the abbreviations)

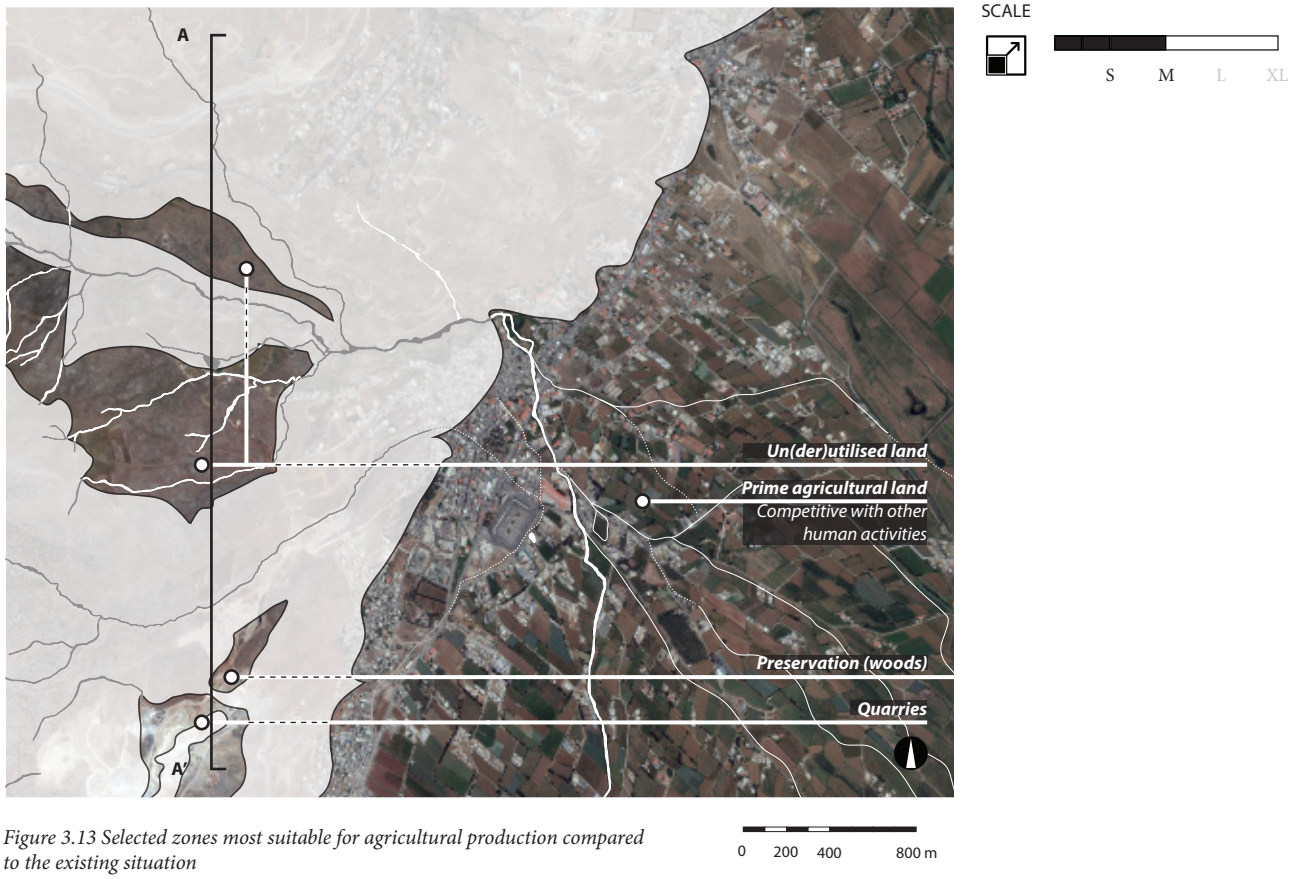


Figure 3.13 Selected zones most suitable for agricultural production compared to the existing situation

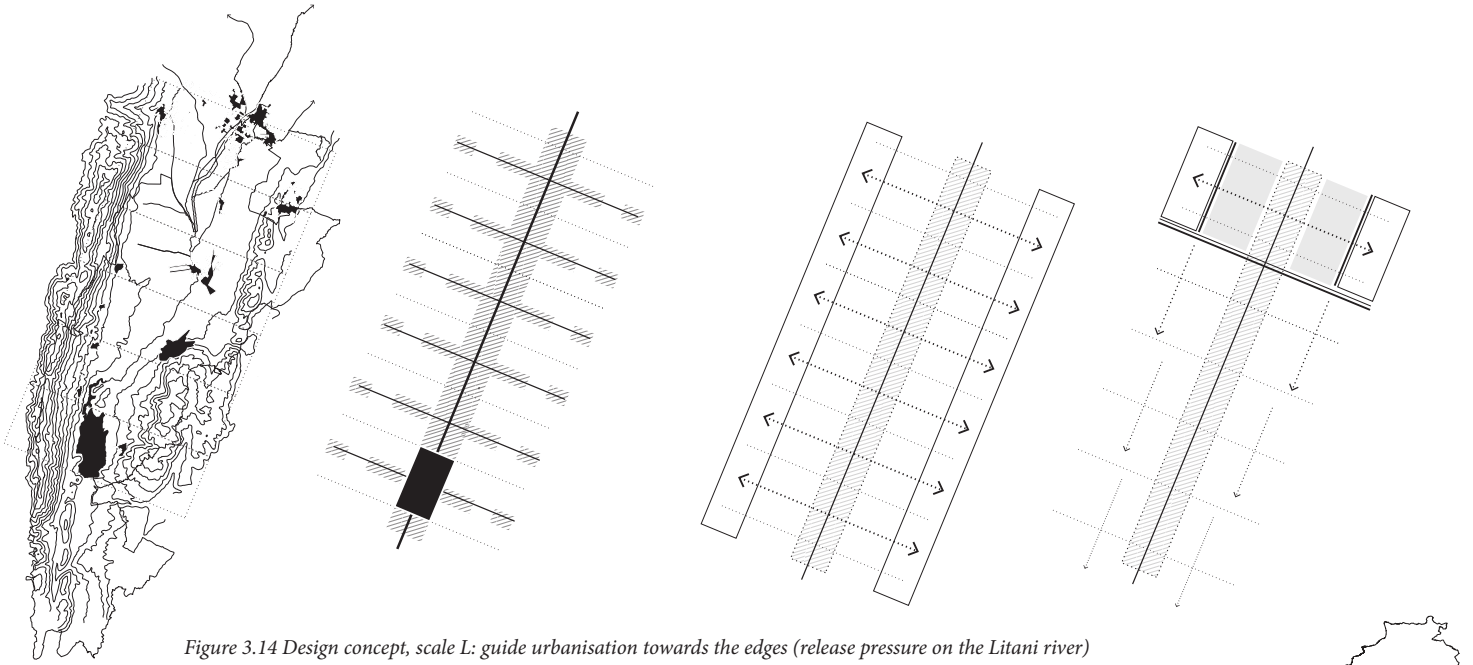


Figure 3.14 Design concept, scale L: guide urbanisation towards the edges (release pressure on the Litani river)

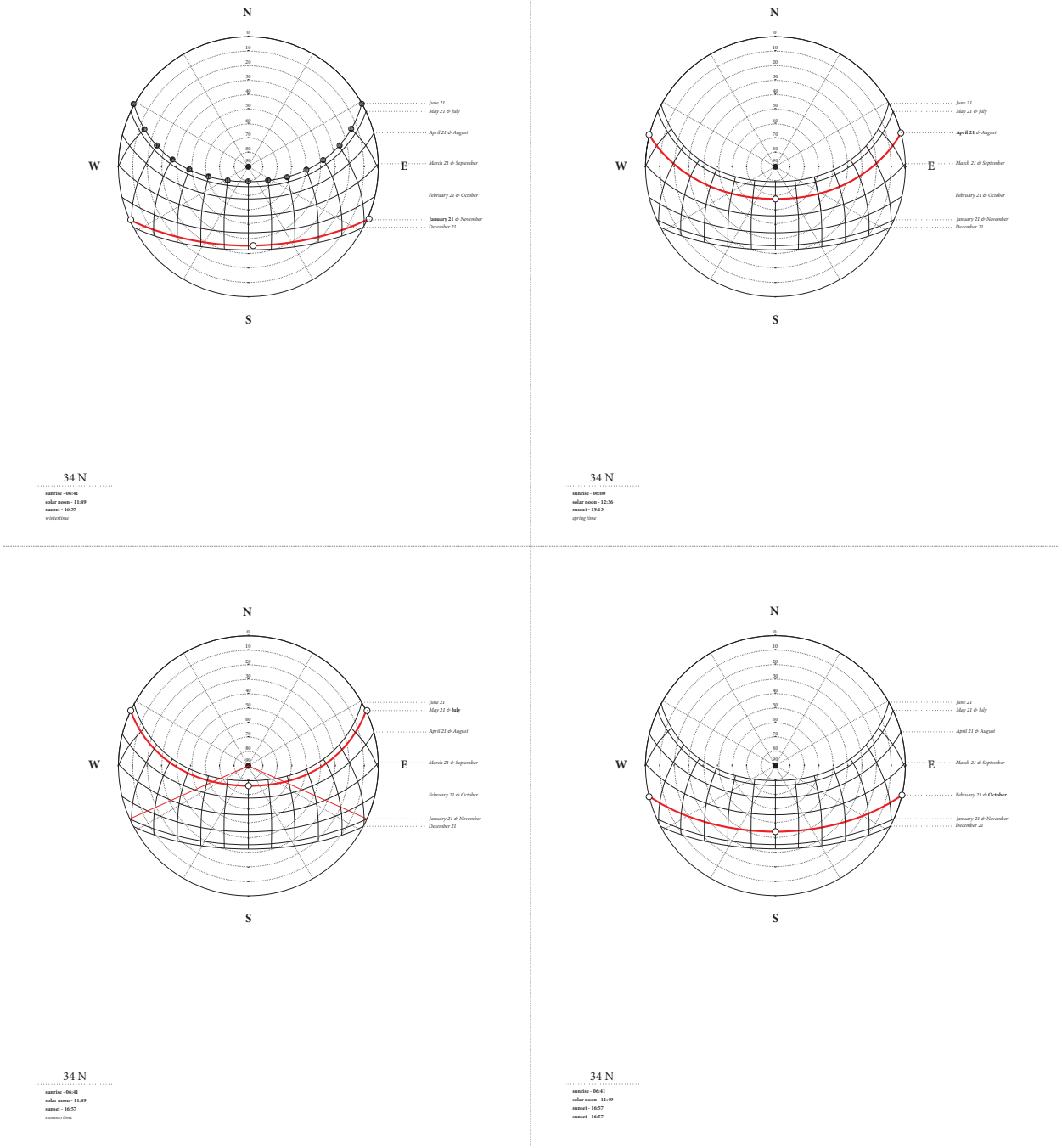


Figure 3.15 Sun diagrams Qab Elias town (Author's images, based on Suncalc (2017))

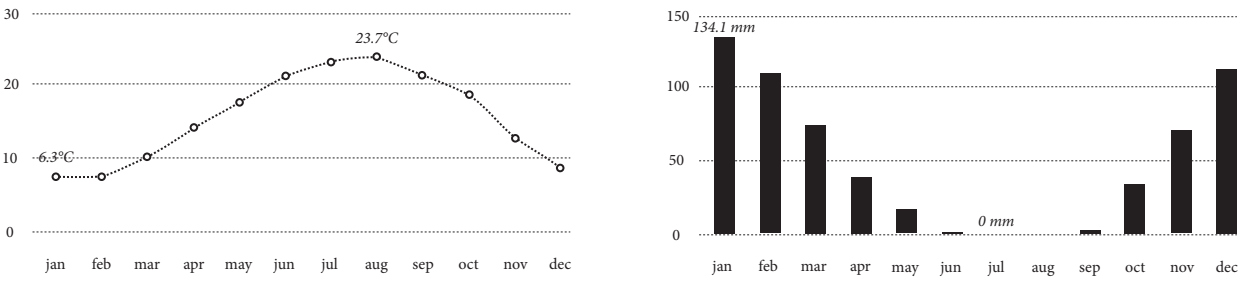


Figure 3.16 Climatological data on Qab Elias town (Author's images, based on Climate Change Knowledge Portal (2017))

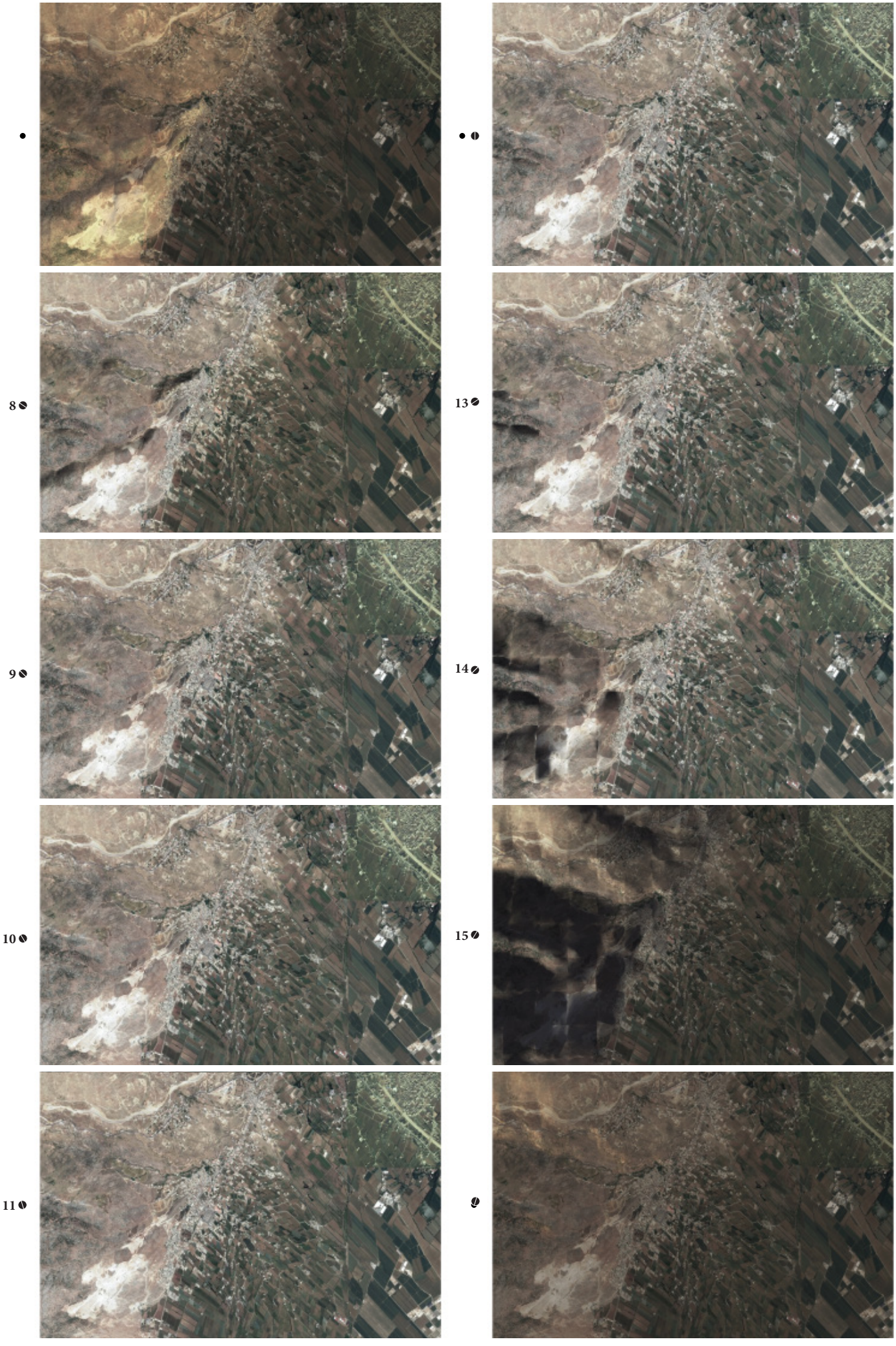


Figure 3.17 Qab Elias, 21st of January - solar noon 11:49 (Google Earth, 2017)

4

Question 2

How to exploit the opportunities and address the challenges of the specific territory to maintain prevailing and establish future economies and forms of living based on agricultural production?

Chapter 4 recommendations

The question to be answered in this chapter is the following: *How to exploit the opportunities and address the challenges of the specific territory to maintain prevailing and establish future economies and forms of living based on agricultural production?* This chapter covers the concept and plan for maintaining prevailing, strengthening and establishing future agricultural economic systems, based on the opportunities and challenges of the specific territory. In specific, which measures need to be taken to allocate land resources, how to prepare land for agricultural production and habitation and how to efficiently use natural resources for agricultural production.

4.1. Introduction

This sub chapter includes a short recapitulation from the conclusions put forward in chapter three. In addition, it introduces the measures related to the conclusions of the analysis part, which are dealt with in the subsequent chapters.

As the technical analysis has shown, the spatial configurations of the landscape allows, limit or obstructs for certain human activities to take place. Classification of these spatial configurations determined which areas are most suitable for agricultural production. The designated expansion areas for human settlements and agricultural production are therefore most dependent on the geographical and environmental features of the territory and the site of the settlements. Nevertheless, the economic, social and cultural attributes which are typical for the municipality of Qab-Elias and Wadi-el-Delem, have ultimately led to the recommendations and concepts for the land.

4.1.1. Challenges of the (physical) territory

The territory is dealing with challenges regarding contemporary agricultural economies and affiliated forms of living, such as balancing water demands to sustain the vitality of the entire ecosystem and preventing soil degradation (Grasham, 2016, p.347). Therefore both efficient allocation of natural resources (land management) is envisioned, as well as an efficient use of these natural resources, based on agricultural production. Therefore measures to prevent depletion of natural resources and deal with natural resource scarcity need to be taken, to support environment and rural livelihoods from exhaustion. Managing the different uses of the landscape can balance, economic, social and environmental values.

The provision in food for a larger group of people depends on larger territories, whereby the cultivation of the land has focussed in recent years mainly on the flat or modesty slopes of the fertile landscape of the Beqaa. This while agricultural terraces are increasingly abandoned, heritage made by the Phoenicians to prevent soil erosion and to conserve water (Ministry of Environment/ECODIT, 2002). This type of farming, however, asks for a large communal effort with large labour intensity with challenges to farming technologies. As it stands, economically less attractive to many of the rural communities. Yet, it offers great opportunities for poor rural communities.

4.1.2. Opportunities of the (physical) territory

In addition to the challenges, the territory provides opportunities for the establishment of new agricultural economies and affiliated forms of living, as a means to protect prevailing agricultural systems and in order to sustain the necessities of life. This is being achieved by developing agricultural production systems, established by the rehabilitation of unproductive land, by taking the full advantage of existing infrastructure and by incorporating unproductive communities. Rehabilitation of unproductive land, is concerned with land that has no major intrinsic value for nature, yet is suitable for either agricultural production, settlements or a combination of both. Land that has been identified in the previous chapter based on the assessment of the natural landscape and the suitability for agricultural production. These new agricultural economies are based on and with respect to the environment. By creating a new agricultural

production system, the threatened prime agricultural land can be safeguarded and new livelihoods are encouraged. This new agricultural systems showcases sustainable agriculture, wherein communities are able to support themselves on a minimal level. In this way, all communities living in the Beqaa can be included in society, making them feel valued and important through the means of agricultural production.

The aim is to both preserve, improve and create rural livelihoods based on agricultural production and with respect to the environment. The rural livelihoods are concerned with food security and the people's well-being.

4.2. Land resources

In this sub chapter is being discussed what measures can be taken to allocate resources in favour of agricultural production and to efficiently use natural resources for agricultural production.

4.2.1 Land resource distribution

The allocation of land resources is based on the assessment carried out in the previous chapter, where because of its existential function, priority is given to balancing nature and agricultural production. Other land-uses are allocated based on this desired balance, in combination with the situation as it is. As mentioned in the problem statement, this demand for more efficient allocation of land resources arises from an increasing competition between different services such as biodiversity conservation, food production, urbanisation and mining. Which has caused an increased pressure on the natural, economic and social landscape. The strategy to use land resources in a responsible manner, is based on three focal points, namely prevention, mitigation and rehabilitation.

4.2.2. Prevention, to prevent (further) environmental degradation and loss of prime agricultural land

In order to prevent the exhaustion of the natural landscape of the territory, of which agricultural livelihoods depend on, sensitive environmental areas are designated for nature. Agricultural production and other human activities are thus excluded at these locations. Examples of such areas are the water catchment areas and wooded lands. Both have an important role in the water cycle, respectively groundwater recharge, water purification and to limit or prevent land sliding. Water and soil agricultural production depends on. The motivation for the designation of these environmental sensitive areas, for this specific territory are further explained in the assessment of chapter three and in the principle drawings of chapter five.

Second, in order to prevent the loss of agricultural land, other land-use activities are guided elsewhere. This can be achieved on the one hand by management measures for allocating resources. Second, by a strong spatial framework that uses infrastructure as a mechanism to guide future urbanisation. The strong spatial framework ambitions residential and economic densities, that will contribute to the local economy (UN Habitat, 2014). Also, the close proximity to existing urban fabric advantages existing services and infrastructure. By guiding new developments to areas that better suit urbanisation, prime agricultural land and environment are protected. Areas around the existing towns of the Western Beqaa valley are therefore designated for guided extensions. Among others, the town of Qab-Elias. Yet, areas that are considered to be prime agricultural land as well as environmental sensitive areas are, as mentioned above, are excluded.

4.2.3. Mitigation, to minimal the impact on the environment

Mitigation measures are taken to prevent degradation or exhaustion of land resources that could be or are already exploited for agricultural production. This can be achieved by agronomic measures such as mixed cropping, contour cultivation, mulching and soil fertility improvement (Hurni et al., 2008, p.55). Agronomic measures for mitigation

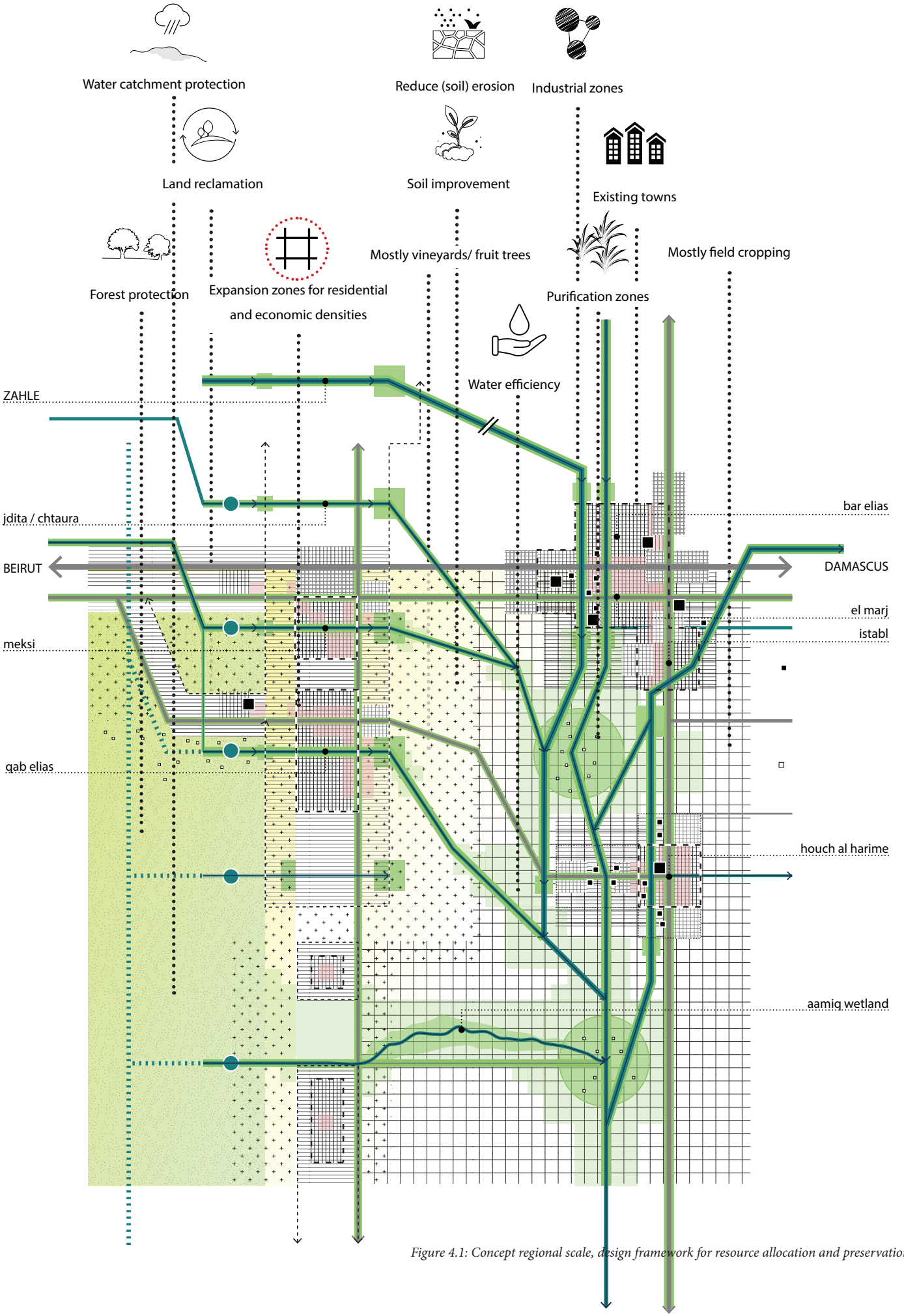


Figure 4.1: Concept regional scale, design framework for resource allocation and preservation

are highly dependent on the modes of agricultural production and thus the type of farming systems. Other measurements implemented are the minimisation of, the efficient use of water and the improvement of the soil productivity the reduction of land use intensity over time contributes to soil improvement. For the efficient use of water, the type of irrigation is decisive.

4.2.4. Rehabilitation, for improving the productivity of the land

Rehabilitation measures are applied for recovering degraded land and restore or prepare it for new forms of life. Either plants, animals, human beings or a combination of these. In most cases rehabilitation measures deal with land that degraded to such an extent that land use is practically unproductive (Hurni et al., 2008, p.55). However, there are also examples visible in the territory of abandoned former agricultural land, where natural processes restored the land themselves. In this case characterised with less steep areas, where no erosion has occurred. In order to make the landscape productive again for agricultural purposes, structural measures can be applied. Preparing land for agriculture, expands the total agricultural land and contributes to an increase in the local food availability. It allows for the (poor) rural communities to support themselves. In addition to imbuing new life and vitality in former agricultural lands, also abandoned quarries are extremely suitable for rehabilitation. Abandoned quarries do not perform any function anymore and offer great opportunities to not only restore ecological burdens, but also to benefit the people. Another rehabilitation intervention is the reservation of space around the Hafir river for purification. These are riparian buffer zones in agricultural watersheds, that filter both water flows from adjacent land as from the towns upstream. This measure finds itself on the edge of mitigation and rehabilitation, as it functions to reduce the impact on the environment and to conserve biodiversity both along the river and downstream.

The measures above are largely concerned with interventions in the natural landscape or to benefit - in the first place - nature. As nature is a single interacting system, wherein changes to any part will affect the operation of the whole, this is fundamental for the survival of mankind. To a less extreme extent, for the continued existence of 'traditional' agricultural production.

4.3. New agricultural production system

In this sub chapter is being discussed how and why a new agricultural production system should be established.

4.3.1. Agricultural production system

The previous chapter revealed that the social production relations visible in the Beqaa valley, between Lebanese and Syrian communities are largely based on an informal one. It has been hard for Syrians to gain a working permit after the government introduced the 'pledge not to work' policy. In addition to the production relations based on informal economies, many of the Syrians are left without a job. Among who, after the restrictions on residing and working in Lebanon, large part are in the country illegally. This has limit the freedom for movement and the right to work or even made it nearly impossible. The new agricultural production system will therefore lift these limitations and allows all inhabitants to participate in the system. This chapter, however, remains mainly concerned with the spatial implications of creating a new agricultural system. The next chapter will reflect on the implications of this alternative of an existing situation, wherein Syrian and Lebanese reinstate agricultural production relations.

In the assessment of the previous chapter an indication has been made for fertile land ready to be transformed into land for agricultural production. This land with its natural resources are considered to be the means of production, the facilities and resources needed in order to be able to produce for agricultural purposes. The land however differs in composition and is the decisive factor for the type of agriculture as well as the agricultural system that is being applied. For example, the prime agricultural land along the Litani river fits large scale irrigation systems that support commercial farming with livelihoods based on arable farming. Arable farming on the hillside near Qab-Elias town, instead,

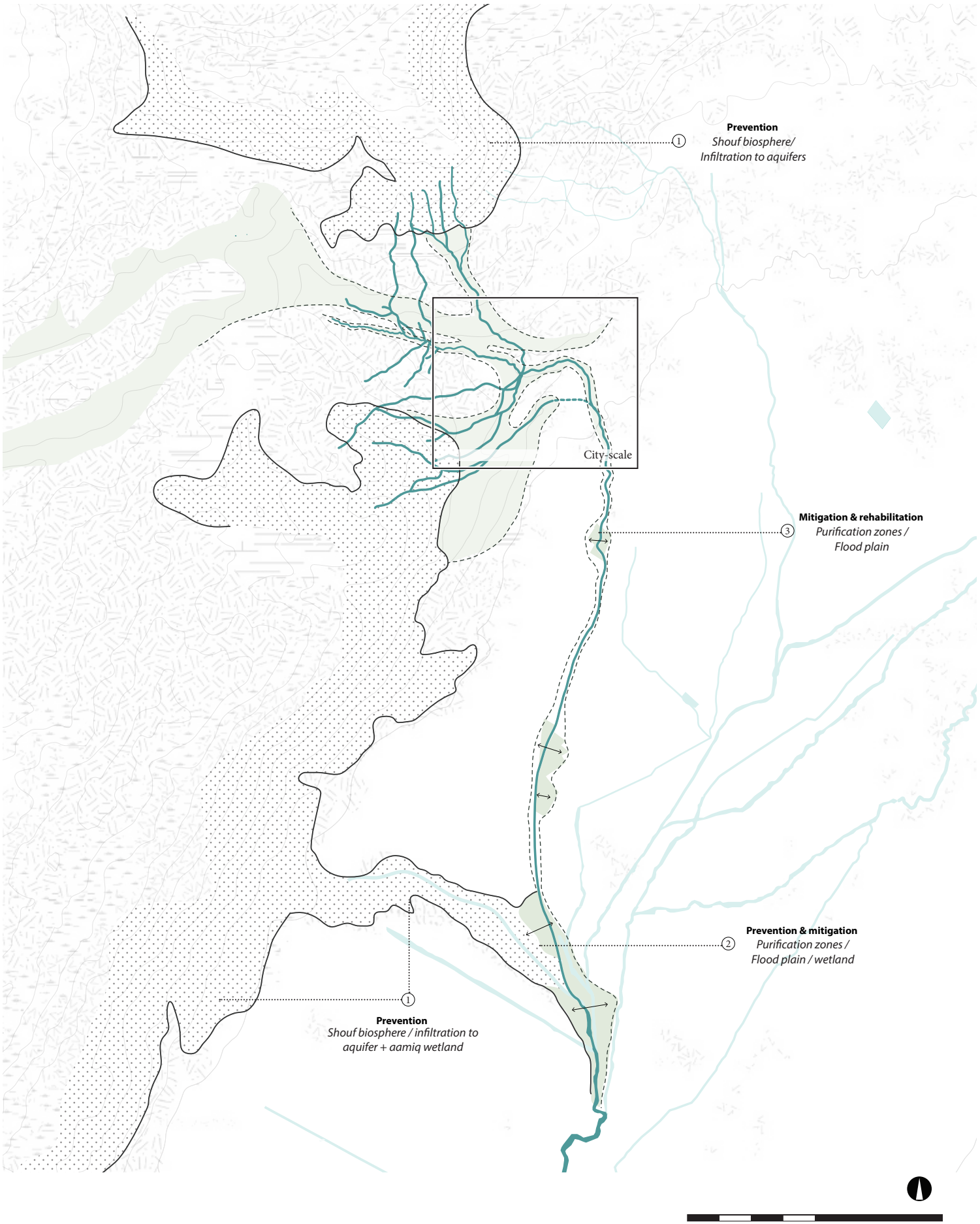


Figure 4.2: Green-blue networks

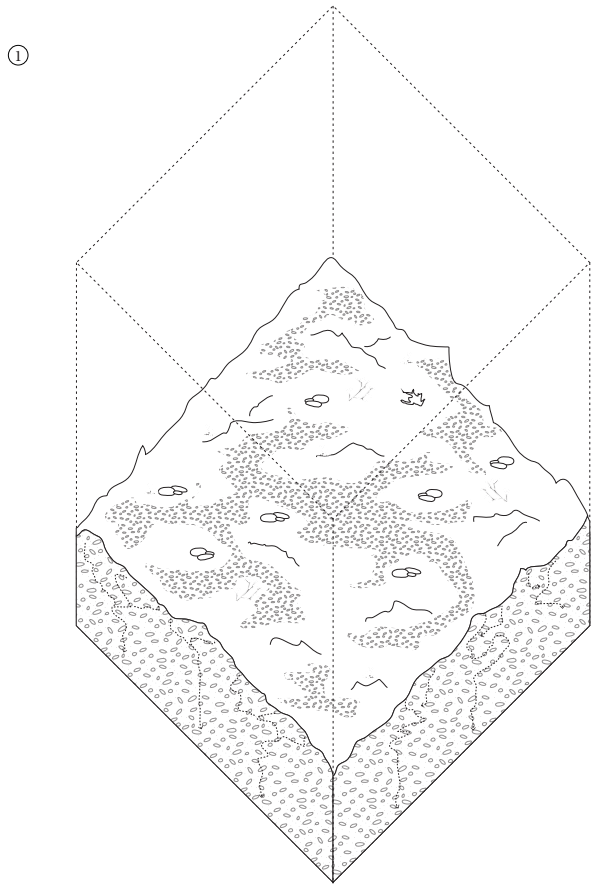


Figure 4.2a **Preserve** *major infiltration zone to natural aquifer*

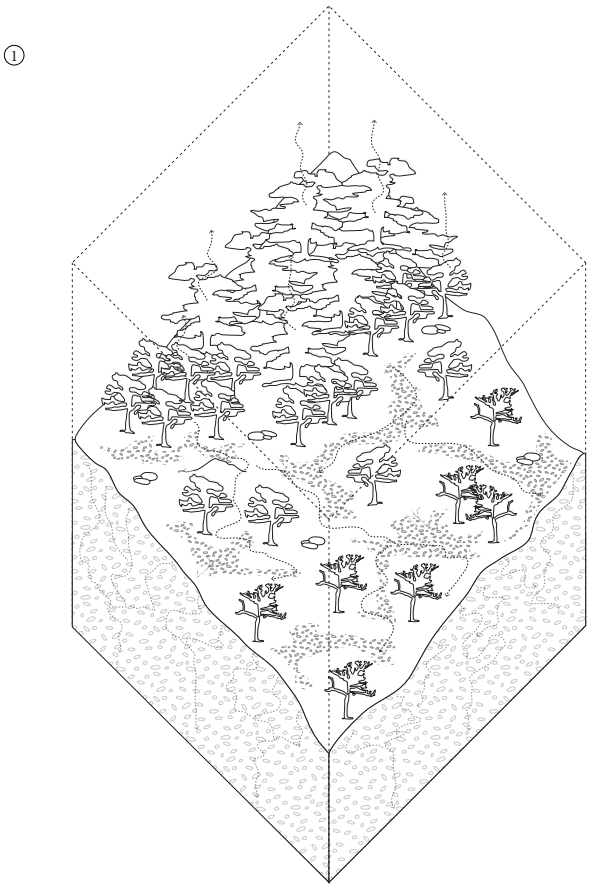


Figure 4.2b **Preserve** *infiltration zone to natural aquifer woodland*

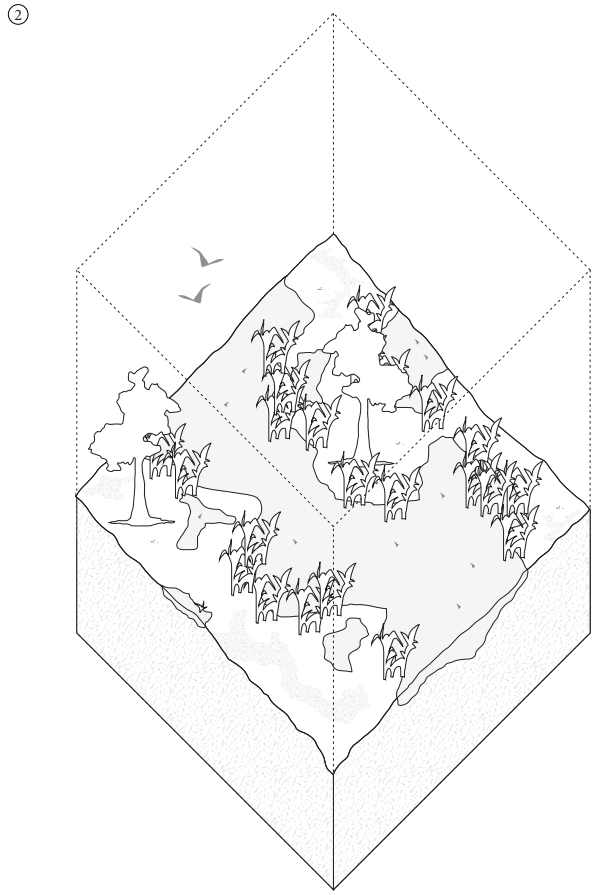


Figure 4.2c **Preserve** *wetland, biodiversity conservation*

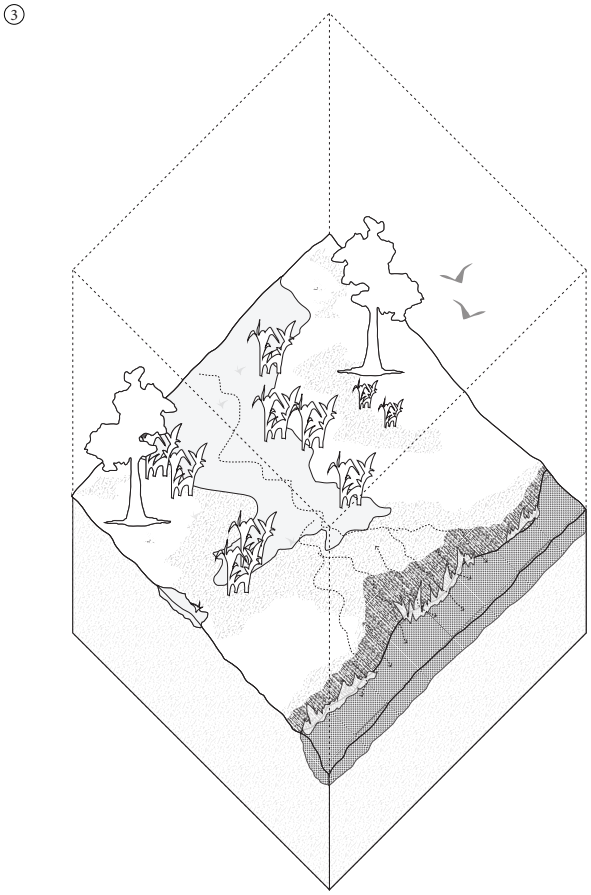


Figure 4.2d **Preserve and enhance** */ purification zone / flood area*

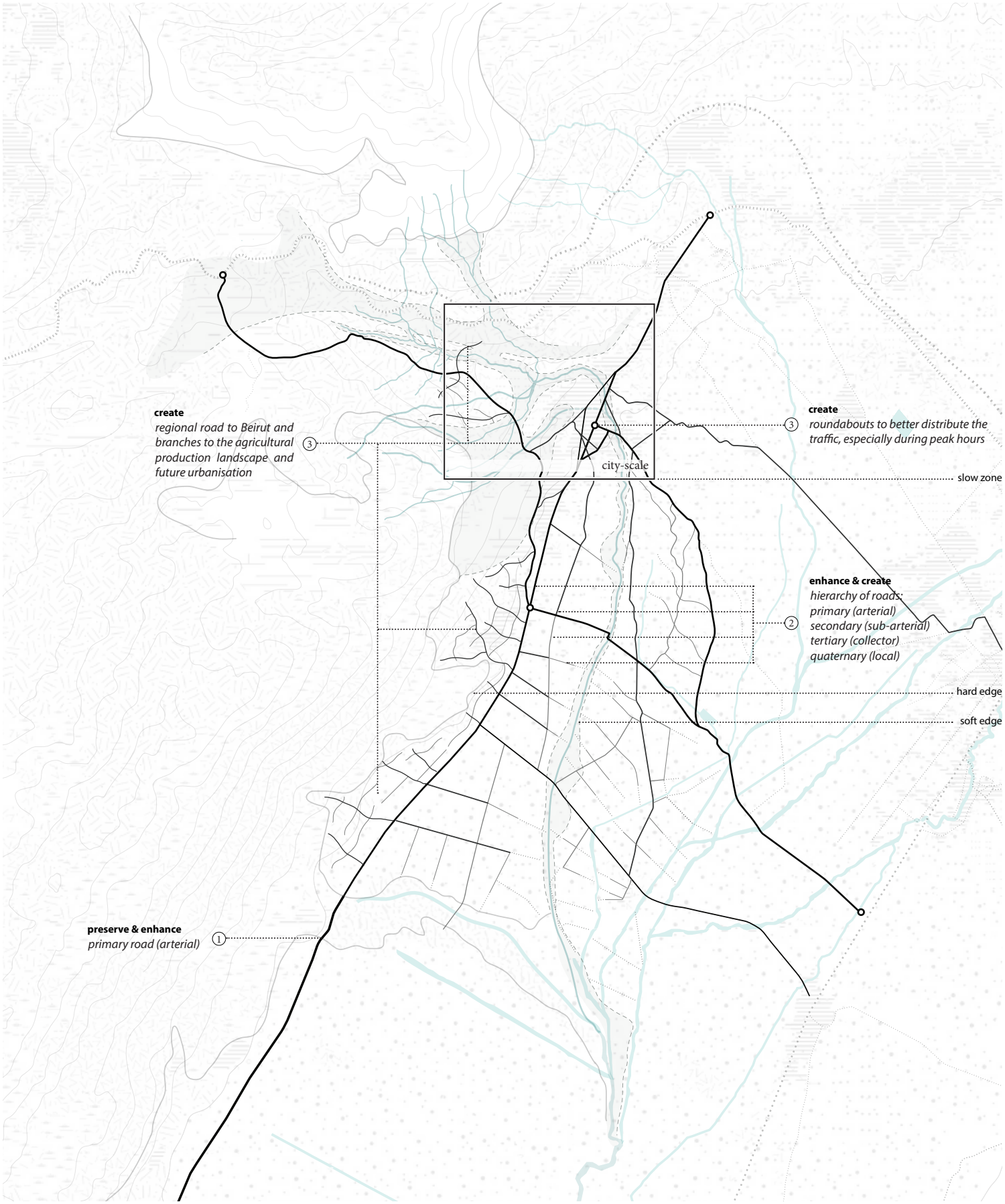


Figure 4.3 : Mobility and production infrastructure

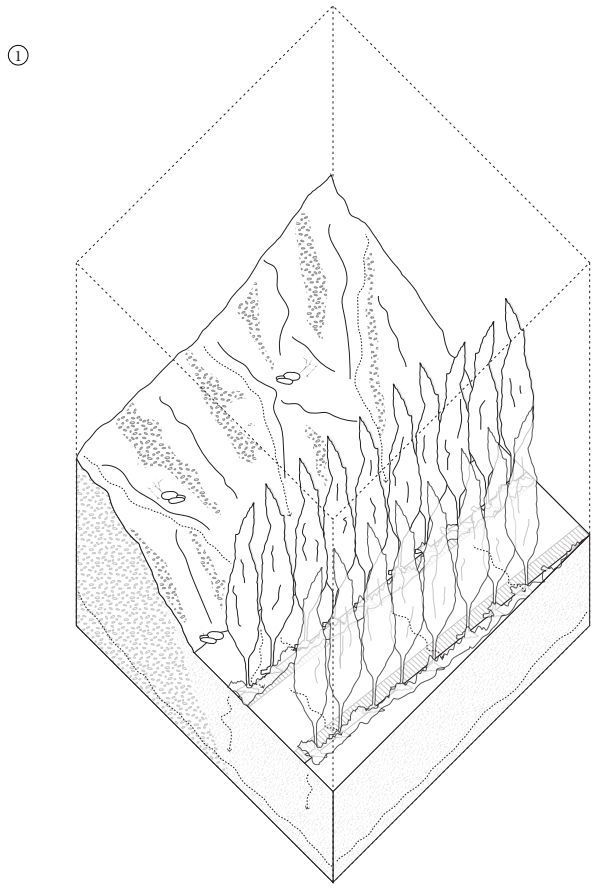


Figure 4.3.a **Preserve & enhance** *Lebanese tree avenues*

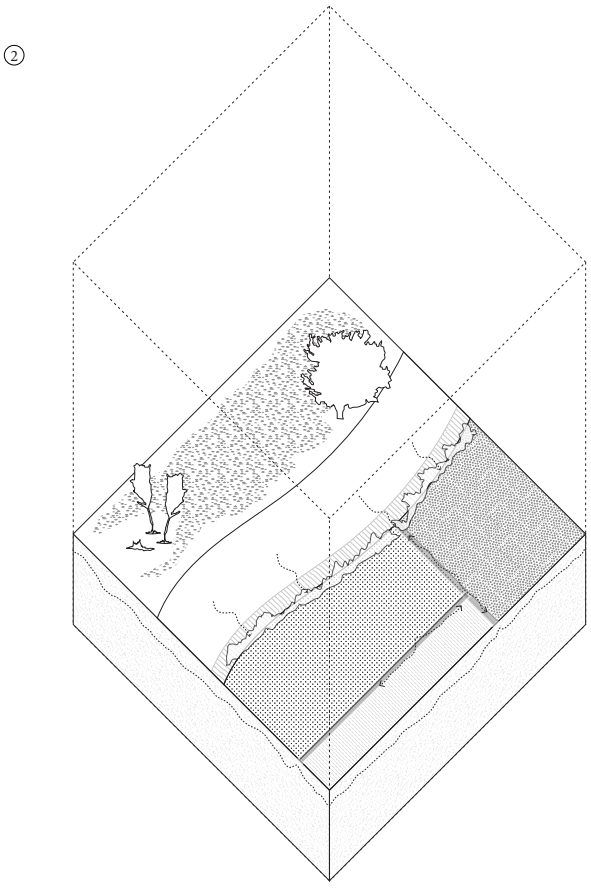


Figure 4.3.b **Enhance & create** *Street hierarchy*

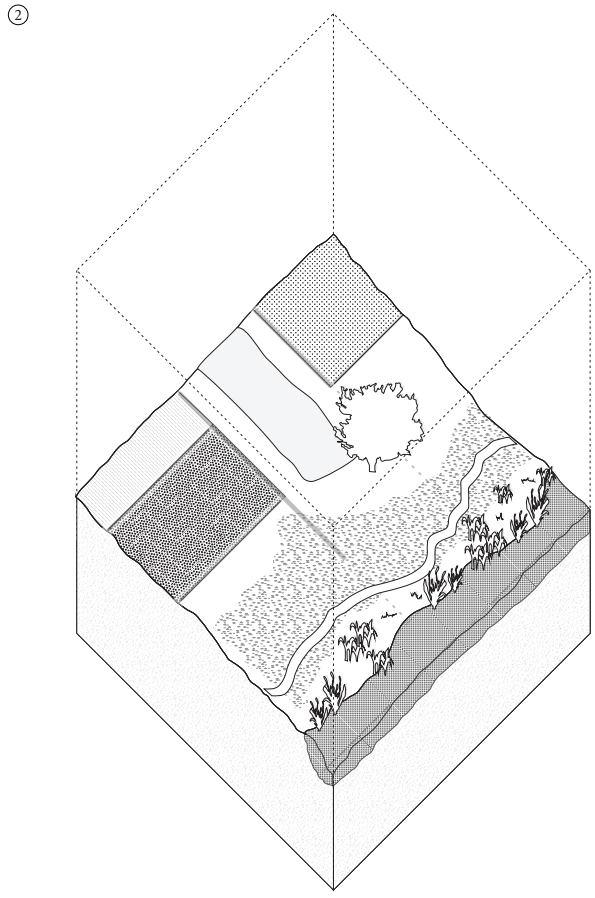


Figure 4.3.c **Enhance & create** *Street hierarchy through nature*

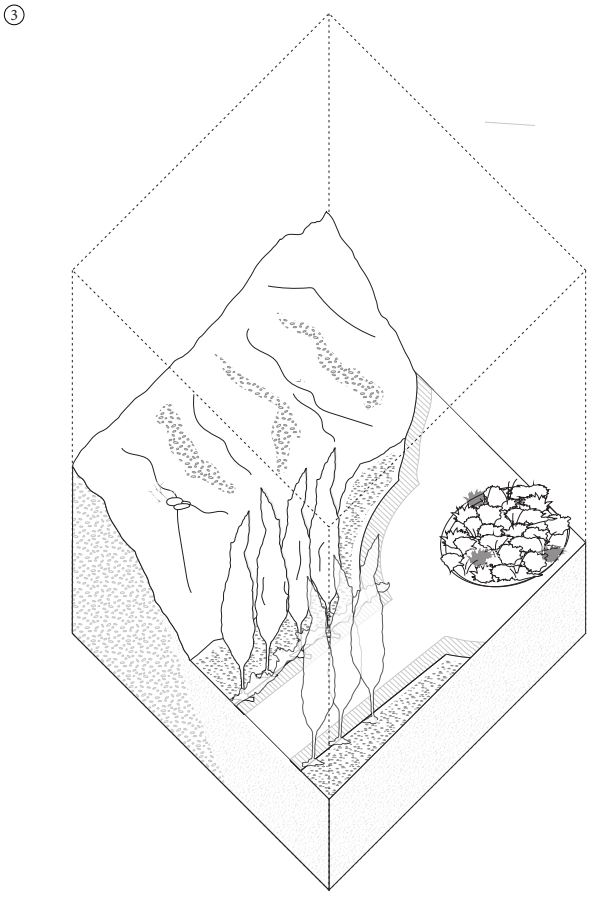


Figure 4.3. d **Create** *Roundabouts for distribution of people and goods*

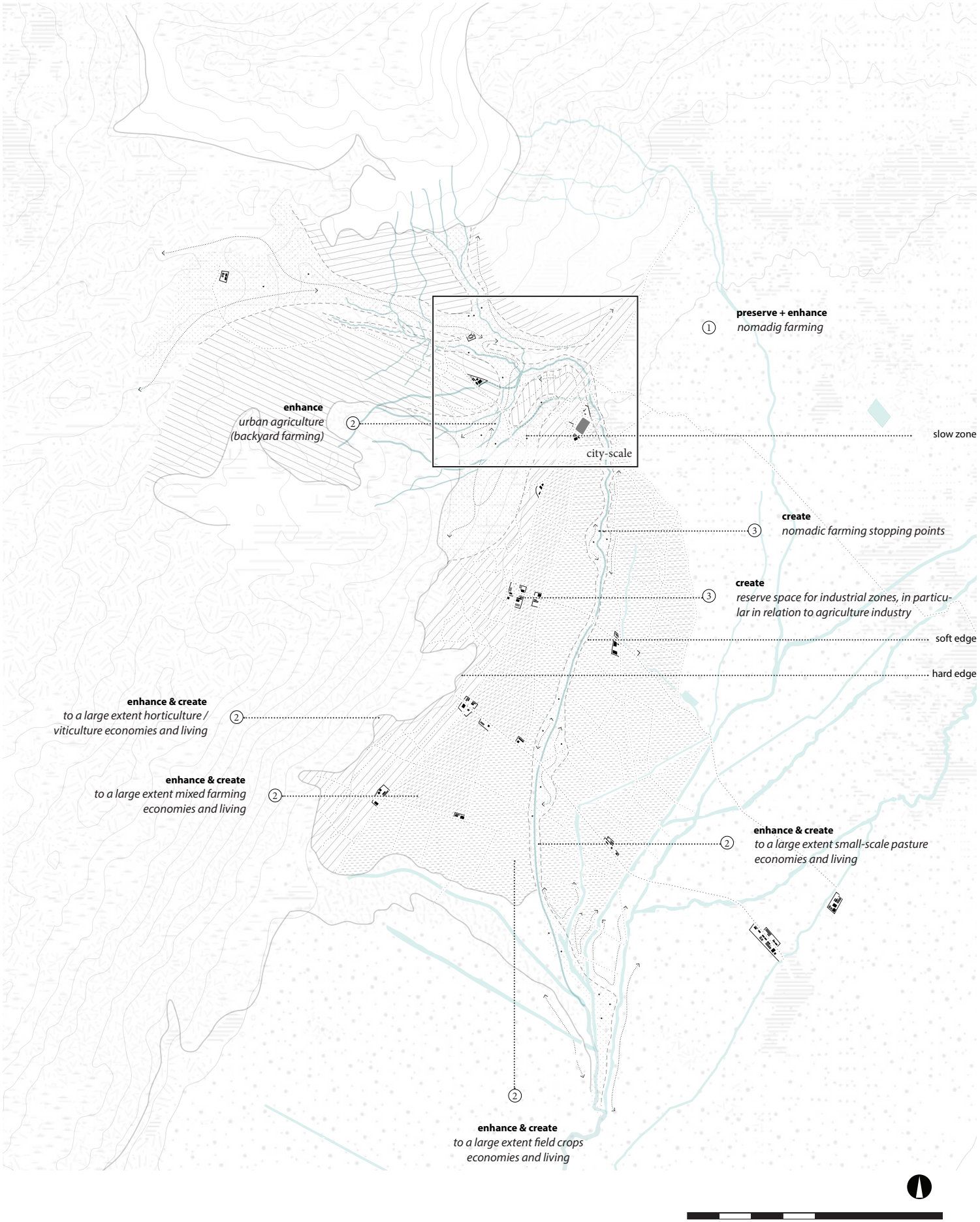


Figure 4.4. Transport

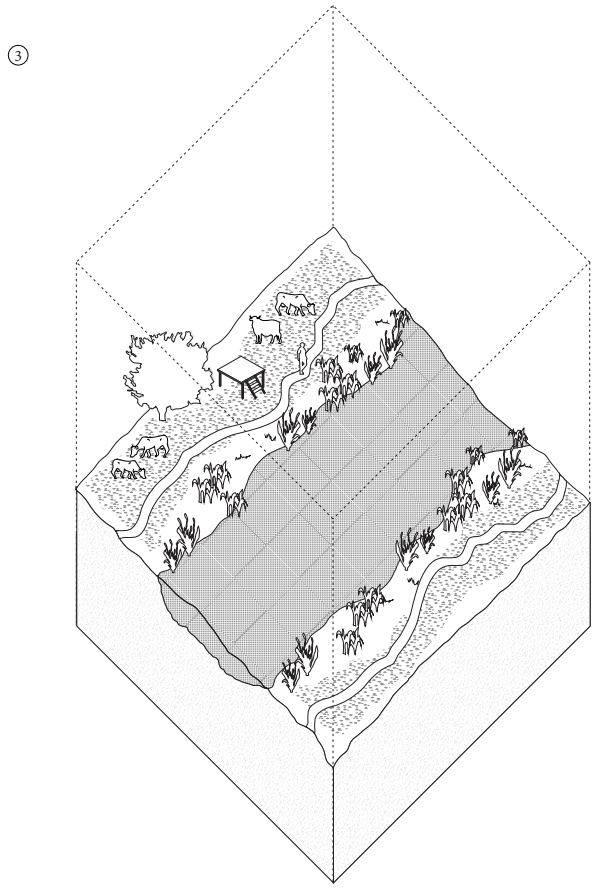


Figure 4.4 a **Create** *Nomadic farming (revitalise) routes*

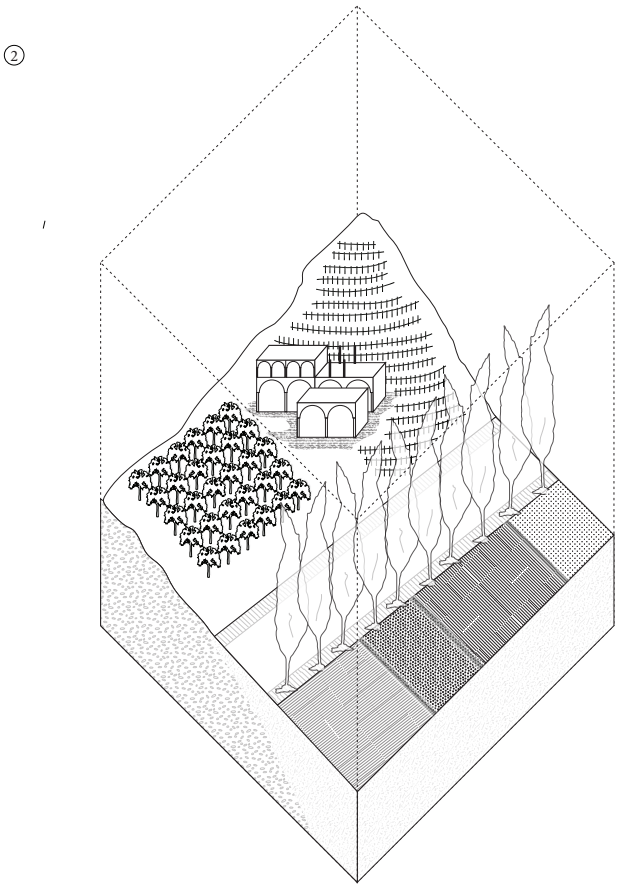


Figure 4.4. b **Enhance and Create** *Horticulture / viticulture*

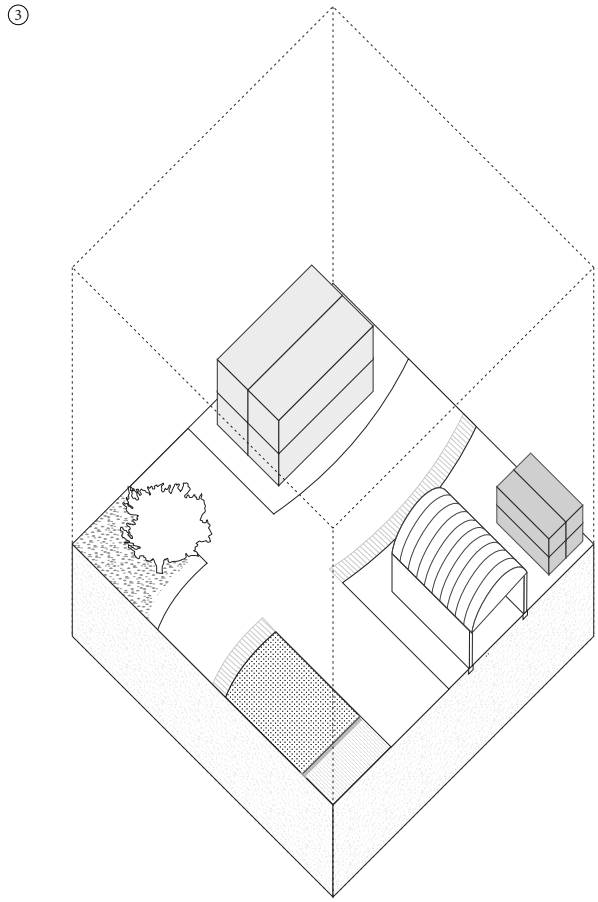


Figure 4.4.c **Create** *Industrial and development zones*

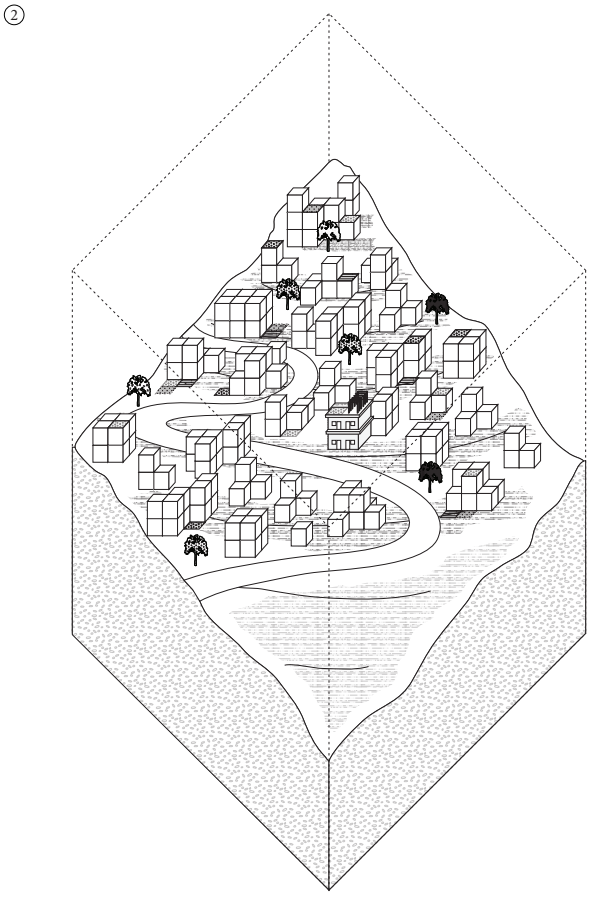


Figure 4.5. d **Enhance** *Urban agriculture strengthening*

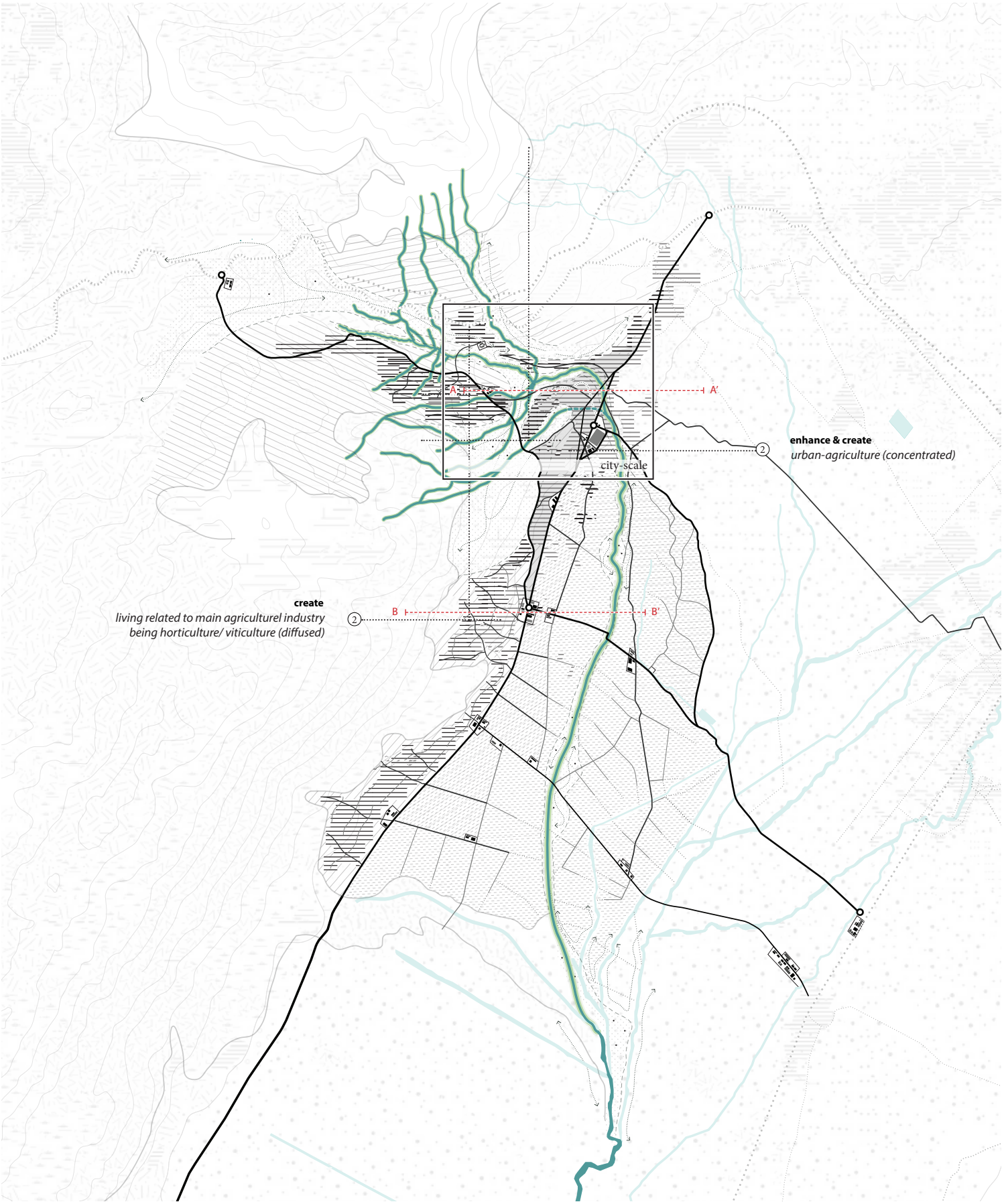


Figure 4.5. Total design including zones for intensification and agricultural production and affiliated forms of living

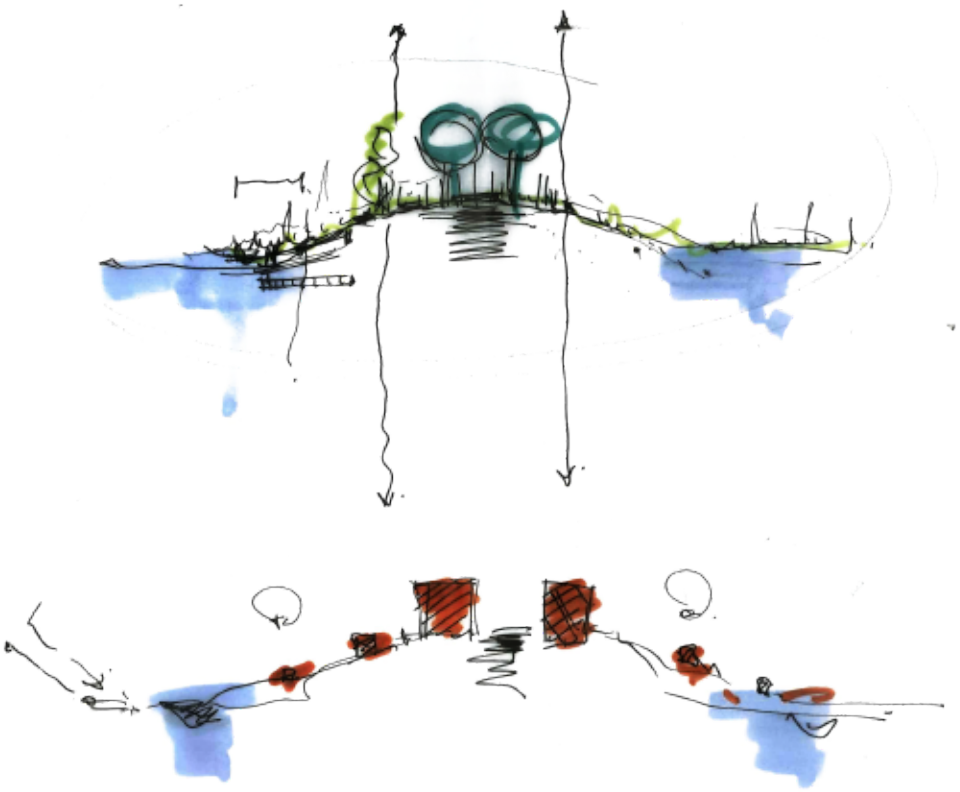


Figure 4.5. a Sections of transitions from river to river (vegetation) and from river to river (industrial zones)

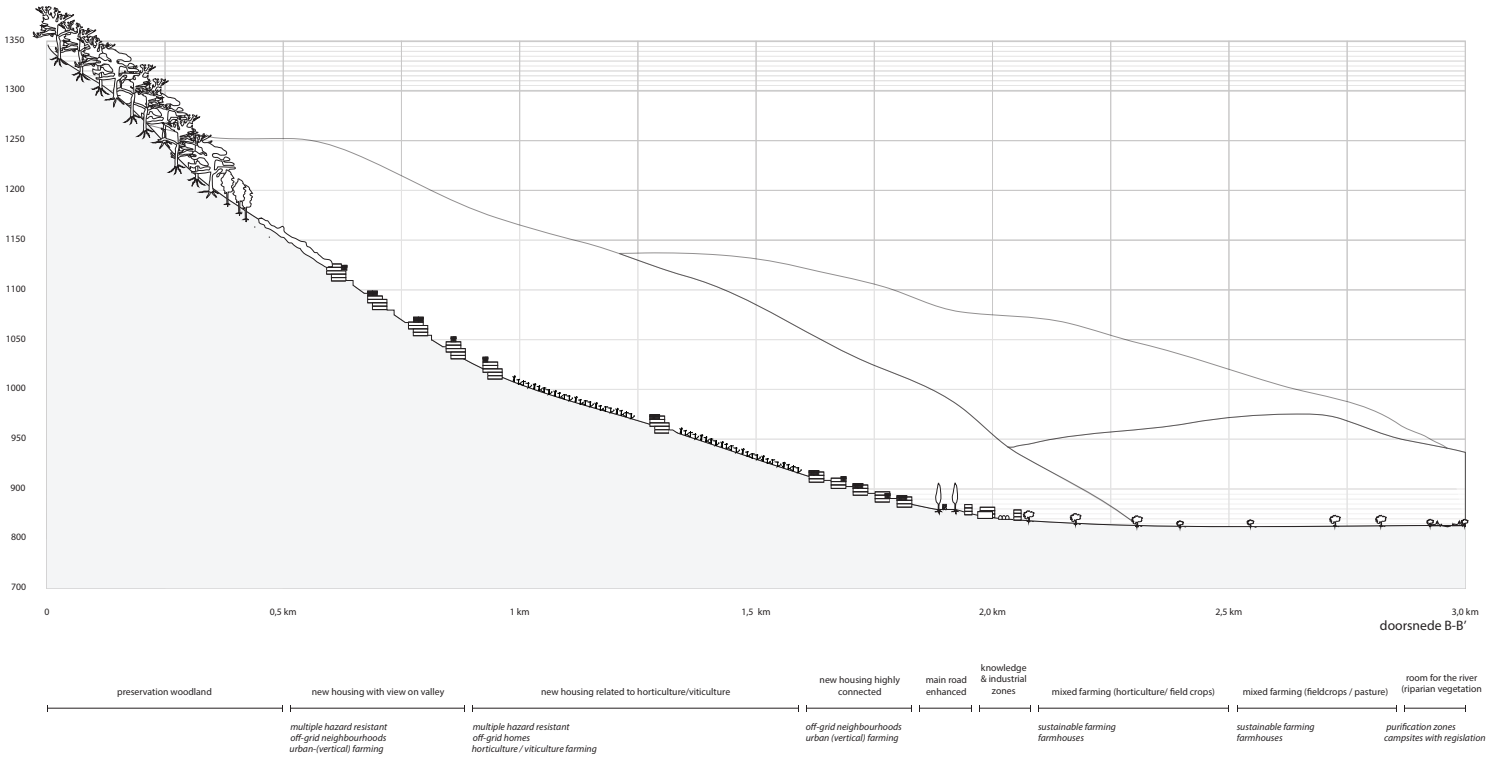


Figure 4.5.b: section B-B

Figure 4.6: Classification of types of agricultural production based on the territorial analysis (p.44-45) (own classification, analysis of the analysis) Consulted source: NSW Agriculture (2002)

better suits a combination of rainfed and small-scale irrigation. On the hillside of Qab-Elias town the combination of rainfed and small-scale irrigation meets the demand of water year-round. Like different types of irrigation, types of farming will also be alternated to meet the food and labour demands throughout the year. Which involves fruits, vegetables, herbs, flowers and animal by-products. And thus is also concerned with pastoral farming and horticulture. As it takes more effort to produce, the food production is in the first place for supporting the worker communities. The yields from this different types of farming will be processed according the old tradition called Mouneh, to ensure food availability during each season. The surplus of food is primarily intended for the local market. Entering the global market in a later stage can be achieved by applying to a niche market.

The economy described above are based on the primary economy related to agriculture, the cultivation of the land itself. However, the transformation of the yield into good for either own consumption or the local market is also included in the agricultural system. Other sectors, like information- and environmental technology, can be implemented in a later stage, after the (potential) workers obtained extra skills. Ultimately, in the future, agri-tourism would be extremely suitable for Qab-Elias and Wadi-el-Delem. Where the Lebanese gastronomy is of great importance for its local culture, visible in every day life by the local eateries, the food- and wine festivals and backyard farming.

Category 1: grazing, native pasture

Under the first category, suitable for pasture, various landscape typologies can be subdivided. The landscape typolo-

gies, however, determine the degree of pastoral farming. The two landscape typologies within the first category are the valley and the hillside. Both are suitable for nomadic farming. They are mainly concerned with native pastures, that rely on simply grazing environments.

Nature, however, still is designated as more important than farming within this category. This type of farming requires a consecutive piece of land, that allows for an increased mobility. It supports the nomadic lifestyle of the Bedouin, a marginalised group in Lebanon. The fundamental infrastructure to this type of farming are camp sites and trails, that are dependent on different factors related to the landscape typologies.

Category 2: mixed agricultural land-use, no field crops
In addition to native pasture, improved pasture is suitable in the second category of the territorial analysis. Improved pasture allows for a higher productivity, by using minimum tillage techniques (rainfed or irrigated) and therefore is referred to as extensive farming. Best suitable areas for intensive pastures are riverbeds and wetlands.

Besides pastures land in the second category is suitable to tolerant tree crops, either temporary or permanent crops (NSW Agriculture, 2002). This type of farming can be done for either economic or environmental reasoning and a distinction can be made between compact plantations and scattered trees. Scattered trees can be found in home and kitchen gardens, arable land, lining public roads and ways, as borders of agricultural holdings or in demarcation lines of agricultural plots. In this case of compact plantations, tree crops are either groves (small woods) or orchards (fruit trees).

In this category, fundamental interventions are to reduce the distance to the market and to improve the poorly developed or absent water- and transport infrastructure.

Category 3/4/5: mixed agricultural land-use
The third category of land also allows, in addition to pastures and horticulture, field crops to be cultivated, The geographic location or the landscape typology, however, determines whether a rainfed farming system, a dry land system or an irrigated system is used. Uphill, a rainfed-system seems self-evident, with possible support of other systems. Downstream, along the major Litani river, large scale irrigated farming is a common farming system. One of the possible cultivated areas within this category is located in a flood prone area and therefore measurements need to be taken to prevent economic, environmental and social losses. Dry land farming is both used for non-irrigated cultivation of crops, as well as the traditional pastoralism system applied in Lebanon. With the increase in limited natural resources and to deal with the impact of drought, this system can be reintroduced by introducing more space for livestock grazing as well as farming systems with more efficient water-use.

4.3.2. Planned city extensions: preparation land for agricultural production and habitation (designing expansion areas for communities)

The urban-rural expansions ask for an expansion strategy for the extension of Qab-Elias, in order to guide future urbanisation with respect to the environment, economic viability and social inclusion. The use of the grid as a formal and organisational base has proven to be efficient in organising space, with a distinction between the private and the public space created by the street and the block. The development of the expansion area is primarily concerned with the preparation of land for agricultural production and the affiliated settlements. The grid follows the natural lines of the landscape and connects itself to existing urban areas. The latter can be achieved by creating public and street spaces that allow for the exchange of agricultural production and thus connects the existing town with the new inhabited areas. Also, the productive land itself will connect the two. Over time these areas can grow towards each other, whereby high residential and economic densities are envisioned to further strengthen the local economies. In this way

maximal use of existing infrastructure and services can be achieved. Mechanisms for ensuring a good course of the expansion and intensification should be put in place. Following the natural lines of the landscape follows the force of gravity. This can benefit rainwater harvesting, as well as, the irrigation systems in providing the orchard, vineyards and field crops from water. Defining the grid is firstly based on the agricultural production system, yet will transform towards the urban area in the allocation of urban services. Also the grid allows for change, wherein a neighbourhood can start with the establishment of a block and gradually develop. Rules for plotting and land development should be implemented for guidance (UN Habitat, 2014). The street, as the backbone of the settlements will be separated from the water streams. From street to water stream the functions should gradually change from urban to rural to nature. By defining the different types of land-use, management measures can be adapted according to them. In short, steps that need to be taken are the identification of expansion areas, the definition of the street grid, rules for plotting and the establishment of common space for public activities related to agricultural production. This public space functions as the backbone, with its mobility, accessibility and exchanges. On the long term intensification is envisioned as well as urban retrofitting.

The spatial preparation of the land implies a basic foundation, the basic infrastructure for agricultural production and habitation. Besides the obvious irrigation and transportation networks, permanent dwellings are needed for the new agricultural communities. This is in the first place seen as basic infrastructure, because of its function to protect human from forces from outside. According to the United Nations High Commissioner for Human Rights (2014), everyone has the right for adequate housing. Examples of the minimum requirements put forward by the United Nations High Commissioner are that settlements need to meet the needs of marginalised groups, physical safety should be guaranteed and the inhabitants should have proper access to public services and the job market. Basic infrastructure to provide for this is thus implemented, including permanent structures for habitation. In Lebanon these basic human rights do not apply. According to international law, the 1951 Refugee Convention does not apply to Syrian refugees in Lebanon (Hamill, 2017). The Informal Tented Settlements showcases a total different situation with an lack of accessibility to public services and its vulnerability to hazards. Besides, permanent housing can be incorporated in the production landscape, by exploiting also its surfaces. Informal tented settlements do not allow for this vertical farming, as they are horizontal oriented and require a lot of space. Yet, many of the Syrian communities living in the informal encampments do engage in food cultivation and preservation. This shows the capacity of the people to provide themselves as much as possible from having reliable access to food in close proximity to their residential area. In unstable environments, like in parts of Lebanon and Syria, this seems necessary for survival. That backyard farming is common, shows the capacity of the people to adapt to changing circumstances. Housing thus is not only for sheltering people, but moreover becomes part of the productive landscape.

Today, the Syrian communities have barely any rights in Lebanon. Yet, the benefits of integration of the communities, whether for a short or long period of time, would favour the country on the long term. Benefits can be taken from labour, by allowing Syrian communities to improve their living conditions by own efforts and to boost the country's economy. Training of both Syrian and native population in the agribusiness, is creating value in the form of knowledge and skills that can, again, also benefit Lebanon economy's on a long term. Even when Syrians would return to their home country, these production relations remain. Job opportunities also arise for the land preparation itself. Communities are able to carry out the projects that are related to this expansions zones in exchange for either cash payment or vouchers. Infrastructure creation and upgrading projects result in temporary employment and improving public goods. Other measures that are being taken, to stimulate production activities can be achieved by providing communities in educational training, to provide favourable financial constructions and to increase social networks and patrons in the community. The latter can be partially established by the design of public space that stimulates social relations.

The benefits of a new agricultural system is to showcase these extension areas supporting itself on a minimum level, with limited impact on the environment. To contribute to a more stable economy, by releasing pressure on existing

agricultural production economies and by introducing new ones. This in turn, offers the opportunity to both Lebanese and Syrian inhabitants to improve their living conditions through own efforts. What in turn can boost the whole country's economy (Errighi & Griesse, 2016).

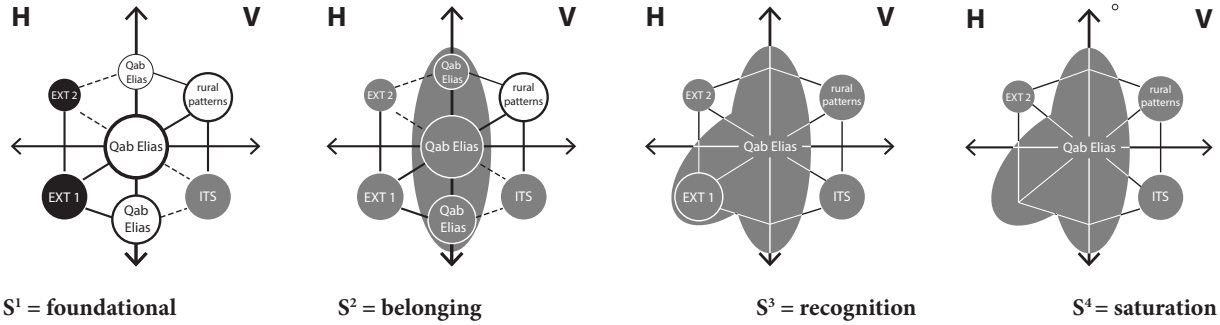


Figure 4.7. Spatial framework for the gradual development of the town of Qab-Elias (and Wadi-el-Delem)

4.4. The concept

The contemporary agricultural systems are protected by guiding future urbanisation towards the preferred direction around existing centralities. This is in consultation with nature and prime agricultural land. Also by land use change from prime agricultural land into natural buffer zones. They in turn, benefit agricultural economies adjacent to or downstream the river. The new agricultural production systems and the affiliated forms of living propose a model comparable with that of the expansion towns of the 'Garden Cities of Tomorrow'. An 'other' form is proposed, that differs from the agricultural production economies and affiliated housing in the existing towns and the encampments occupied by Lebanese and Syrian inhabitants. The expansion zones are in close proximity to the existing towns, aiming on the long term for high economic and residential density and social inclusion. There will be a transition between the expansion towns and the existing town of Qab-Elias. They are separated by nature, yet connected by the flows of production. From this middle they transform towards urban cores with surrounding or adjacent rural areas. The urban forms change from the centre to the outer from nature, to communal gardens, to horticulture and viticulture to forms of urban agriculture in the old town and community supported agriculture in the expansion zones. These zones or place are connected by paths or flows that represent farm markets and food festival streets. In the next chapter this gradual change and development will be further explained using figure 4.7 and 4.8.

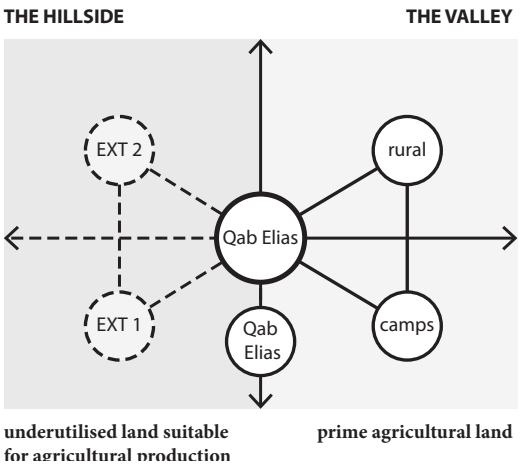


Figure 4.8 Spatial framework for the gradual development of the town of Qab-Elias (and Wadi-el-Delem)

4.5. Conclusion

How to exploit the opportunities and address the challenges of the specific territory to maintain prevailing and establish future economies and forms of living based on agricultural production?

The challenges of the territory are addressed by allocating land for different uses, such as biodiversity conservation, food production, urbanisation and mining. This is being achieved by a strategy based on three focal points. The first are prevention measures, to prevent the exhaustion of the natural landscape. Hereby sensitive environmental areas

are designated for nature, that exclude the land from other land uses. To prevent further loss of prime agricultural land, also these space are designated for this purpose. Other land-uses are guided elsewhere. This is being done through a strong spatial framework, using transport infrastructure for guidance. In addition to prevention, mitigation is necessary to use natural resources in a responsible manner. This is being achieved by measures on both plot and territory level. With the main focus on efficient water use and the improvement of the soil productivity, to keep the entire system productive. Finally, rehabilitation measure take place to prepare land for agricultural production. Or

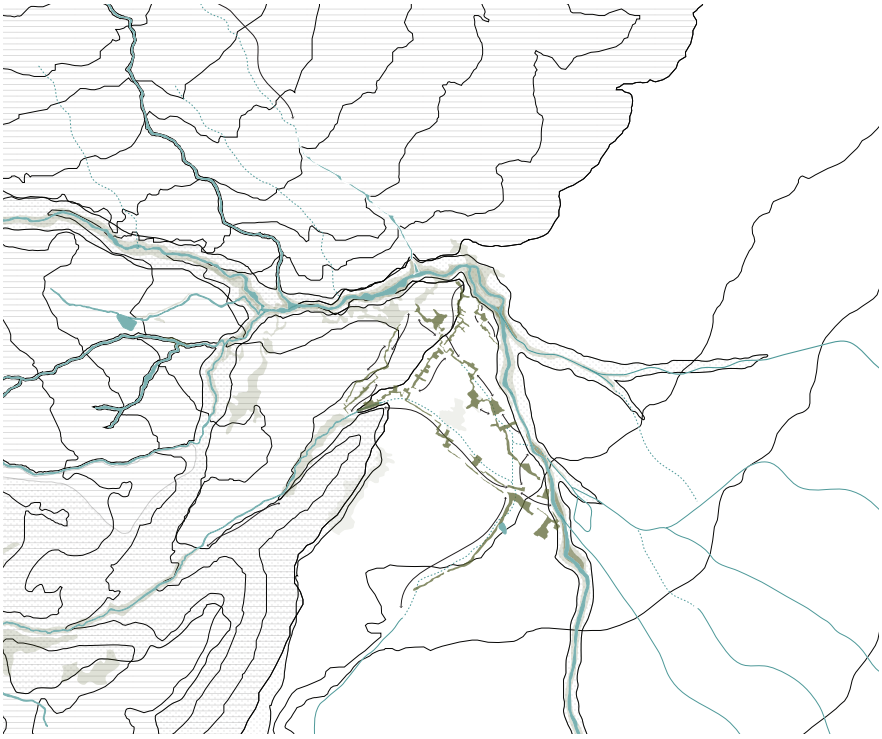


Figure 4.9: Water and ecological network, strengthen ecological network T = 1

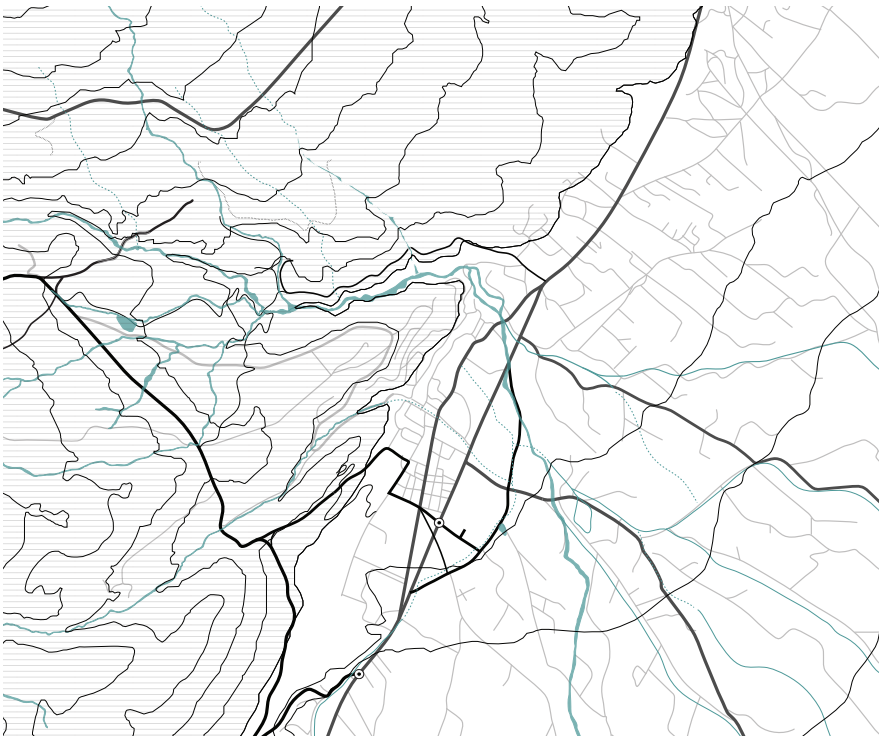


Figure 4.10 Transport network, applying hierarchy and strengthen T = 1

by eliminating land from human activities, to be able to restore and protecting them from becoming unproductive on the long run.

Opportunities are mainly based on the transformation of land into a new agricultural system to enable communities to support themselves on a minimum level. It empowers the marginalised people. This is being achieved by implementing a strong spatial grid that support the new forms of agricultural production and inhabitation. A framework that connects the existing parts of the town of Qab-Elias with the expansion locations.

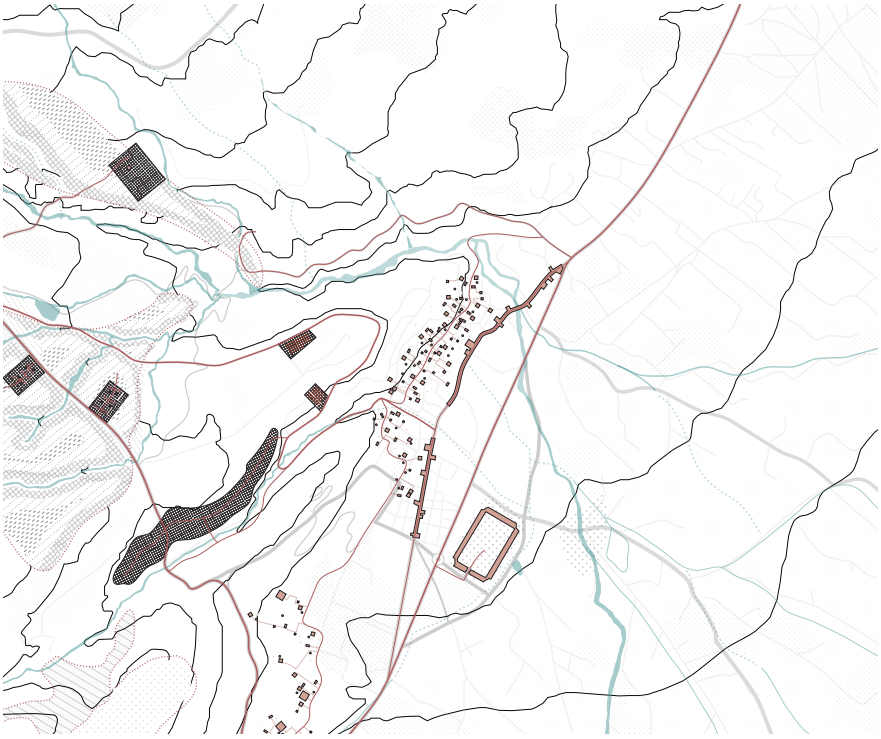


Figure 4.11 Production networks and occupation, expansion zones and existing structures T = 3

Figure 4.12 Total design including zones for residence T = 3

5

Question 3

What are the (socio-)spatial implications of the impositions for maintaining prevailing and establish future economies and forms of living based on agricultural production?

Chapter 5 design

The question to be answered in this chapter is the following:

What are the (socio-)spatial implications of the impositions for maintaining prevailing and establish future economies and forms of living based on agricultural production?

5.1. Introduction

In this chapter the spatial implications of the observations and recommendations done in the previous chapters are further explained and made explicit through design on the scale of the city and expansion towns. Wherein land, natural and man-made networks, housing and the people themselves are seen as (agricultural) production assets. The further continuation of the design is substantiated with a second proposition, based on the desk analysis and the observations, as well as the findings in the urban theory essay (*the annex*).

5.2. Proposition

The proposition is based on the desk analysis done at the start of this research and the observations during the site visit. As well as supported by theoretical research, supported by arguments that can be found in the essay on ecologies of co-existence (the annex).

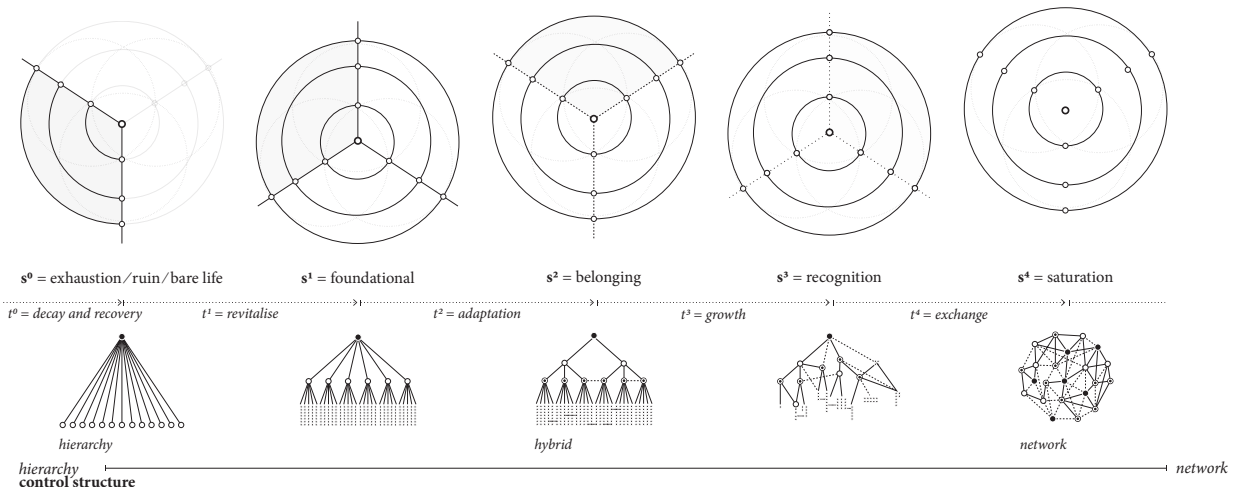


Figure 5.1 Proposition I (Own image, based on own interpretations of the observations, combined with the hierarchy of society as a function of complexity (Bar-Yam, n.d.).

Every person should be able to evolve beyond the state of bare life and thus, in this case, sever oneself from the dependence on emergency aid or other exploitative and unilateral practices. This evolution allows to overcome the form of life wherein life has been reduced and allowed to be regulated and governed by both international and national aid agencies, national and local governments or other supreme rulers. In the case of humanitarian help, people who find themselves trapped in their deprived situation feel unable to defend oneself or to act without help. In contrast to the strict regulations in the camps and the substitution of rights for the Syrians or other migrants living in Lebanon, there are some forms of life visible where people do take matters into their own hands .This group mainly consists out of low-skilled and low-educated young man, women and children that participate in informal economies. Unfortunately these practices are not without risks. The difference between both is that a reciprocal relationship is taking place in

the second example, while in the case of (emergency) assistance people are, with few exceptions negligible, connected in a unilateral way. The reciprocal relationship is admittedly unbalanced, as the performed labour does not equal the value of its produced goods. Nevertheless, it is a form of adapting to a new environment in order to support oneself in a way that gives more purpose to life, a sense of belonging.

Besides participating on the labour market, the visit to the Informal Tented Settlements pointed out that people are really knowledgeable on how to support themselves in order to survive. Food preservation was found everywhere, from the local shops to the Informal Tented Settlements (*the annex*). This shows that the people are capable to be self-sufficient, especially with regard to the production of food. This exhibits the most pure form of a sense of (territorial) belonging, where labour is used to produce value that is equal to its input. Using the right resources, this fact can be further exploited in favour of all the inhabitants of the valley.

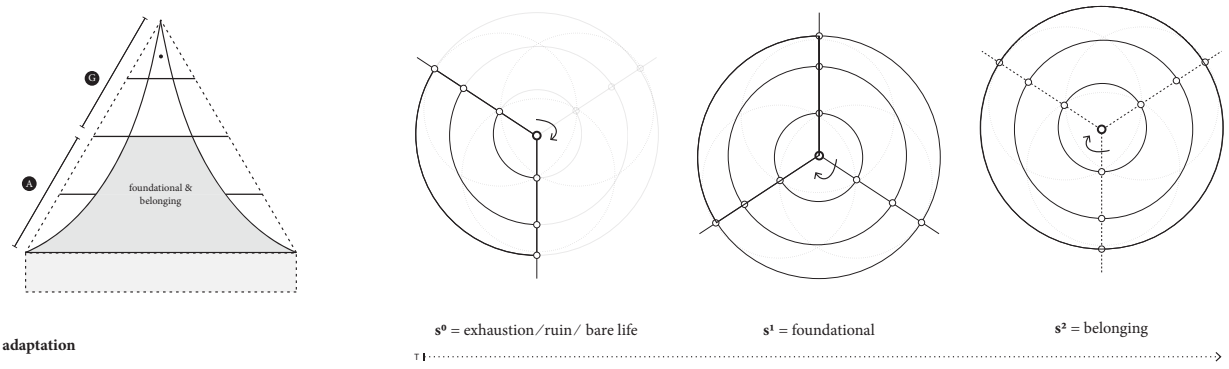


Figure 5.2 Proposition I - The gradual development from the bare life to the state of belonging (Own image, based on Maslow's Hierach of Needs (1954) and inspired by the exhibition 'In Therapy' Nordic Pavilion at the 15th Venice Architecture Biennale (Archdaily, 2016))

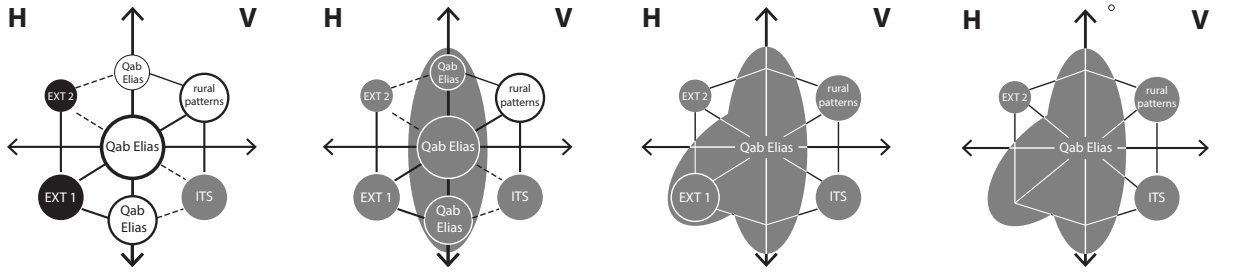
As a result of the findings and interpretations, the design proposes an alternative situation where both the foundational needs and sense of belonging are seen as essential basic human rights. Hereby it is the right to life, rather than to solely exist, that prevails. This is in contrast to the current imposed restrictions on living, working and commuting. A side note is, that the design of this other living space, is based on the ideal of free choice. Thus, people are not forced to participate in this other living space, rather it gives them a choice. The project is mainly concerned with the phases from the bare life to the state of belonging, but also makes statements about the subsequent phases. Again, from the perspective of agricultural production, that claims to be a normality in all the prevailing social systems. In the first place as a means to adapt as a way of survival to uncertain circumstances. Moreover, because of its great cultural importance for all the Arabs living in Lebanon. Their affinity with food and agricultural production becomes further utilised.

5.3. Spatial framework

The spatial framework is a derivative from the analysis and observations showing a great exhaustion on different scales, from the natural landscape to the marginalised communities.

In order to overcome the stage of exhaustion, a gradual development is envisioned that allows the land and the people to evolve over time. This calls for a planned structure, in which space is left for unforeseen circumstances. An adaptive structure that not only takes into account the characterisation of the parts and their interdependency, but also includes its time dependency and changes over time *(figure 5.3)*. With the overall goal to imbue new life and vitality

in the deprived landscape or the bare life and to boost and benefit the natural environment and the communities living in the Beqaa valley. The spatial framework is specific for the town of Qab-Elias (and Wadi-el-Delem), which is located on the edge between hillside (H) and the plain of the valley (V). The spatial framework changes according to the levels of human needs, ranging from the foundational level to the level of saturation. The town has the potential to eventually evolve into a metropolitan centrality of the Beqaa valley, due to its strategic location. A location in close proximity to both Beirut and Damascus central in the valley.



S¹ = foundational	**S² = belonging**	**S³ = recognition**	**S⁴ = saturation**
T¹ = revitalise (0-5 years)	*T² = adaptation (5-20 years)*	*T³ = growth (20-50 years)*	*T⁴ = exchange (50-100 years)*
shelter, food, education, healthcare	public space, public programs	processes and values in society	?
Expansion zone 1	***Expansion zone 1***	***Expansion zone 1***	***Expansion zone 1***
Expansion zone 2	***Expansion zone 2***	***Expansion zone 2***	***Expansion zone 2***
Existing city	***Existing city***	***Existing city***	***Existing city***
ITS	***ITS***	***ITS***	***ITS***
Rural settlements	*Rural settlements*	***Rural settlements***	***Rural settlements***

Figure 5.3 Spatial framework for the gradual development of the town of Qab-Elias (and Wadi-el-Delem)

5.3.1 Expansion zones

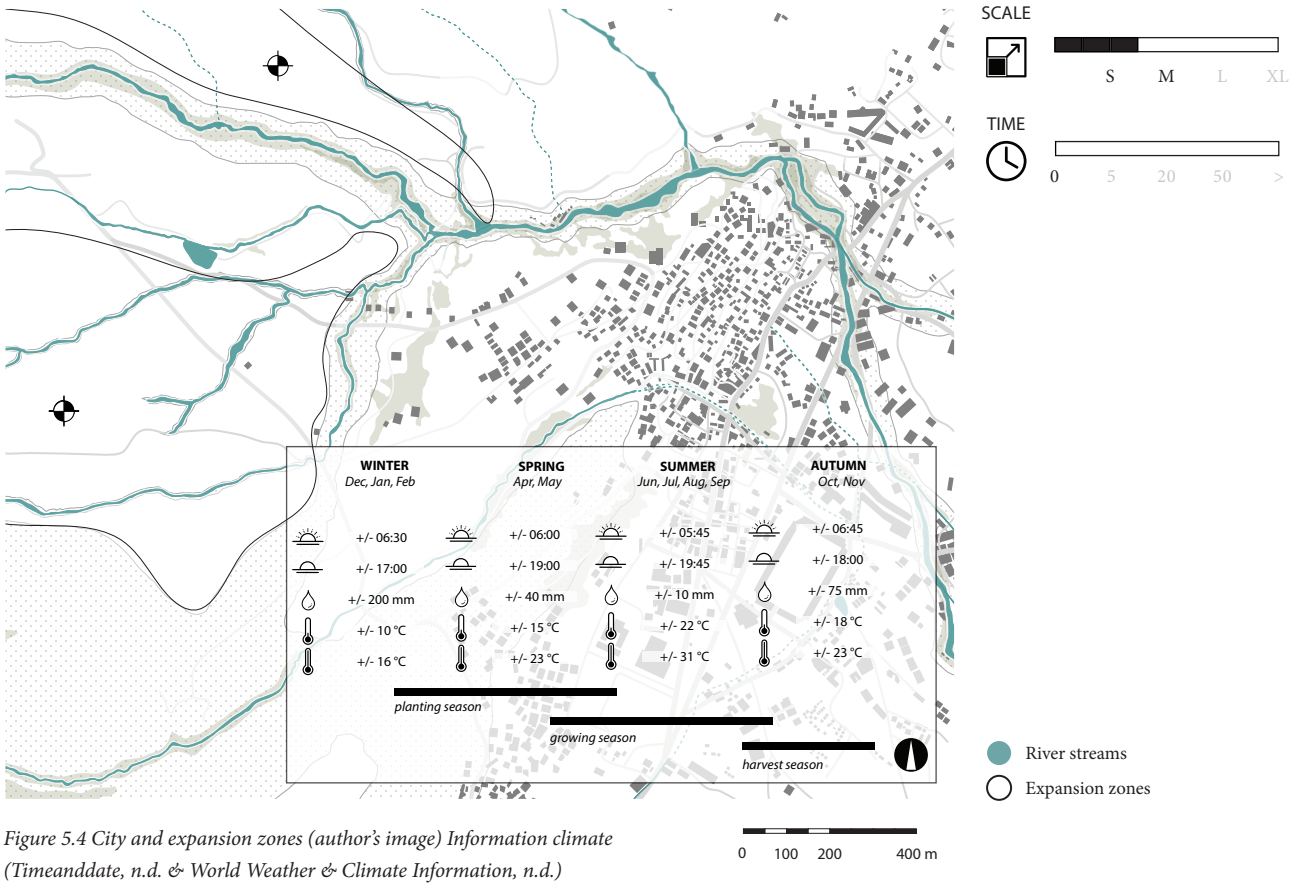


Figure 5.4 City and expansion zones (author's image) Information climate (Timeanddate, n.d. & World Weather & Climate Information, n.d.)

The expansion zones are located on a higher ground, characterised with a modest slope. They do not have major importance for nature, yet are very suitable for traditional (local) agricultural practices. Planting seasons in Lebanon start at the end of the winter, depending on its specific location. Because the expansion zones are on higher ground, the planting season (outdoor) start from the beginning of the spring. When the production landscape would be highly developed (S^3/S^4), using new technologies, it would also be possible to sow earlier.

The expansion zones would therefore be extremely suitable for research and observation, combining it with the need for proper housing and the ability to become self-sufficient. It should be noticed though, that the area is dealing with water scarcity during the most important months of agricultural production, therefore measures are taken in order to hold as much as possible (rain)water, especially at the end of the winter-months (melting snow). This is in particular interesting for expansion zone 2, because the hard karstic formation does not allow the infiltration of water in a natural way. In addition, both locations are in close proximity to the source of melting water. Water can be used more efficient, by preventing evaporation of storm water run-off and by storage. Storage on higher grounds also reduces groundwater flooding downstream. Which in turn has an impact on the prime agricultural land.

5.3.2 Expansion zone 2

Although similar in land-form and ground-type, the expansion zones do differ in appearance. Adapted to the characteristics of the landscape, their architectural and urban form will be quiet different. Both expansion zones are in close proximity to the existing town of Qab-Elias, but natural barriers are separating the second expansion zone from the old town. The location of the second expansion zone is a natural defence that protects its people from hazards. The remote location is debatable, as it will never allow to gradually transform into the existing town. Still, transport infrastructure will connect the location with its surroundings, allowing for exchange of goods and people. In a later stage it can even function as a cultural artefact in the landscape, like the fortifications designed for the defence of territories in warfare. In this case, a wine house runned by the community is designed, that fits in the landscape of the already existing French châteaus. The winery will distinguish itself by its unique location, with a view over both the town of Qab-Elias, Wadi-El-Delem and the Beqaa valley. The urban form is thus a central core, with inner courtyards, surrounded by orchards, vineyards and fields of crops (*figure 5.5*).

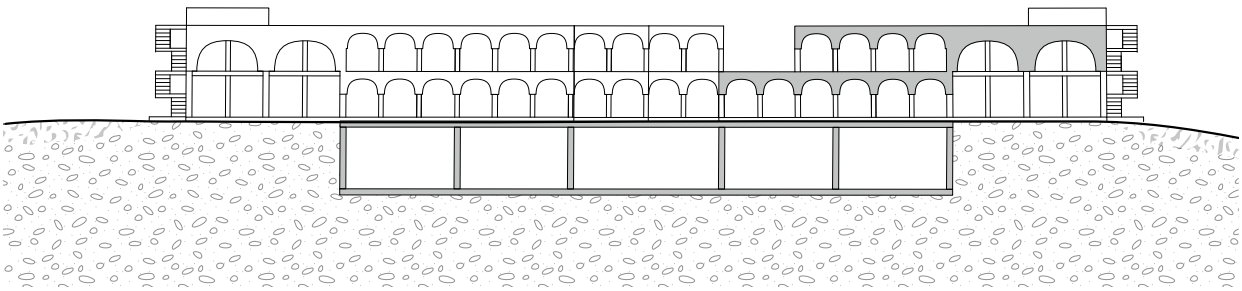


Figure 5.5 Urban/ architectural form of expansion 2 - map and section

in addition to the economic and social importance, it also carries cultural value. It is connected with the existing urban structure, by the agricultural production landscape and a cultural spine linking various cultural heritage to each other. The function of the building, besides protecting the people from outside harm and offering them basic means to support themselves, is to take care of the vinification process (fermentation and aging) of grapevines for the production of wine. The surrounding fields are concerned with a combination of grapevine planting, fruit-trees, flowers and to some extent field crops. The typology of housing is a château with the appearance of an fortress.

Figure 5.6 Urban/ architectural form of expansion 2 (section combined with map, Author's image)

The more permanent form of architecture derives its proposition from the contemporary practices based on temporal ideas subjected to a prolonged conflict. In our field of work, adjustments of these temporary forms of housing are the core of the debate, whilst a more permanent form of housing can contribute literally and figuratively to the country's legacy. In addition to the long-term nature of the phenomenon, this statement is further substantiated by the observation of the permanent traces of the Informal Tented Settlements. To be more specific, the preparation of the sites intended for Informal Tented Settlements (as a new business model for the farmers) was done by pouring cement. Also its latrines and showers are connected to underground concrete tanks. Finally, it has been proven that housing is of great importance for the subsistence of humans and therefore should be re-evaluated in the concept of emergency assistance, or at least after a certain period of time. Housing should be seen, together with the landscape and networks as the infrastructure necessary for rural development.

5.3.3 Expansion zone 1

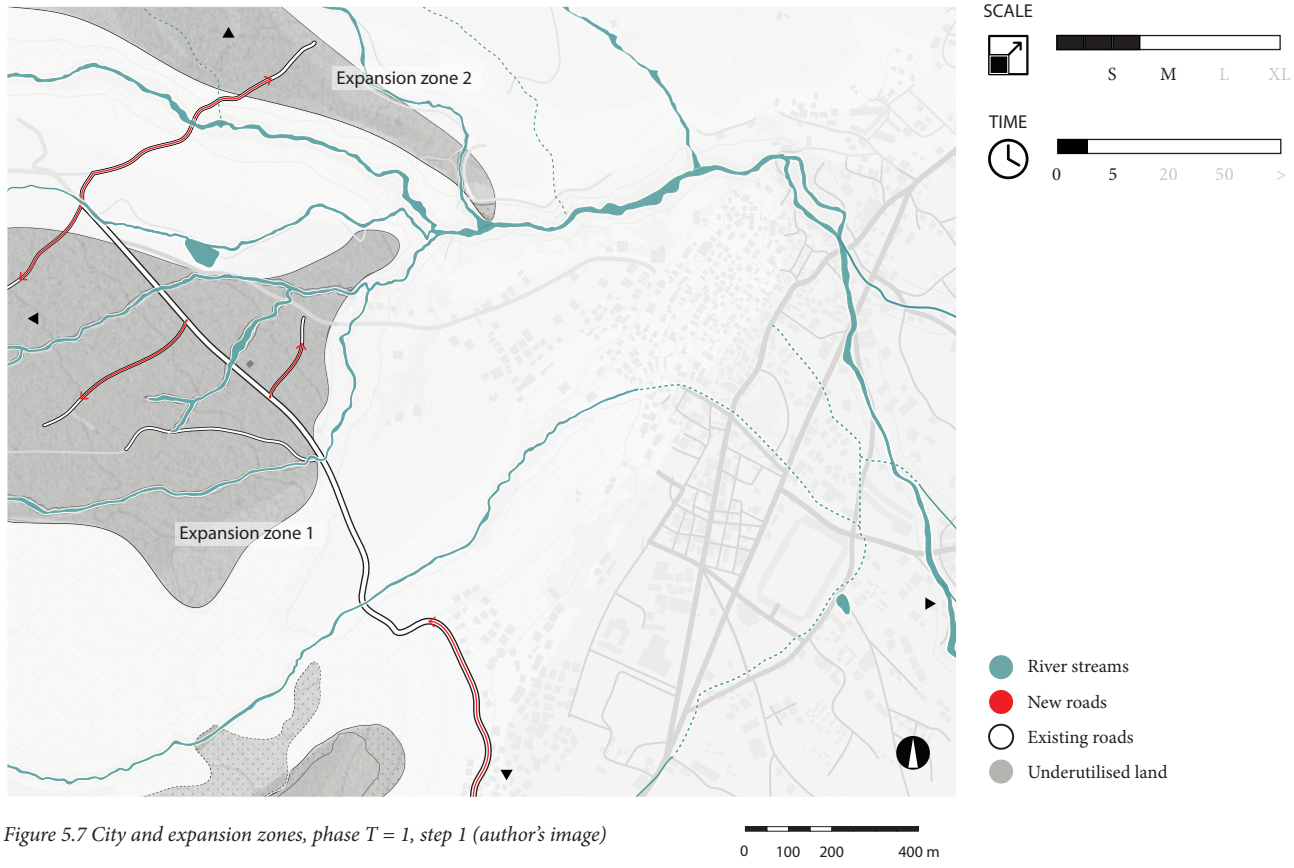


Figure 5.7 City and expansion zones, phase T = 1, step 1 (author's image)

The first expansion zone is adjacent to the existing town and separated by a designated zone of nature. This nature is part of a larger natural network, that supports life as a whole. The location has a very modest slope and is therefore extremely suitable for agricultural production. Also its soil type and geological composition, makes it possible to cultivate. In contrast to the second expansion zone, the land is not entirely subjected to the sun from sunrise to sunset. Part of the area will be in the shadow at the end of the day, which requires an accurate alignment of the type of crop. Moreover, the forms of living related to this agricultural production is also based on the allowance of the landscape. To make most use of the area to be cultivated, housing is aligned along a road, with a maximum distance there from of thirty meters. It is located between two river streams, what allows to implement water infrastructure that makes maximum use of the natural slope. Similar to Roman times, the wastewater system will partly be used for the irrigation of the crops. The rainwater will be collected on the roof and will be mixed with this grey water. On the edge between

water stream and production landscape, the natural zone will purify the water as much as possible. Also, agricultural techniques will be applied with little harm to the environment. Instead of inner courtyards, the free space between the different housing units allow to be developed into public spaces in a later stage of development. The transport infrastructure on the one hand, the permanent concrete housing structure and the production landscape on the other hand are the edges of the maximum capacity for unplanned development. In this way, the system can function according to the principles of an ecology of co-habitation.

Its proximity to the existing town allows for the gradual developments towards an intertwined landscape of co-habitation. The different communities of the territory already coexist by their imposed relationship on the housing and job market (mainly agriculture), yet their tolerance towards each remains low. The typology of housing are community blocks with the ground floor reserved for mainly public functions and spaces of exchange. The urban patterns allow for horizontal and vertical growth. The blocks are linear dispersed, in line with the height-lines, connected from the road through the productive landscape with the water streams. The fields are prepared for orchards, vineyards, flowerbeds and to some extent field cropping. Also, routes for traditional nomadic farming are initiated, connected the different expansion towns.

Not only does this location aims to prevent further urban expansion on the production land used for commercial farming, it also offers new opportunities for connecting the hinterland with the coastal area. With an increasing commuting population and the foreseen increase in agricultural production, this means better accessibility and more distributions veins.

5.4. Design

5.4.1. Introduction

The future urbanisation of the town of Qab Elias is guided by a spatial structure of separate neighbourhoods (chapter 4), wherein certain spatial patterns may or may not merge over time. This spatial configuration is based on the analysis done in the previous chapters and further supported by networks of transport and green-blue infrastructure. Thus, the characteristics of the specific location as well as its relation to agricultural production have been taken into account for the establishment of the spatial structure. This is argued by several observations, being the competitive nature of the existing informal tented settlements with prime agricultural land, the expected further increase of those camps in the future and the unwillingness (today) to include Syrians or other particular migrants in society.

This relation is expected, on the long run, to improve through a facilitated cooperation based on agricultural production. On the short term, agricultural production itself not only serves to achieve one's basic needs, it also contributes to a sense of belonging. This is important for people to feel part and contribute to society as a whole.

5.4.2. Phase $T = 1$

Changes in phase one of the project include structural measures for soil and water conservation, the construction or strengthening of transport infrastructure to improve accessibility, land preparation and infrastructure enabling new (agricultural-) production systems to emerge and improving existing ones, as well as the construction of concrete shells for workers housing. The landscape, existing networks and housing are hereby seen as the basic physical and organisational structures to support the (agricultural-) production landscape.

Phase T = 1, step 1

When zooming in to the city and its proposed expansion zones (*figure 5.7*) the first step that needs to be taken is the

improvement of access and mobility from the city and region to these expansion zones. Expansion zones that are selected in the previous chapters, based on its potential spaces for forms of living based on agricultural production and habitation. The ultimate incentive for this new or improved transport infrastructure is the connection to Beirut, linking the hinterland with the coastal area on a regional scale. These improvements are prior to the foundational stage, as the foundation itself includes the action of establishing a community on a more permanent basis. The foundational stage itself (S=1) is ensured with architecture that cares for basic needs such as shelter and food.

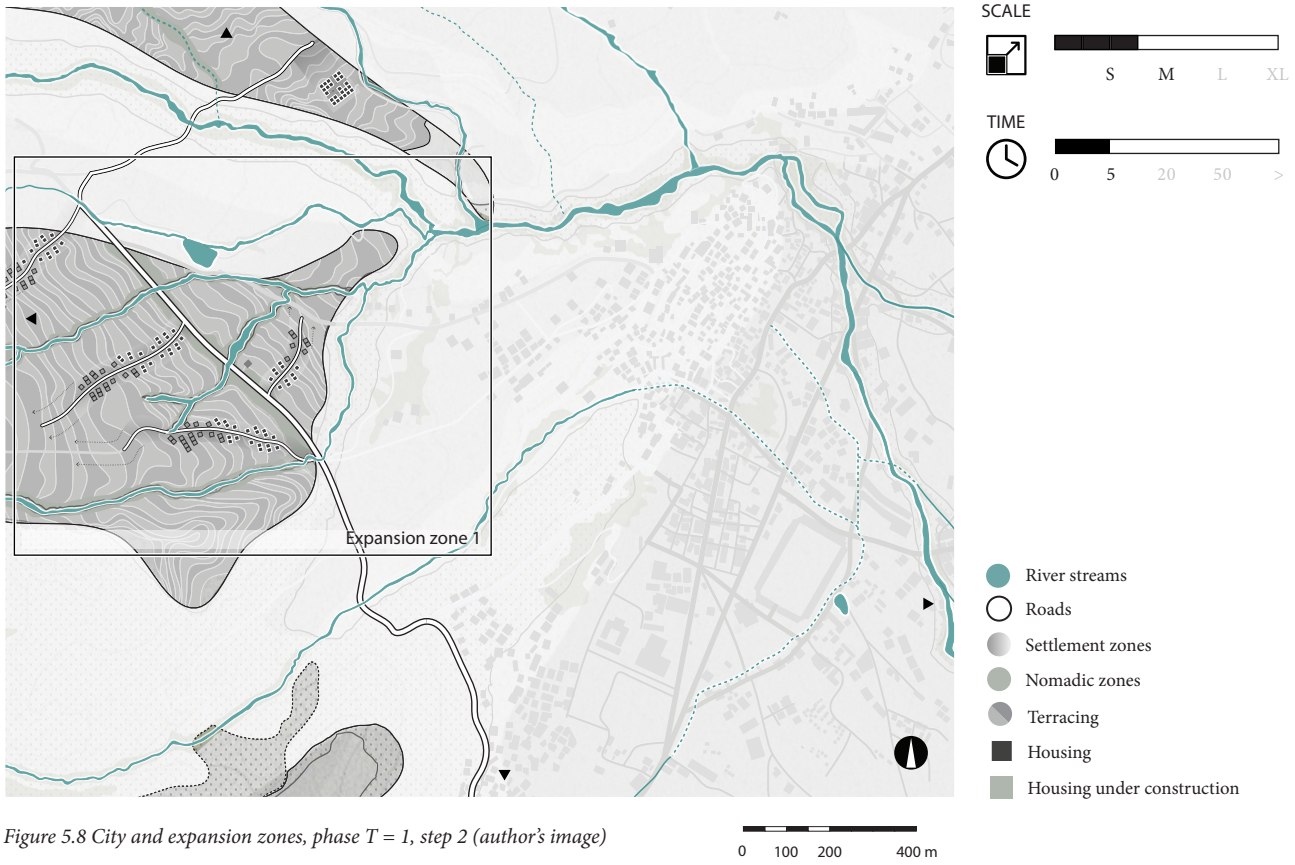


Figure 5.8 City and expansion zones, phase T = 1, step 2 (author's image)

The realisation of the first step is carried out by 'basic human needs for work programs', using labour to adapt or prepare the landscape for (agricultural-) production systems that suit the different landscape typologies. Those interventions, in turn favour the existing systems of (agricultural-) production, by strengthening its transportation system, by improving the quality and quantity of water and through the implementation of structural measures for soil conservation. Here labour is exploited by the capitalist mode of production, meaning that labour is used to create exchange-value (Thomas, 2010, p.51).

Phase T = 1, step 2: expansion zone 1

The second step is the establishment of permanent architecture in close proximity to the new road networks, following the lines of the landscape (*figure 5.8*). These concrete structures are open and based on a grid of 5 by 5 meters, allowing different sizes of household to inhabit it. The grid of this linear 'camp', is inspired by the grid of the formal camps and measures put forward by UNHCR (n.d.) for planned settlements (*figure 5.9*). The urban designs are inspired by the informal and formal tented settlements, wherein tents alternate an either informal or formal urban pattern. In this case it represents a mixture of both, where a formal structure forms the basis for the further course of development. It combines its grid formation with the principles of Dom-Ino house, consisting of a solid basic structure, with space

free to be configured over time.

Figure 5.9 Expansion zone 1, phase T = 1, step 2 (author's image)

For the first phase, the land (including housing) is prepared for communities of approximately eighty persons. The buildings are either 20 by 20 or 20 by 40, with possibilities of growth in the horizontal and vertical direction (*figure 5.10*). The horizontal expansion is in line with the terraces to a maximum of 60 meters and a growth in a horizontal direction along with the main road of approximately 30 meters (5 meters on both sides). Finally, it also allows the further development in a vertical direction to a maximum of 18 meters. Every community has access to cultivatable land for agricultural production of approximately eight hectares. On the scale of the expansion zone itself, there is space along each secondary road for the establishment of another community. Within ten years, sixteen communities of eighty people can inhabit the area, a total of over 1250 people. This is not even a fourth of those currently inhabiting the Informal Tented Settlements across the whole municipality (*the annex*). The aim of the long-term development is to at least make space for 5000 people in the expansion zones and the areas in between expansion zone 1 and the existing city. The spatial framework is guiding this development.

Space for habitation thus can triple over time on the scale of the neighbourhood, but the land available for food remains equal. Still, technological progress within the field of agricultural production will result in a higher productivity, allowing more people to sustain themselves. It is therefore also very important that investments are made with regard to education, allowing the people and their production landscape to evolve. Also, because the population consist largely out of youth . The roof itself forms also part of the production landscape and thus will also result in the production of agricultural products. Examples of such are greenhouses on the roof. There is also space reserved for nature that can purify in a natural way the water (surface and ground) passing the location. It also increases the connectivity of nature and thus improves biodiversity. This is beneficial for the entire ecosystem.

Figure 5.10 Expansion zone 1, phase T = 1, step 2 (author's image)

Phase T = 1, step 3

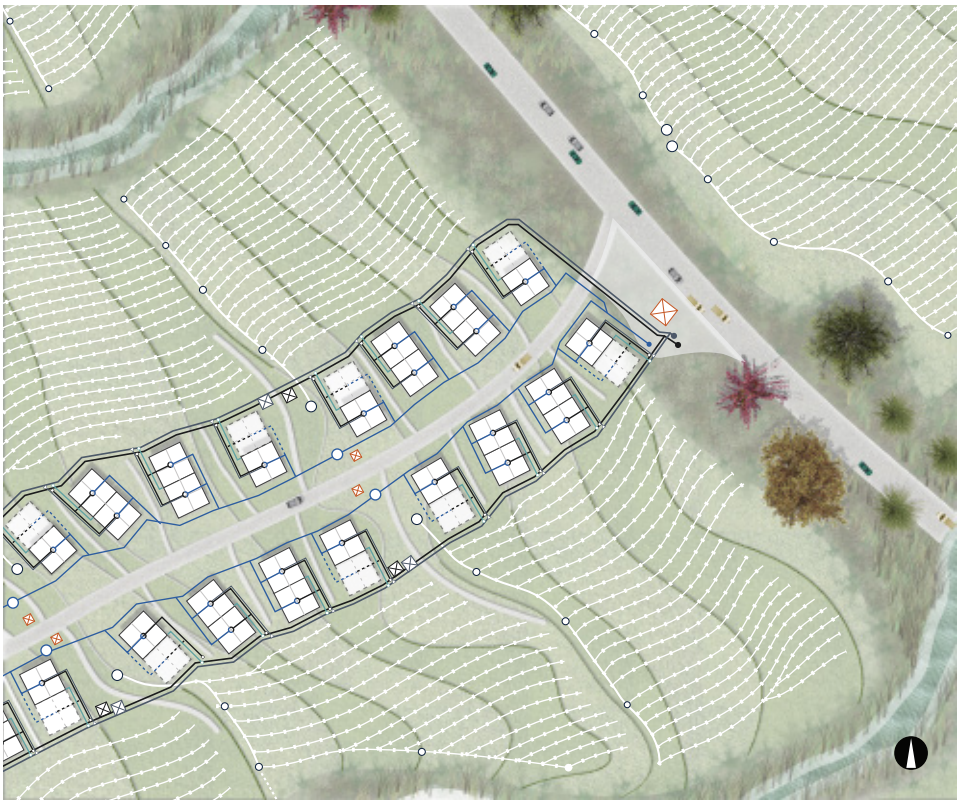


Figure 5.11 Expansion zone 1, phase T = 1, step 3 (author's image)

Although the urban patterns are based on the terracing and future position of the water and waste water infrastructure, both are being implemented in a stage subsequent to the primary production and habitation infrastructure mentioned in the previous step (2). Investment risks are lower and squatting can be guided through the already implemented spatial patterns. If the project fails, at least people can find more proper shelter as an alternative to the Informal Tented Settlements. Thus water and waste water infrastructure is implemented according to the slope of the landscape. Along these networks water is collected and stored, to make the most efficient use of the water. Irrigation systems are implemented ranging 1 to 2 hectare. That differ according to the type of crop (ranging from orchards, to vineyards to field cropping). Irrigation water is a combination of rainwater harvesting system, groundwater (artesian well) and grey water (sewage system) from the urban settlements. Again, the distribution of water is based on the slope of the ground. Therefore settlements are located in between rivers on the highest part. Beside the waste and wastewater location are designated for the collection of solid waste. In between the building blocks already on site water treatment is being conducted, reducing the overall impact on the environment (*figure 5.11*).

Phase one is based on or initiated by a proactive approach from an umbrella organisation, which recognizes the value of urban planning for this specific location whereby urbanisation will be guided towards the preferred direction, based on the balance between the value of nature and the value of agricultural production. Urbanisation is therefore a derivative of the previous mentioned. This landscape approach and ecology design underpins the long-term vision of the area to create ecologies of co-habitation. In the worst case, the design remains limited to the somewhat idealistic world envisioned by the author of this report.

Also it should be noted that there are two priorities at stake in this phase of development. The first is the safeguarding of prime agricultural land, by steering future urbanisation using transport infrastructure. The second is the safeguarding the people, by offering them the opportunity to exploit the land for supporting themselves. The development of the expansion zones for those deprived, is a catalyst for further adaptation and growth.

Figure 5.12 Expansion zone 1, phase T = 2 (author's image)

5.4.2. Phase T = 2

The second phase of the project is concerned with creating an autopoietic community, through the establishment of new modes of production and living. The land prepared in phase one for production, has been permanently withdrawn from the market. Like unilateral aid activities, capital in the form of money has evaporated. The value of land for agricultural production remains and allows for those willing to, enter in this new system of production in order to support oneself on a minimum level. They can set themselves free from a marginalised position (the state of exception) by engaging in new production relations by the means of subsistence farming.

The autopoietic community supports oneself on a minimum level, creating a production value that meets the needs of the individual worker or community. In comparison with the Maslow pyramid this includes the foundational stage and the stage of belonging (Figure 5.1). In the stage of belonging the mode of production is a definite form of expressing life. As individuals express their life, so they are. This is being achieved through subsistence farming and mouneh (preservation of food) and semi-commercial farming or side-activities as a buffer in times of crisis. To be less depended on other parties, as well as to give meaning to their life.

In addition, on the scale of the neighbourhood, public space and programs are initiated, that support the personal ties established through agricultural production.

Figure 5.13 phase T = 2 (author's image)

5.4.3. Phase T = 3

The space between expansions towns and Qab-Elias allow for small industries related to agricultural production, such as the bottling, labelling and distribution. These in turn, can be exchanged on the therefore designated public exchange spaces. In this way the individual agricultural production systems are connected with each other through exchange. The semi-permeable membrane of the agricultural production system thus enables an exchange with the world around it, in the case of a surplus in the food or the exchange of knowledge. From the position of an autopoietic community one can evolve in the successive stages of the hierarchy of needs. This is being encouraged by the establishment of industries related for processing this surplus in food, such as packaging and bottling. Besides, training programs inside the Apocatastasis, can lead to the exchange of human capital into the parallel production system that can favour the overall economy of Lebanon. The background knowledge on subsistence farming, as well as it being a

qualified sector in Lebanon, has led to the obvious choice to provide training in the field of agribusiness.

In addition to the exchange of goods, also the exchange of knowledge and culture (tourism) can take place on the long term. Trails and routes along towns and villages of the Beqaa valley, as well as parts of the mountains and the production landscape can giver further inside in the natural, cultural and architectural heritage of Lebanon. Agri-tourism as part of economic development does ask for a more stable situation in the valley for - in particular - foreign tourists. It can go hand-in-hand with other developments relating to agriculture. The first concern in this project, however, is farming in order to maintain its oneself at a minimum level.

5.5. Conclusion

The town arises from the gradual development of a new (agricultural-) production system, by reviving the untapped potential of land for production capital and labour capacity. The phase preceding to the establishment of this expansion-town(s), is concerned with the basic physical and organisational structures and facilities needed for the operation of the entire (agricultural-) production landscape. This pre-phase is hereafter referred to as the first phase of the project, while the emergence of the autopoietic communities engaging in this (agricultural-) production system is seen as the second phase of the project. Those participating in this system neither form the exception nor the norm. Yet, its invisible membrane allows them to grow upon the ultimate stage of belonging, after which they can return to production systems propagated outside of the expansion zones.

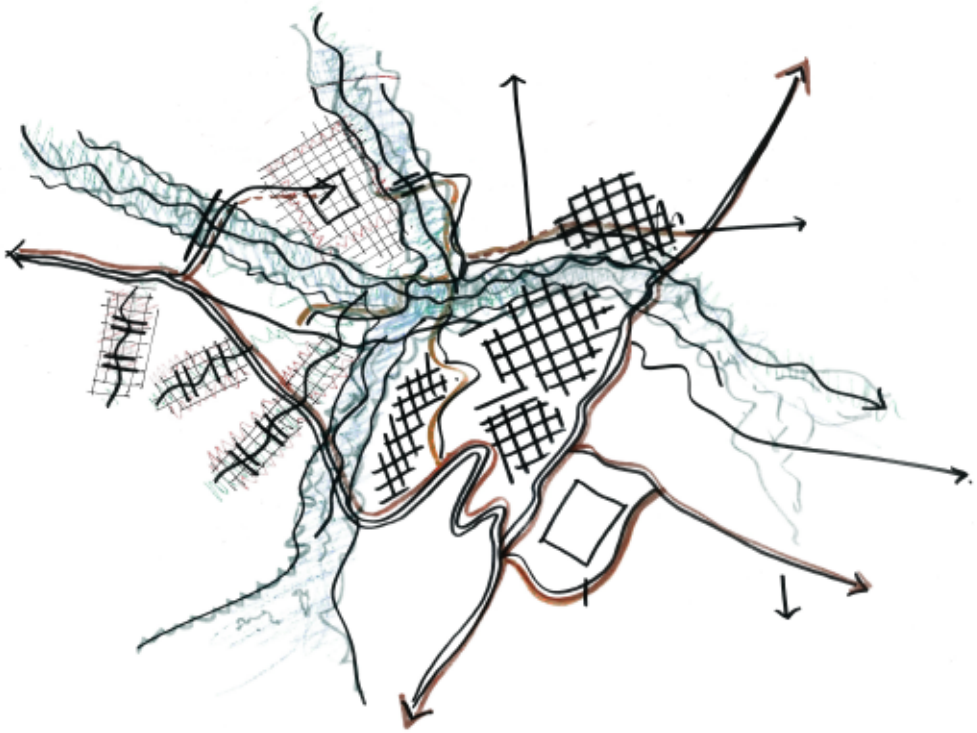


Figure 5.14 sketch spatial framework on the town of Qab Elias and its expansion zones

6

Conclusion, discussion & recommendations

Chapter 6 conclusion, discussion & recommendations

6.1. Conclusion

6.1.1. Contextual analysis

How can a holistic landscape approach contribute to new insights on for turning emergency landscapes into ecologies of co-habitation?

The holistic landscape approach is a way of thinking that allowed to engage with the territory form an integral perspective. A way to reflect upon the implications of the large influx of Syrians into the small country of Lebanon. This has been done by not only reflecting upon the obvious problems, but moreover by finding similarities and normalities in a particular condition at a specific time, within a situation that is seen as the exception. When approaching the phenomenon of displacement and its implications as a self-contained issue, one will find answers within the delineation of the same. Connecting the issue to its surroundings has, however, provide us from new insights.

This project does not demarcate the Syrians and their living environment as a self-contained territorial entity. This proved also to be obvious, as strong relations between people living in Informal Tented Settlements or in the former vacant buildings and its surroundings already exist. These relations are mainly established in this specific territory through participation in the agricultural sector. This relation between landlord and tenant goes further, wherein many of the productive land has been transformed for the establishment of the camps. The plots of the camps are rented out either directly to the Syrians or indirectly by aid agencies. That the crisis is also a lucrative business for some landowners, shop owners and house owners should not remain underexposed. Rather, it should be used to facilitate future developments. Also, it are difficult times for the Lebanese themselves. Yet, the resources seem to be not distributed equally among the population. Therefore the design for future development is not only focussed on the deprived population, but also ensures the Lebanese population benefiting from it.

Spatially, the encampments mainly function as a self-contained territorial entity, shielded by a fence. This is harmful because it does not allow those living in the camps to participate in the prevailing social system. This exclusion is not beneficial for environment, economy and society as a whole. Many of the encampments are, however, in close proximity to existing cities. Rather than merging the camps with the existing city, new expansions zones that are not competitive with prime agricultural land are envisioned. Existing camps will be revitalised and connected stronger with its surroundings. Other camps remain dispersed as isolated islands through the open landscape of the plain and are approached as decentralised systems. Other forms of living are mainly challenged in terms of discrimination and on the scarcity in resources. Yet, their shelter is absorbed in the existing urban fabric, close to infrastructure and services.

That relations between Syrians and Lebanese are dynamic, became obvious through the contextual analysis and the question of time. In particular its most recent development has resulted in contemporary social tensions. This became really tangible to me during my site visit, where much envy appeared to dominate towards the Syrians in the country. There even turned out to be a joke that read, "The Syrians left the country and came back years later with their wife and children". It was only a few years ago that the Syrian army occupied the country, which is obviously still a fresh remembrance. History plays an important role in today's political landscape. Relations between Syrians and Lebanese population, however, go back much further than this particular event. This led to strong ties based on production, especially in the more conservative areas of the Beqaa valley. Here different religions and ethnic groups co-exist for over years. In fact, many of the jobs were filled by migrants even before the outbreak of the war. Also, before the establishment of the French mandate, this territory was part of Syria, supplying its capital of Damascus in food. That the job-market now is saturated, therefore required (sustainable) economic development. Wherein the ambition is first and foremost to cover the need for food for those in need. After that, an increase in exchange of goods can or will

slowly take place and the economic activity will be facilitated and accelerated.

In short, the contextual analysis on time, place and space concluded that agricultural production is merging town and rural area, human and nature, inside and outside and exposes cultural homogeneity. Therefore the second part of this project is focussing on turning emergency landscape into ecologies of co-habitation, by means of agricultural production.

6.1.2. The project

How can a holistic landscape approach contribute to new insights on maintaining prevailing and establishing future economies and forms of living based on agricultural production, for the specific territory? (Analysis and design)

After the question of "landscape is *what*", focusing on domain and place, the research continued with the question of "landscape is *how*", by exploring the landscape its conditions and qualities based on a desired balance between nature and agricultural production. This demarcation is a derivative of the contextual research, wherein agricultural production seems to include all the prevailing conditions and qualities of landscape.

The land

The assessment of the territory for the suitability of agricultural production has shown there is still land available that has no major intrinsic value for nature. Land that will be exploited for a combination of agricultural production and living. In the first place to release pressure on the contemporary prime agricultural land, to prevent further environmental degradation and to establish new agricultural economies. The latter, to secure the necessities of life of all the inhabitants of the Valley, with in particular food and well-being. Thirdly, to overcome the social tensions between the various communities by means of agricultural production.

The expansion zones

Structural measures are taken to prepare the land for new agricultural economies and affiliated forms of living. In the first place by improving accessibility of the land and its readiness for agricultural production and habitation. Existing agricultural economies are strengthened by applying a stronger street hierarchy for the distribution of the agricultural products. Integrating everyone in the agricultural production system does not only contribute to the ability for Syrian communities to support themselves, but can also benefit the country on the long run.

The settlements

In contrast to sprawl of the urban fabric in prime agricultural land, other urban forms are envisioned to profit maximum from existing infrastructures and services. Also to overcome the vulnerability of Informal Tented Settlements are vulnerable for outside hazards, due to their location and building materials. Moreover, as an alternative to temporary housing of low quality that is no longer consistent with the prolonged situation.

The project imposes a living space where the negative implications of displacement will be gradually lifted by means of agricultural production. The holistic landscape approach is the co-evolving process of people's adaptation to and of the land through time (Officer, 2013, p.11). The 'landscape is what' has hereby contributed for revealing essential ecological processes in order to take them as a basis for agricultural production and their affiliated forms of living. The design for future economies and forms of living based on agricultural production is thus both a derivative of the ecological processes specific to this territory, and therefore subordinate to this, as well as the beginning of a new open-ended and adaptable form of urbanisation. Admittedly with certain fixed elements, necessary to launch such a process. This are in this project the primary and secondary infrastructure for agricultural production and habitation (first phase), including transport infrastructure and terracing (step 1) and water infrastructures and housing (step 2). Thus the role of infrastructures and the networks of resources play the most important role for supporting the ecologies of co-habitation, hosting collectivities and shared realities.

6.2. Discussion

The land

The opportunities that arise on the basis of the assessment rely on the exploitation of unproductive land. Nevertheless, there still needs to be dealt with the efficient allocation of land resources, as both agriculture and households appeal to the country's soil and water resources. Therefore, measures must also be taken for improving prevailing agricultural economies and affiliated forms of living in order to succeed in dealing with natural resource scarcity.

The maintenance of prevailing future agricultural economic forms of living, does remain rational and includes a problem-solving attitude. However, from a point of view that makes connections that goes beyond the production system itself. For the project this has resulted in measures that connect agricultural production to its main input, nature. In turn, this led to measures that, on a small scale, sacrificed agricultural land in favour of the natural processes that support it. Without this holistic approach, the greater good would most likely have been neglected. As Aristotle wrote, "the whole is greater than the sum of its parts".

The expansion zones

On a smaller scale, the holistic landscape approach for analysis concluded the need for better accommodating contemporary and future marginalised communities, to support themselves through agricultural production and also in order to protect prime agricultural land. So where in some cases productive landscape is replaced by nature, in others urbanisation is excluded in favour of agricultural land. The overall design therefore responds to the disturbed balance between people and their living environment and between people themselves, by the means of agricultural production. Established not by going beyond the demarcation of the phenomenon, but more by connecting it to the environmental, economic and social components of the landscape.

There are always other ways to achieve the same goal, thus the design itself is of course debatable. I would have preferred to edit an existing situation, rather than designing somewhat from tabula rasa. The location, however, did not allow to do so. Information is hardly accessible, neither online or on location. Even finding the right maps would not have been possible without the visit to the AUB (American University of Beirut). So, my design proposal is done with all available resources at hand, while still covering all the aspects. I even believe that due to these limitations, creative solutions are enhanced.

The design itself is open-ended and to some extend idealistic. So if the design would already be implemented as such, which is not inconceivable, there are several moments or stages in which the development could either jam or take an undesirable direction. If this occurs after step 1, the land has become accessible for squatting or nomadic farming. If this happens after step 2, people can even squat the buildings. If this happens after the first phase, hopefully enough time has passes in order for the community to develop itself to be able to participate in other markets as well. The land and buildings are the base, thus they can become either a productive landscape, the heritage of the future or a ruin taken over by the forces of nature.

Limitations of the research

The landscape approach was not only applied for gaining new insights, it was useful because of its absence of data on this territory. The process oriented approach led to the demarcation of the project in a later phase, by starting off with a much broader question, namely "How can a holistic landscape approach contribute to the creation of ecologies of cohabitation?". It thus gave in the first place insights in the territory, combining findings of the data-analysis and site visit, through the perspective of the natural, economic and social landscape in its broadest sense. This makes such an approach risky, as the connections continue indefinitely. The complexity is enormous. Therefore an holistic landscape approach seems to be most effective, when unravelling a relationship that connects the phenomenon, through the different dimensions of the landscape, with its context.

The layer-model as an instrument for the landscape approach, also turned out to be more useful when decomposing one specific relationship. It was only after determining the specific relationship for further dissection, that the project gained momentum. Yet, without this way of thinking, the research might not have resulted in the narrative of agricultural production. A narrative that encompasses the visible, invisible and even the intangible layers of the landscape. It connects the marginalised people in the state of exception, within the dynamics that is perceived as the norm. The narrative, however, only found its confirmation after a visit to the location.

6.3. Recommendations

The land

An overarching (spatial) department, rather than the Ministry of Displacement, should be established in order to link the different challenges of the region of the West-Beqaa. An department that goes beyond administrative boundaries or other binaries like 'us' and the 'other'. An example of this is the Litani river basin department, that is dealing with the problems of the river up- and downstream. A link with other fields, however, seems to be absent. This is being confirmed by for example the current investment projects dealing with cleaning the Lake Qaraoun. A lake filled with urban waste, with disastrous consequences for the natural environment. The roots of the problem lies somewhere else than in the lake itself. This department could also imply rules for improving and monitoring developments concerning agricultural production or other important economic activities of the region. Finally, it can contribute in safeguarding natural areas that have intrinsic value inextricably linked to the functioning of the prevailing social system.

Investments done by international relief programs should be more based on a multiple stakeholder approach, in order to maximise the benefits of the investment. Currently, dozens of organisations are active in the region, in which hardly any of them seem to cooperate. For this, among other, more data needs to be collected and publicly accessible. This contributes to better recommendations and solutions for dealing with the current environmental, economic and social situation.

Perhaps the most important thing, also envisioned this project, is creating awareness for the interrelation between the different elements of the landscape. Although, it should be remembered that the majority of the people are trying to survive and live from day to day. Thus, I am convinced the only way to achieve and deal with the interrelation between the different elements of the landscape, the initiative has to come from an umbrella organisation (internal or external).

The city

Beyond my own design proposal, further research should be done by the municipality of Qab-Elias to investigate possibilities for temporary use of vacant buildings, as well as the adaptation of existing water and waste water infrastructure, the strengthening of backyard farming and how to revitalise former natural networks. An overall recommendation is the implementation of landscape and urban planning based on local traditions and customs. All in favour of supporting the livelihood of those living in the valley. Second, I would advice the municipality to have a long term perspective on the development of their town. It has the potential to be the new vibrant centre of the Beqaa valley, when more urban services would be added, space would be reserved for nature, agricultural production and urban patterns and connections to the coastal area would be improved. It does not have to remain in the shadow of the metropolitan city of Beirut, but can gradually develop into a city that matters. My design foresees input for the latter.

The expansion zones

Most important of my design proposal on the small scale is that all the inhabitants of the country are eventually included in the existing social system. This not only gives purpose to their own lives, moreover it will benefit the entire social system. Mutual collaboration should be promoted, wherefore research how to do so is necessary.

Reflection thesis-project

Social relevance

What started off as an interest in the displaced Syrians living in Lebanon, got altered during the process by shifting the attention to the vulnerable parts of the natural, economic and social landscape. This shift in focus was the result of the holistic landscape approach, that allowed to unfold the less visible impact of the phenomenon of forced displacement. This also means that the informal tented settlements and their inhabitants are not central in the project, but became part of the larger whole. Rather, the project encountered a layered territory, ranging from the valley to the scale of the neighbourhood. The social relevance of the project increased, as it is not only reflects upon the displaced Syrians living in Informal Tented Settlements in Lebanon, but also includes the affected Lebanese people. Furthermore, through design, it is addressing society as a whole. Because if the situation remains unchanged, those who are not yet affected will be subjected to the consequences in the future. In short, the project is through its holistic landscape approach (extremely) socially relevant, as it is debating the contemporary and future livelihoods, that are largely depending on the natural landscape of the country.

Scientific relevance

The holistic landscape approach contributed to new insights regarding agricultural economies by unravelling the system in different components. In the first place by relating it to its physical components, the natural landscape and network and occupation patterns. Second, by relating to the Lebanese and Syrian communities. Third, by relating it to a more mental space, which is concerned with the questions on labour division and society as a whole. The holistic landscape approach allows to go beyond conventional problem-oriented approaches and therefore not only to perceive the world as it is, but also how it could be. Research within the area of expertise of urban planning and design, are so far, mainly concerned with the camp itself.

Relation between research and design

There are different relations between research and design to be distinguished in this thesis. The first is based on the spatial representation of research, that mostly represent the regional scale. Here the design is based on logical structural measures for dealing with the specific phenomenon. The second scale, that of the city, however is highly based on research by design. The process within the relation between research and design is much more important here. Many sketches have passed the revue, to on the one hand get a better understanding of the lines of the landscape as well as to experiment with different spatial solutions. This, however, made it also difficult to argue for certain steps in the process. The transition from a rational analysis towards an intuitive design, felt somewhat unnatural. Also, it is the end product which is represented here, not include the steps taken for it. When scaling down further the same approach was exercised. Still, I experienced the transition between research and the design not as a smooth one.

Graduation lab

The perspective of the graduation lab has led to the approach taken in this thesis. What started off as an social project, gradually transformed into a project that was more concerned with the landscape. That in turn, addressed and included the social phenomenon. Although I struggled for a long period to change the perspective, I am satisfied with this different approach. The approach has added value as it encompasses the most essential component of human life, its natural environment. Also, my territory was gifted with many natural resources and is mainly exploited for agriculture. Admittedly, much of the knowledge on this topic had to be gained during the thesis project itself. I am not that familiar with a landscape approach, neither with agricultural systems. This has made it, in addition to the topic itself, extra challenging. At certain stages of the project it might have been a bit to much of a challenge. Nevertheless, I can benefit from ecological thinking or landscape thinking in the future.

Method

The methodical line of the graduation lab is to some extend carried out in this project. At least I took effort to do so. I do believe, I could have benefit more from this approach when participating in the graduation lab starting from September onwards. Because I started in February, most of the project was self-study and therefore I probably missed out on extra knowledge on the methodical line put forward in the graduation lab. The layer-model, however, is widely implemented in previous projects from the studio. Also, theory foundational to the Dutch layer approach is been used in the studio. The holistic landscape approach is also common, but perhaps slightly less among the Urbanists students. Besides the tools used for methodology, I did not entire follow the balance that was used between analysis and design. This because analysis is a big part of the project, as many of the data had to be constructed by myself (maps). Therefore, less time was available for the design. This while, I designed on several scales. I think I should have better defined the scope of my project at forehand, so I could have overseen the whole project better. What in turn could have resulted in a better prioritisation of the end products, by taking into account the amount of time available.

The relationship between the project and the wider social context

The relationship between the project and the wider social context is considered to be a relevant one. It highlights the situation concerned with Syrian refugees and the impact on its neighbouring country of Lebanon. It addresses both the marginalised farmers and the marginalised Syrians in the rural area of the Beqaa valley. It addresses the three components of sustainability: people, planet and prosperity.

Personal development

Phase 1: Before entering the phase of graduation, I put my thoughts on the personal fascination for migration and the impact on the neighbouring countries of Syria. The interesting and complex situation in Lebanon caught my attention and a research topic was born. The matter was complex and large and until my site visit in October 2018 it was not clear where I would emphasize on. The phase prior to this site visit, was characterised by the attempt to find a focus area. I switched topic and locations several times and read everything from the Mesopotamian times, until the right of refugees in Lebanon to the political outlook of the country. I knew my approach granted itself to get lost in a pile of complexity. The postponement of decision making throughout this process is, however, a lesson learned.

Phase 2: I wanted to engage with the location that caught my interest, because without a site-visit their would be no project. Therefore I tried many ways to find my way to Lebanon. Eventually, the possible way and one that met my requirements, way by booking a return flight. I am very grateful to my first mentor that he stimulated and supported this trip to Lebanon, as it was an experience to never forget. I learned a lot about the country, engaged with my project location and got a better impression on the 'refugee situation'. I got many impressions, some of which a little overwhelming. Which led to some confusion regarding my thesis at the time.

Phase 3 : Once I was finally ready to continue my thesis, I found myself lost again in the pile of information. This time it was the lack of demarcation and the focus of the scales that caused the confusion. My project was clear: the balance between nature and agricultural production as the basis for future urbanisation. Yet, the deliveries and focus areas were not. As I ended up being stuck on the wrong scale for too long, I was luckily in time to make decisions before my final assessment to be approved.

Phase 4 : I look back on a difficult process, but are very content with the end result. The project covers many components and is underpinned by a very extensive and in depth research. Besides, I have learned so many things during this graduation process, especially with regards to decision making and demarcation. I am very grateful for that.

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Annex

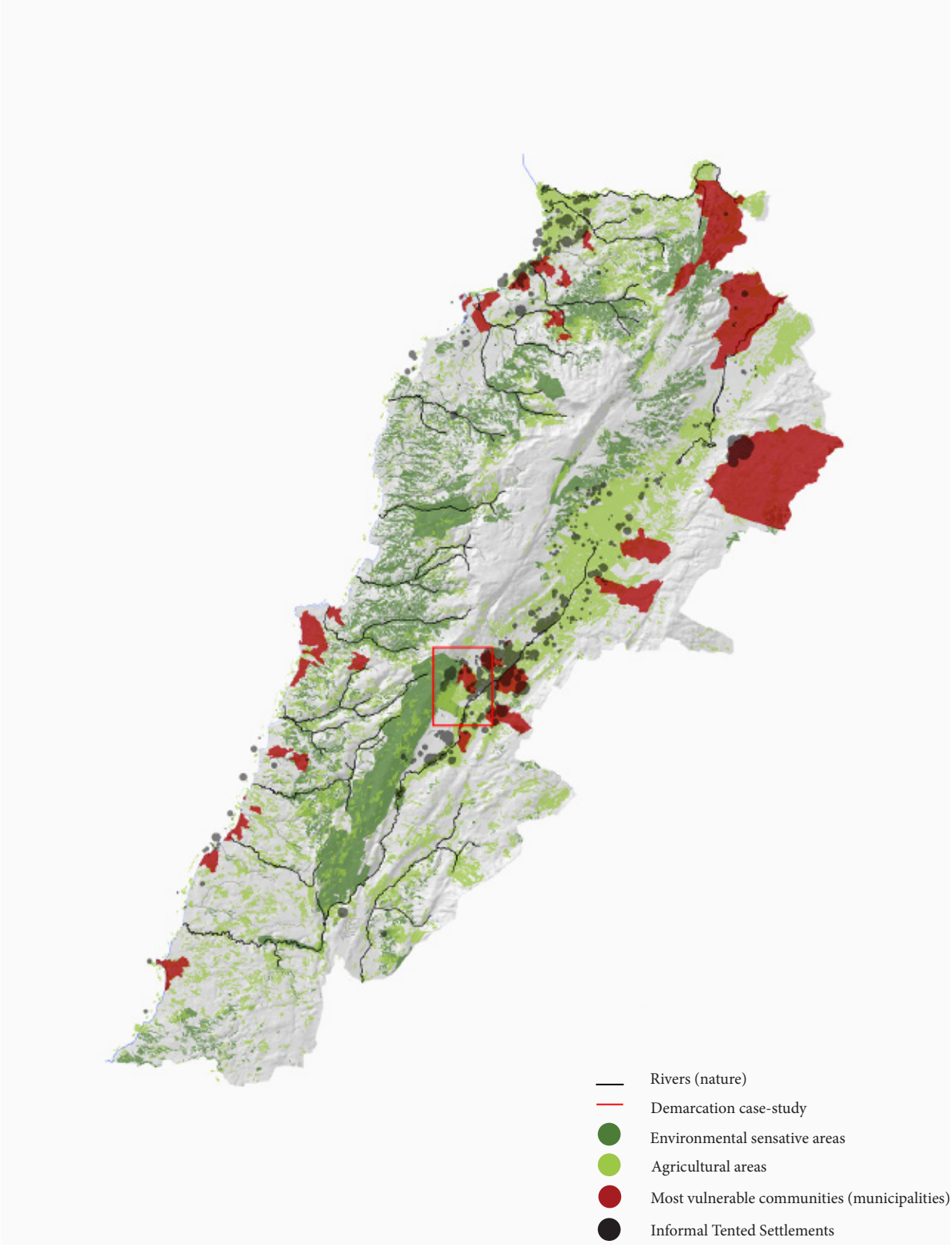


Figure 1: Most vulnerable communities (municipality) in relation to the areas important for agriculture and nature (Map modified, based on MoE, EU & UNDP, 2014)

Annex

Letter	Age		GW-basin	Karst type	Lithology	Effect on SW and GW-basin
I	**J4 Jurassic** *1000 - 1500 m*	a	Eastern Barouk-Niha Jurassic	Moderate Karst Exposure	Fractured limestone and dolostone with local chert, marls, volcanies	Relatively high infiltration rate; groundwater flow present; normal surface runoff with diffused losses.
		b	West Barouk-Niha Jurassic	Moderate Karst Exposure		
		d	Kesrouan Jurassic	Moderate Karst Exposure		
		e	Eastern + West Barouk-Niha Jurassic	High Karst Exposure	Fractured limestone and dolostone with local chert, marls, volcanies	High infiltration rate, high groundwater flow velocity, no major surface runoff; sinking streams.
	J5-J7 Jurassic *100 - 400 m*	c	Jdita Jurassic	Restricted Karst Exposure	Limestone, marls, shale, basalt, chert	No major effect on the infiltration rate unless passing over those karstic units; groundwater might be present; no major loss from surface runoff unless drainage passing over karstic units
II	**C1 Cretaceous** *300-900 m*		Metn-Chouf Sandstone Basin	Covered Karst	Marls, basalts, limestones , sandstones	Interaction between the permeable top layers and the underlying
III	**C2-C3 Cretaceous** *300-900 m*		Aptian-Albian	Restricted Karst Exposure	Marls, basalts, limestones , sandstones	<see Ic>
IV	**C4 Cretaceous** *500-600 m*	a	Eastern Kneisseh Cretaceous	Moderate Karst Exposure	Fractured fine and thin-bedded limestone and marly limestone with geodes and chert	<see Ia>
		b	Western Kneisseh Cretaceous	Moderate Karst Exposure		<see Ia>
		c	Eastern + Western Kneisseh Cretaceous	High Karst Exposure		<see Ie>
V	**Q Quaternary** (< 100 m)		Southern Beqaa Neogene/Quaternary	Covered Karst	Sand, deterial limestone, conglomerates, volcanic or alluvial deposits	<see II>

Figure 2: technical assessment of the landscape, geological layer based on Rolf (2017)

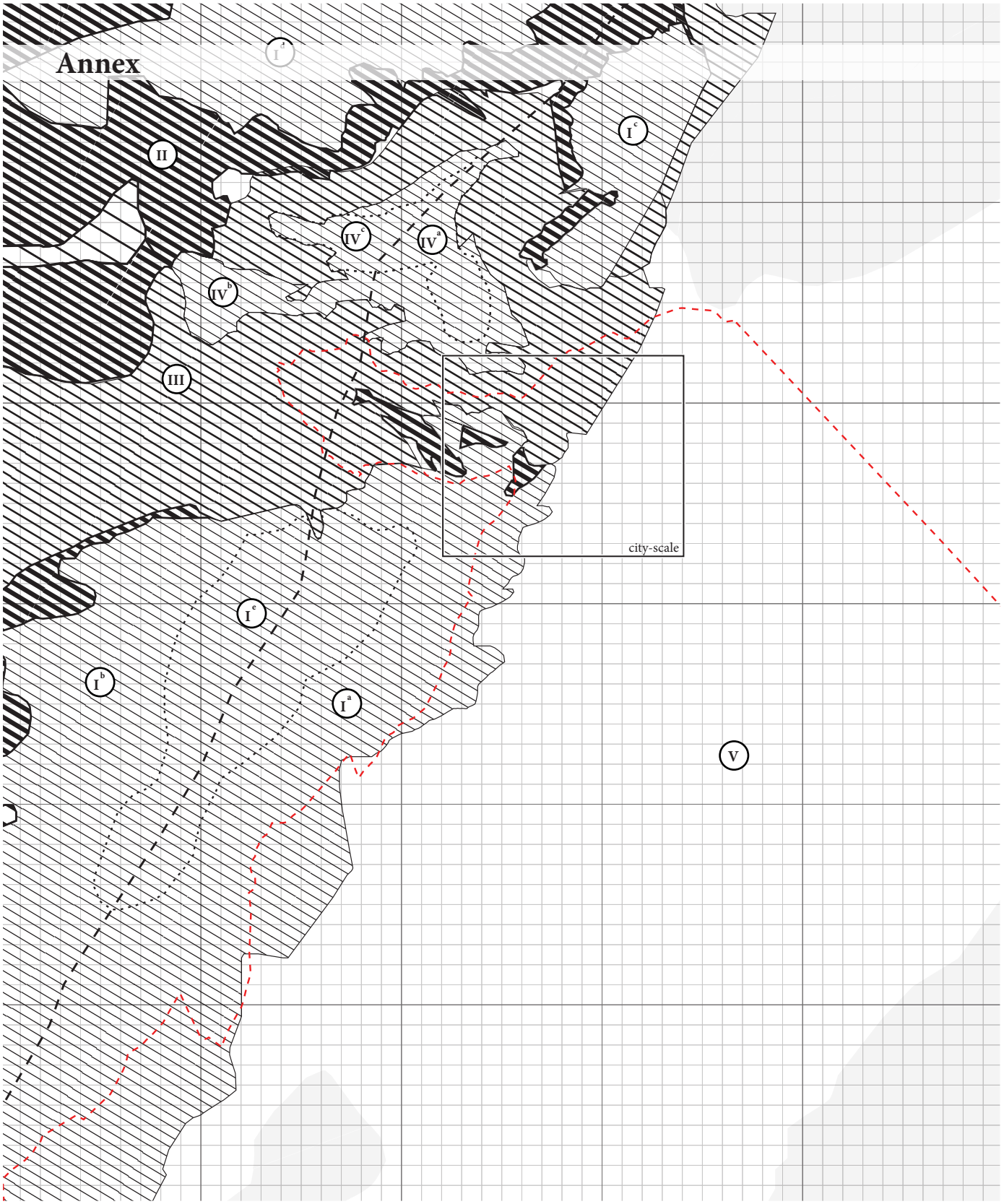


Figure 3: regional-scale / natural landscape, geological layer (own image, based on Dubertret (1945))

- I[a] J4 Jurrasic (Eastern Barouk)
- I[b] J4 Jurrasic (West Barouk)
- I[c] J5-J7 Jurrasic (Jdita)
- I[d] J4 Jurrasic (Kesrouan)
- I[e] J4 Jurrasic (Eastern + West)
- II C1 Cretaceous (Metn-Chouf)
- III C2-C3 Cretaceous (Aptian - Albanian)
- IV[a] C4 Cretaceous (Eastern Kneisseh)
- IV[b] C4 Cretaceous (Western Kneisseh)
- IV[c] C4 Cretaceous (Eastern + West)
- V Q Quaternary

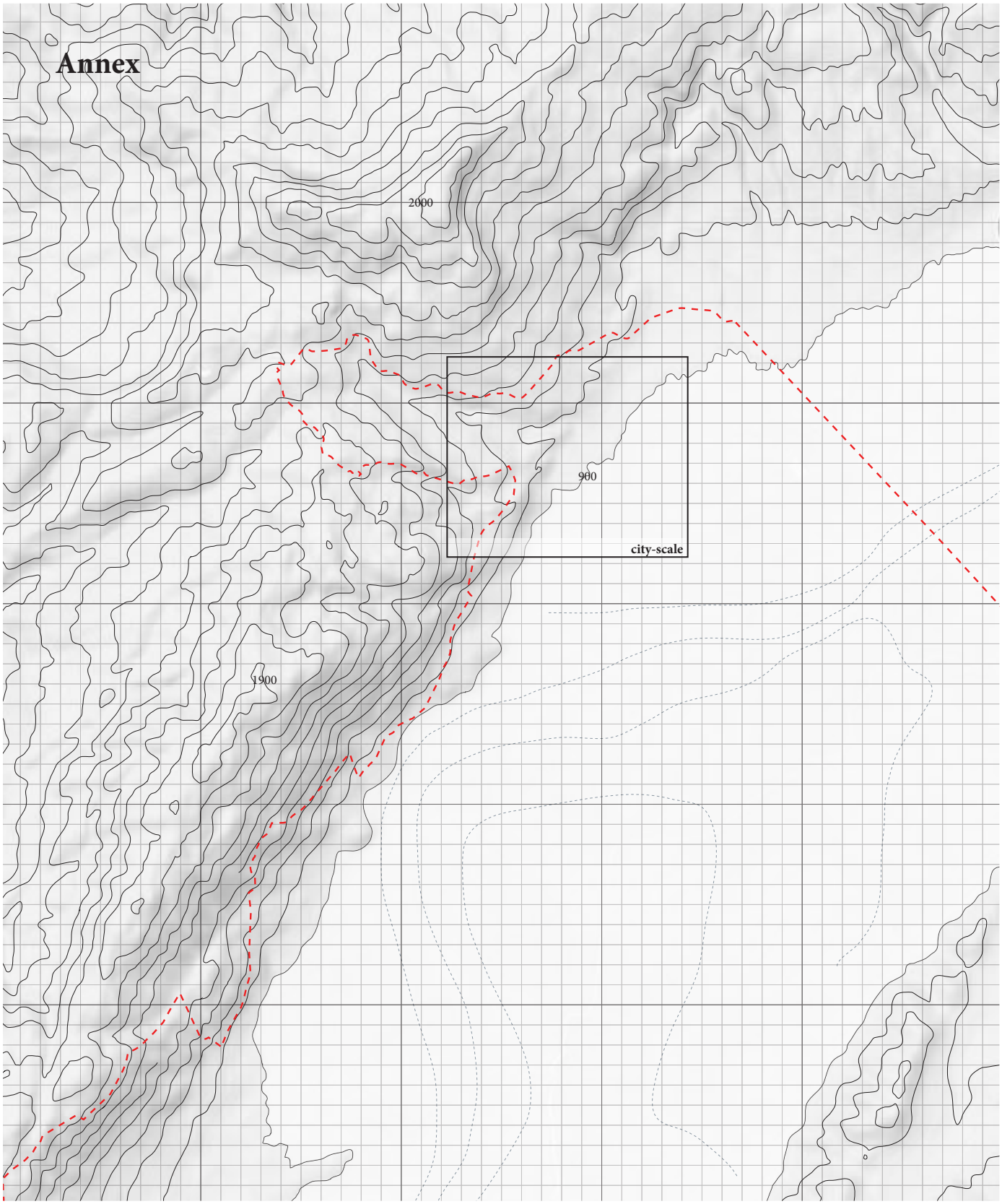


Figure 4: topography, own image based on Usaid (2012) and © OpenStreetMap authors

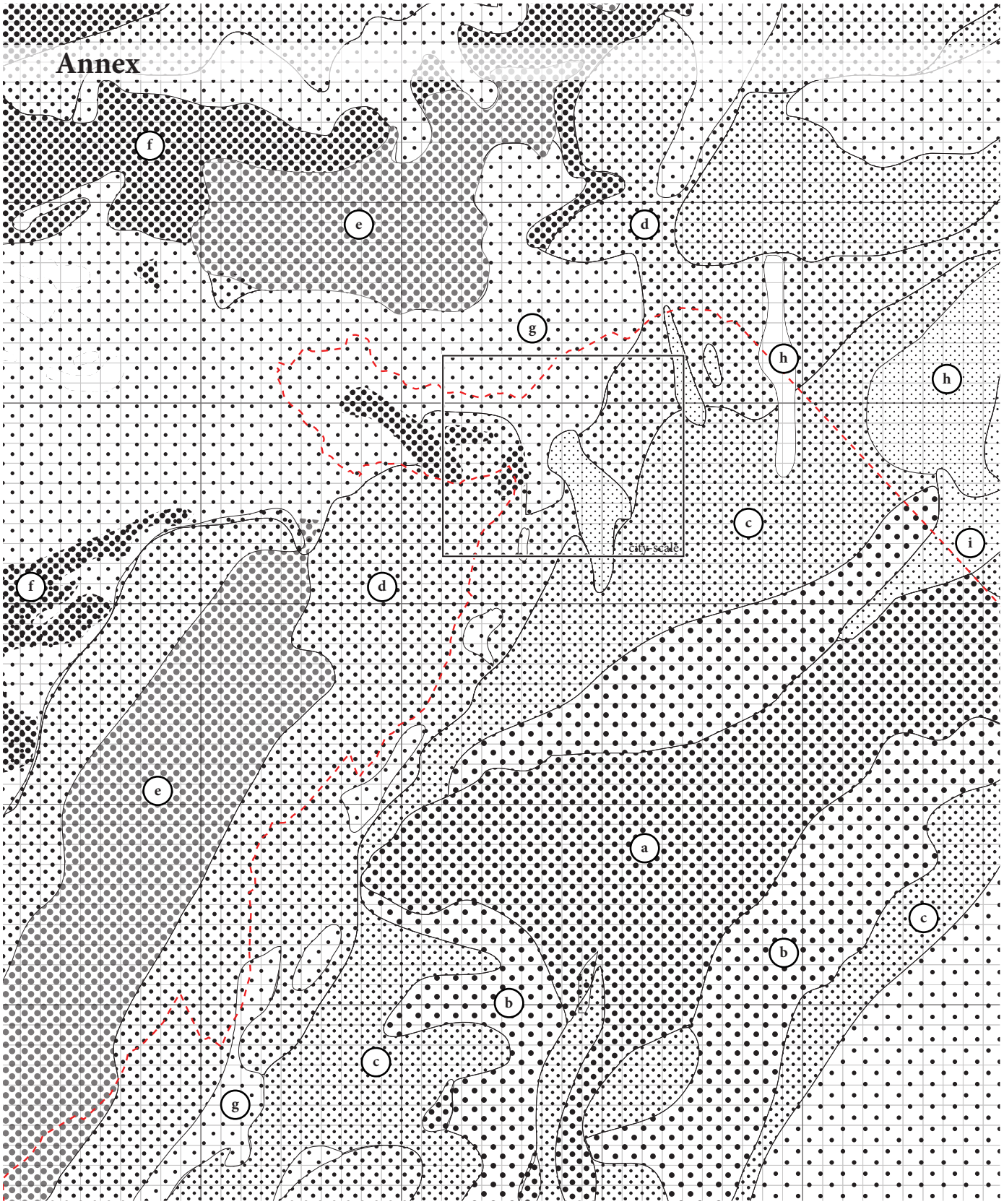


Figure 5: soil, own image based on CNRS (2012)

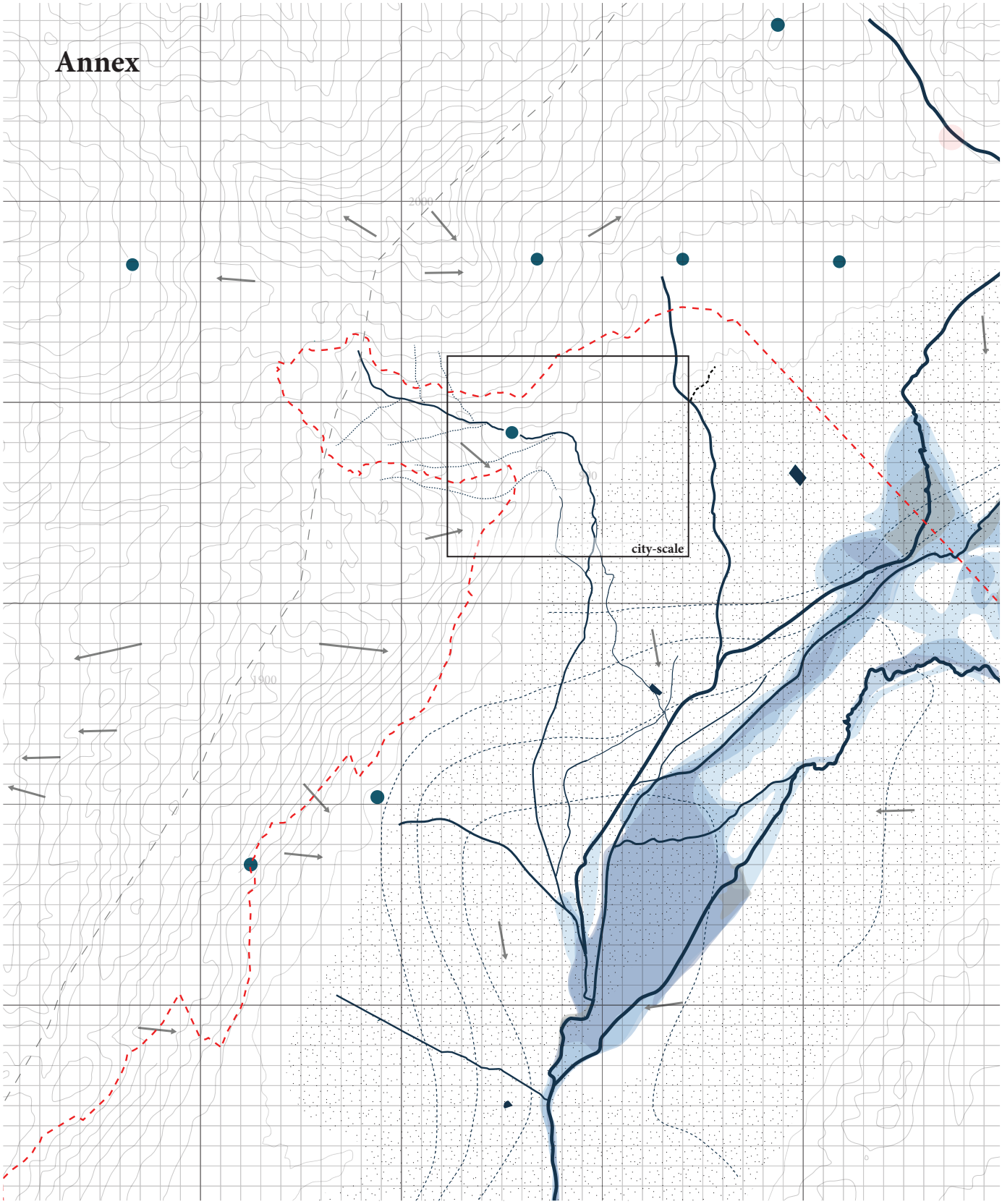


Figure 6: hydrology, based on Usaid (2012)

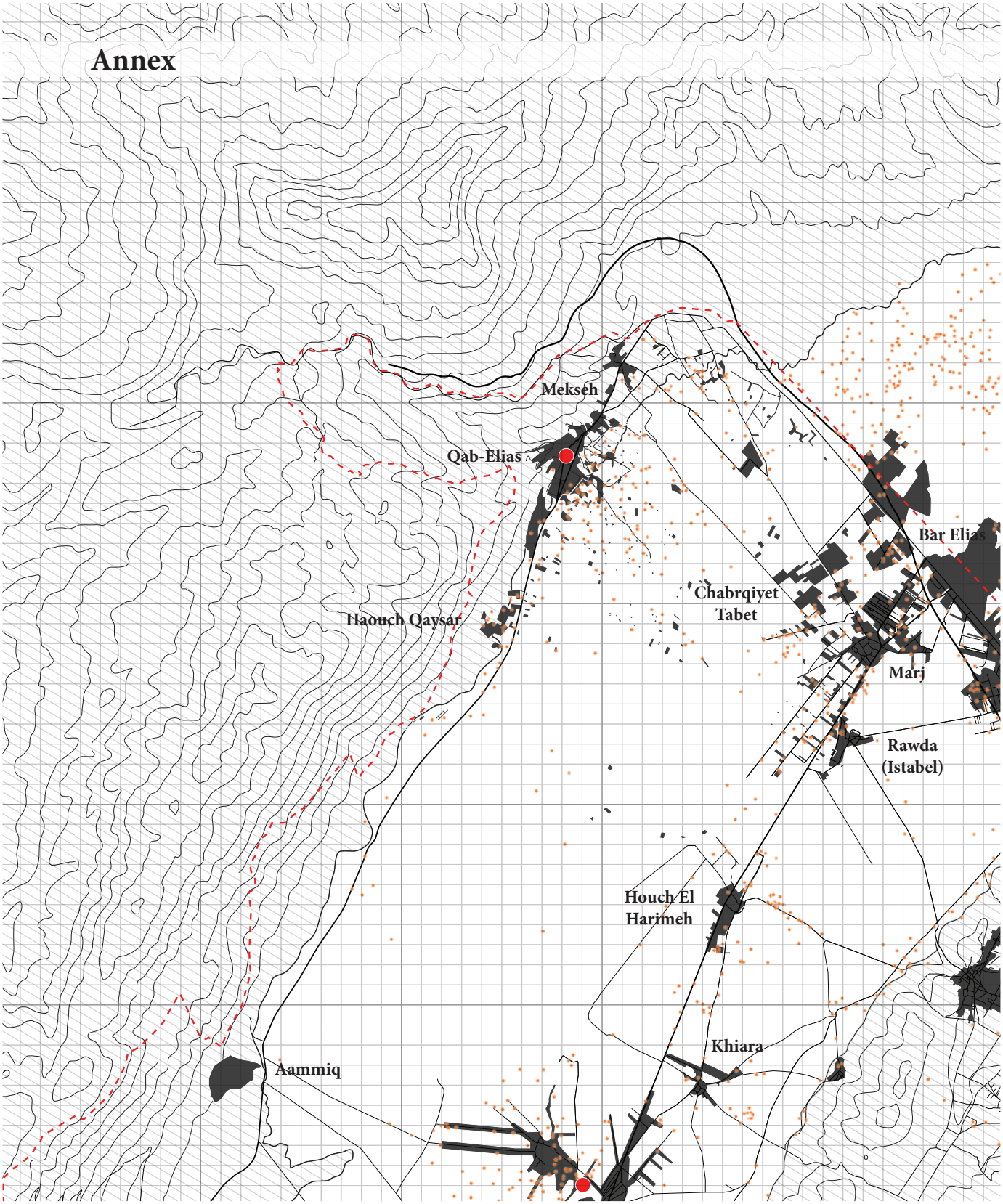


Figure 7: Cities in the valley

Annex

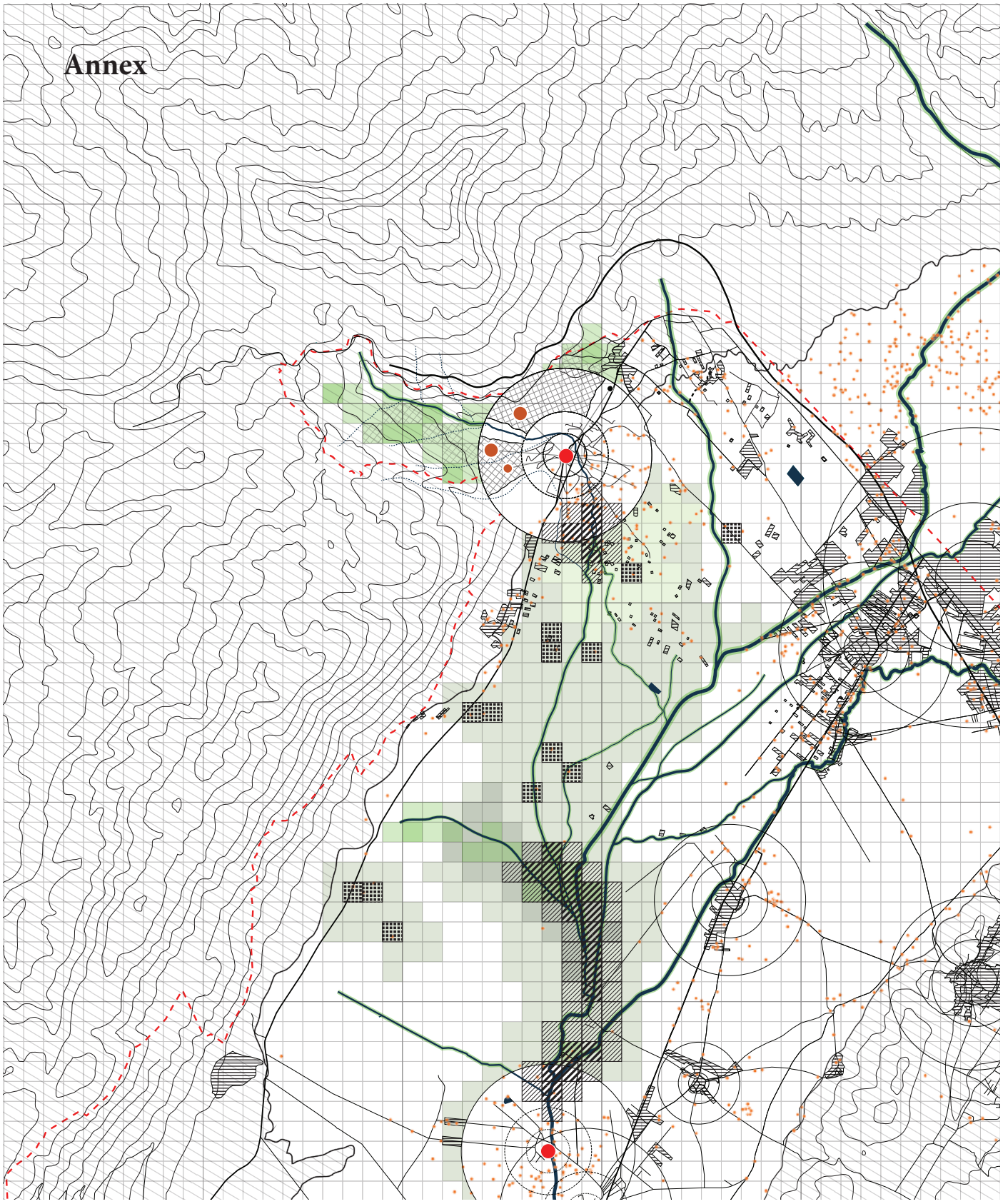


Figure 8: Concept regional scale reflected on the territory, design framework for resource allocation and preservation

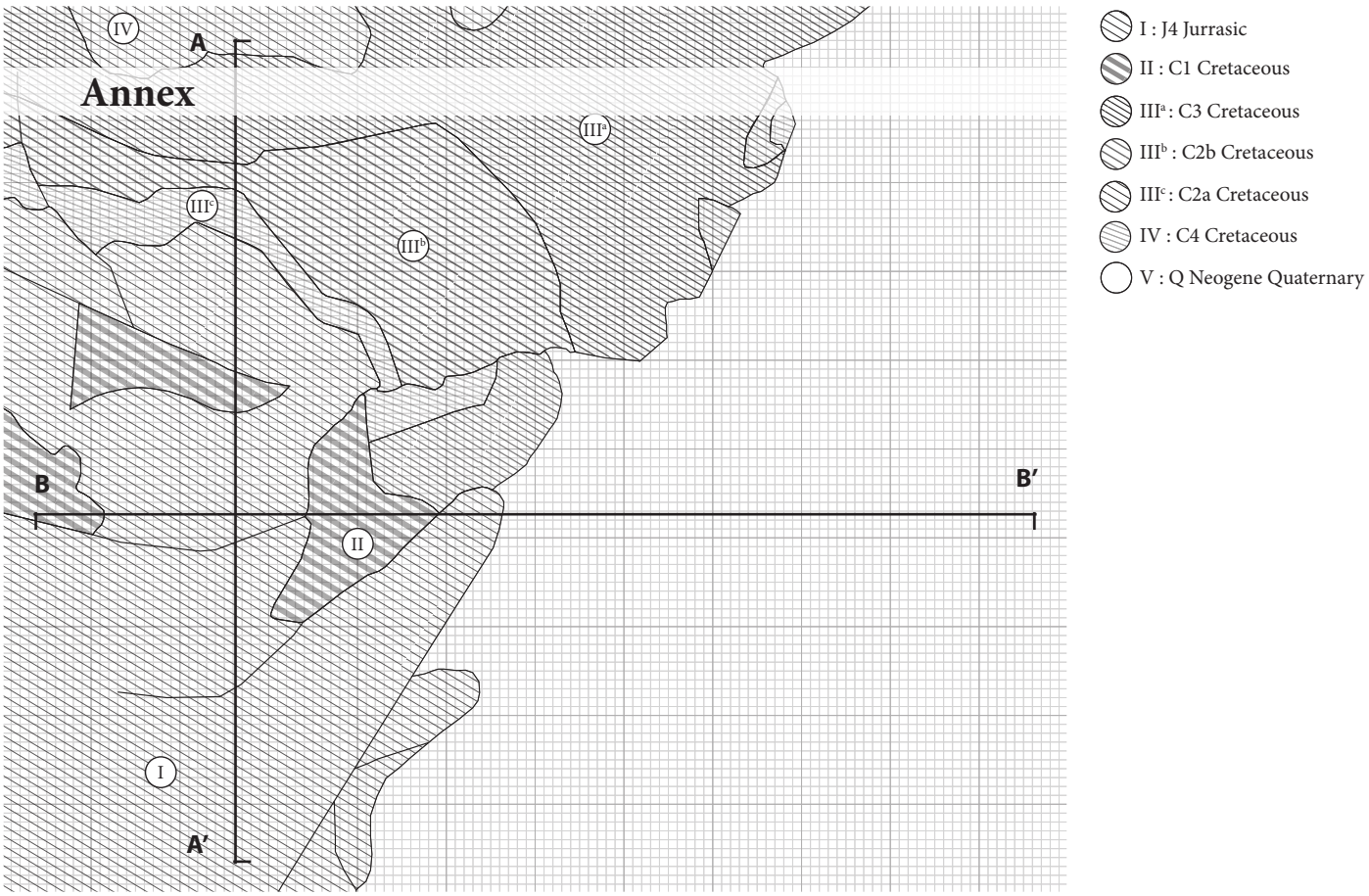


Figure 9: hydrology, based on Dubertret (1945)

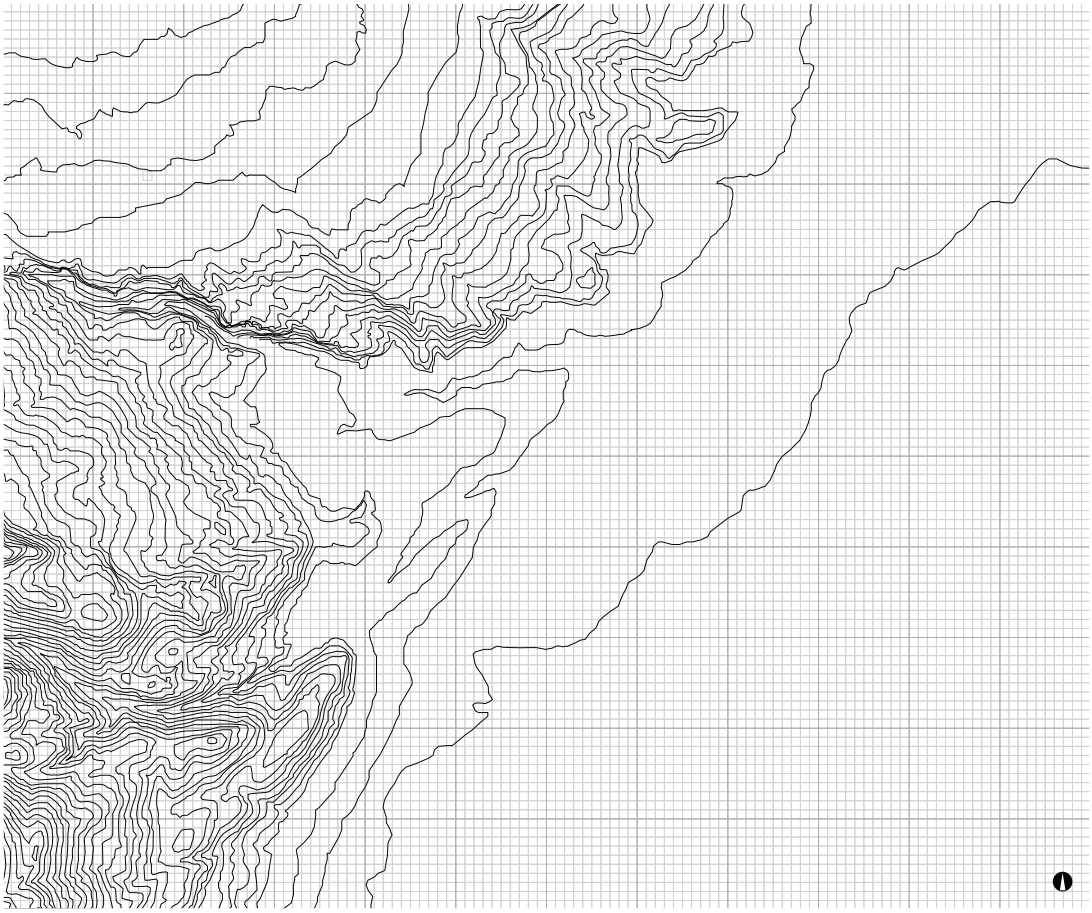
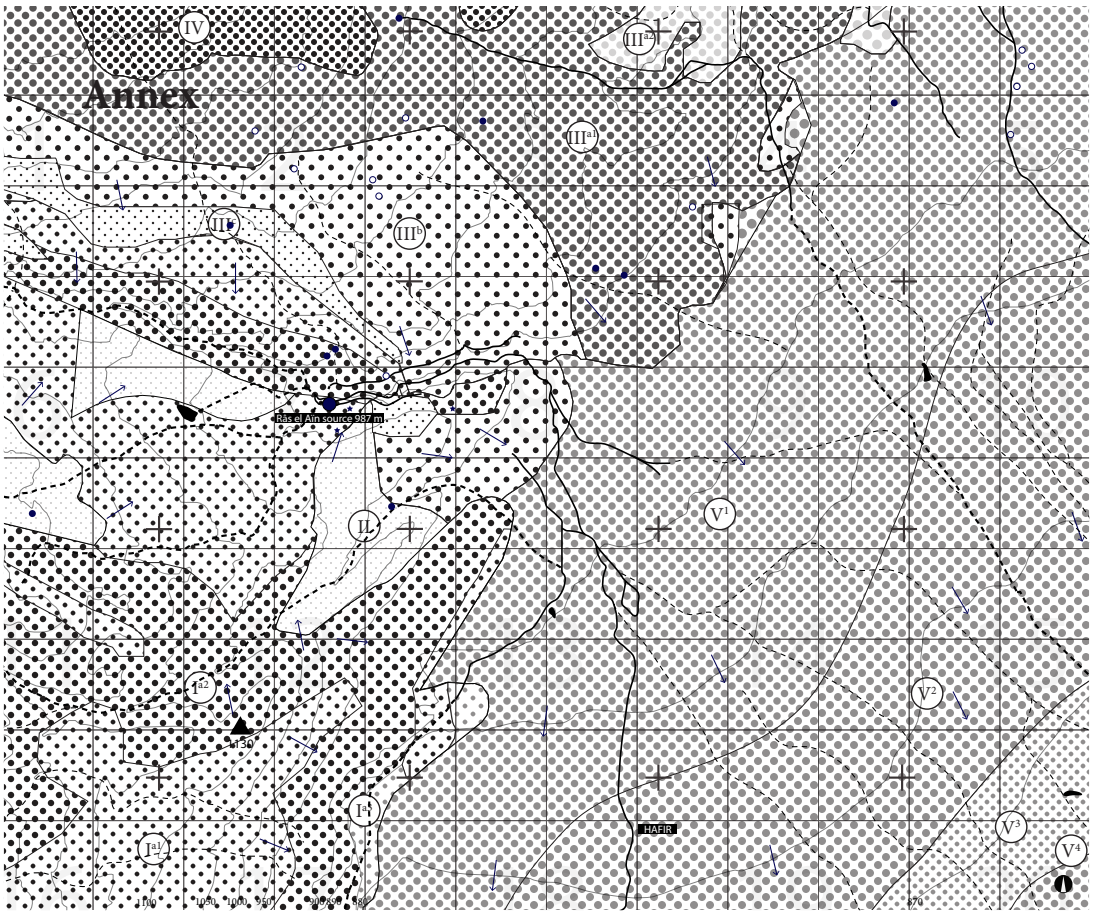


Figure 10: topography, based on Ministère de la Défense (2005)



I^{a1} : Luvisols (LVle)
I^{a2} : Leptosols (LPli)
I^{a3} : Leptosols (LPhy)
II : Arenosols (AReu)
III^{c} : Cambisols (CMeu-hu)
III^{b} : Gleysols (GLeo)
III^{a1} : Regosols (RGsk)
III^{a2} : Anthrosols (ATht-ca)
IV : Leptosols (LPeu-ar)
V^{1} : Luvisols (LVcc)
V^{2} : Fluvisols (FLeu; ca)
V^{3} : Cambisols (CMca; eu; gl)
V^{4} : Cambisols (CMca)

Figure 11: soil, own image based on CNRS (2012)

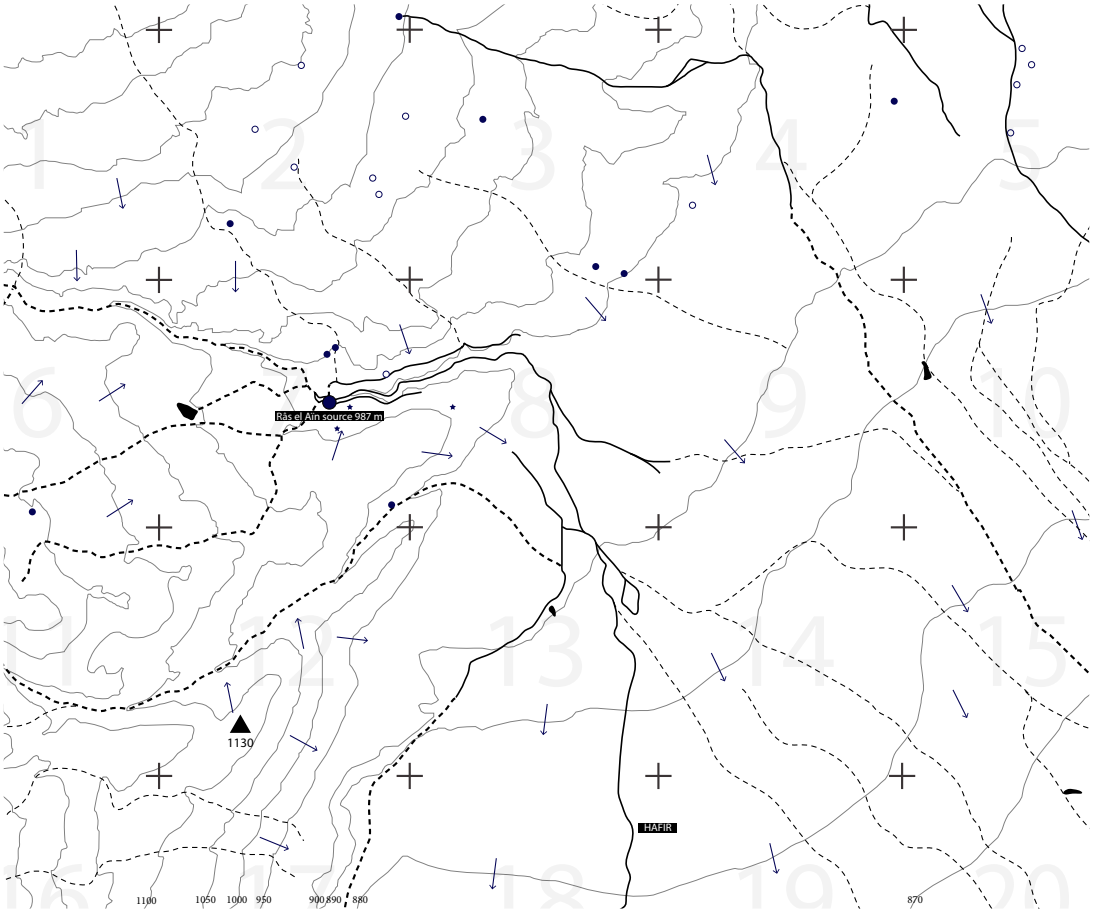


Figure 12: soil, own image based on Ministère de la Défense (2005) and Usaid (2012)

Annex

Chernozems are humus-rich grassland soils used extensively for *growing cereals* or for *raising livestock* •••

Area: middle altitudes

Vertisols have high level of plant nutrients, but owing to their high clay content are suited to *cultivation with carefull management* ••

Area : period of wetting and drying

Cambisols have a favorable aggregate structure & high content of weatherable minerals and can be exploited for *agriculture* ••

Area : f.e. high rates of erosion

Fluvisols are cultivated for *dry land crops or rice* and are used for *grazing* in the dry season •••

Area: flooding + level topography

Regosols: shallow, medium to fine textured, unconsolidated parent material. They are found under natural vegetation or limited *dry land cropping* ••

Area: dry or cold climatic conditions

Luvisols have a high nutrient content, good drainage and are suitable for *grains to orchard to vineyards* •••

Area : gently sloping, ranging from cool temperature to warm mediterr.

Leptosols have very shallow profile dept with high amounts of gravel, typically found under *natural vegetation* •

Area : f.e. High rates of erosion

Gleysols: Can be *cultivated for rice* or, after drainage, *for field crops and trees.* ••

Area: waterlogged conditions by rising groundwater

Arenosols, sandy-textured soil lacking significant soil profile developm. Excessive permeability, low nutrient content ask for *careful agricultural management* ••

Area: often arid regions

Anthrosols: Soils modified profoundly by human activities ••

Soil typology of the Western part of the Bekaa valley (Central + West Bekaa & Chouf district)

Luvisols (c/d) are suitable for a wide range of agriculture, from grains to orchards to vineyards. Leptosols (d) on the other hand have a very shallow depth and typically remain under natural vegetation. Sloping lands and karstic formations with Leptosols represent the main recharge area in Lebanon (The Editors of Encyclopaedia Britannica, 2016; CNRS, 2013, p.19). Arenosols (f) can be exploited for agriculture, but due to their excessive permeability and low nutrient content, this requires careful management. Regosols are usually found under natural vegetation or limited dry land cropping (g/i). Anthrosols (g) can be found in area that have been modified by human activities, because it is not totally clear which human activities, ranging from water disposal to terracing and irrigated agriculture. Since this is not entirely clear, this are is not further exploited for production in the proposal of this thesis.

Figure 13: Soil typology of the Western part of the Bekaa valley (Central + West Bekaa & Chouf district)

Annex

letter	age	letter	soil group	soil definition
I	(J4) Jurrasic *1000 - 1500 m*	a1	*Haplic* Luvisols (LVha) + *Leptic* Luvisols (LVle)	**LV** : Clay accumulation: distinct seasons > the mixed mineralogy, high nutrient content and good drainage of these soils make them suitable for a wide range of agriculture, from grains to orchards to vineyards / **LP** : Leptosols are soils with a very shallow profile depth (indicating little influence of soil forming processes), and they often contain large amounts of gravel. They typically remain under natural vegetation, being especially susceptible to erosion, desiccation (dehydration), or water logging, depending on climate and topography.
		a2	*Lithic* Leptosols (LPli)	
		a3	*Hyperskeletic* Leptosols (LPhy)	
II	C1 Cretaceous *300-900 m*		*Eutric* Arenosols (AReu)	**AR** : Arenosols are sandy-textured soils that lack any significant soil profile development. They exhibit only a partially formed surface horizon (uppermost layer) that is low in humus, and they are bereft (deprived or lacking) of subsurface clay accumulation. Given their excessive (more than normal) permeability and low nutrient content, agricultural use of these soils requires careful management.
III	Cretaceous C2-C3	a1	*Eutric* Regosols (RGsk)	**RG** : Regosols are characterized by shallow, medium- to fine-textured, unconsolidated parent material that may be of alluvial origin and by the lack of a significant soil, horizon (layer) formation because of dry or cold climatic conditions. They are usually found under their original natural vegetation or under limited dry land cropping
		a2	*Calcaro Hortic* Anthrosols (ATht-ca)	
		b	*Eutric* Gleysols (GLeo)	**GL** : Gleysols are formed under waterlogged conditions produced by rising groundwater. In the tropics and subtropics they are cultivated for rice or, after drainage, for field crops and trees. **LVcc** - Have a calcic concentration of soft powdery lime.
		c	*Humi-Eutric* Cambisols (CMeu-hu)	**CM** : Cambisols are characterized by the absence of a layer of accumulated clay, humus, soluble salts, or iron and aluminium oxides. They differ from un weathered parent in material in their aggregate structur, colour, clay content, carbonate content or other properties that give some evidence of soil-forming processes. Mainly in boreal polar regions, in landscapes with high rates of erosion, and in regions of parent material resistant to clay movement.
IV	C4 Cretaceous *500-600m*	a	*Areno-eutric* Leptosols (LPeu-ar)	**LP** : Leptosols are soils with a very shallow profile depth (indicating little influence of soil forming processes), and they often contain large amounts of gravel. They typically remain under natural vegetation, being especially susceptible to erosion, desiccation (dehydration), or water logging, depending on climate and topography.
V	Neogene Quaternary Q	1	*Calcic* Luvisols (LVcc)	**LV** : Clay accumulation: distinct seasons > the mixed mineralogy, high nutrient content and good drainage of these soils make them suitable for a wide range of agriculture, from grains to orchards to vineyards. /Calcic Luvisols - **LVcc** - Have a calcic concentration of soft powdery lime.
		2	*Eutric* Fluvisols (FLeu) + *Calcaric* Fluvisols (FLca)	**FL** : Fluvisols are found typically on level topography that is flooded periodically by surface waters or rising groundwater, as in river floodplains and deltas and in coastal lowlands. They are cultivated for dry land crops or rice and are used for grazing in the dry season. **FLca** - Have a calcareous concentration (calcium carbonate) at least 20-50 cm from the surface.
		3	*Calcaric* Cambisols (CMca) + *Eutric* Cambisols (CMeu) + *Gleyic* Cambisols (CMgl)	**CM** : Cambisols are characterized by the absence of a layer of accumulated clay, humus, soluble salts, or iron and aluminium oxides. Because of their favourable aggregate structure and high content of weatherable minerals, they usually can be exploited for agriculture subject to the limitations of terrain and climate. **CMgl** - Showing hydromorphic properties within 100 cm of the surface.
		4	*Calcaric* Cambisols (CMca)	

Figure 14: Soil typology of the Western part of the Bekaa valley further explained

Annex

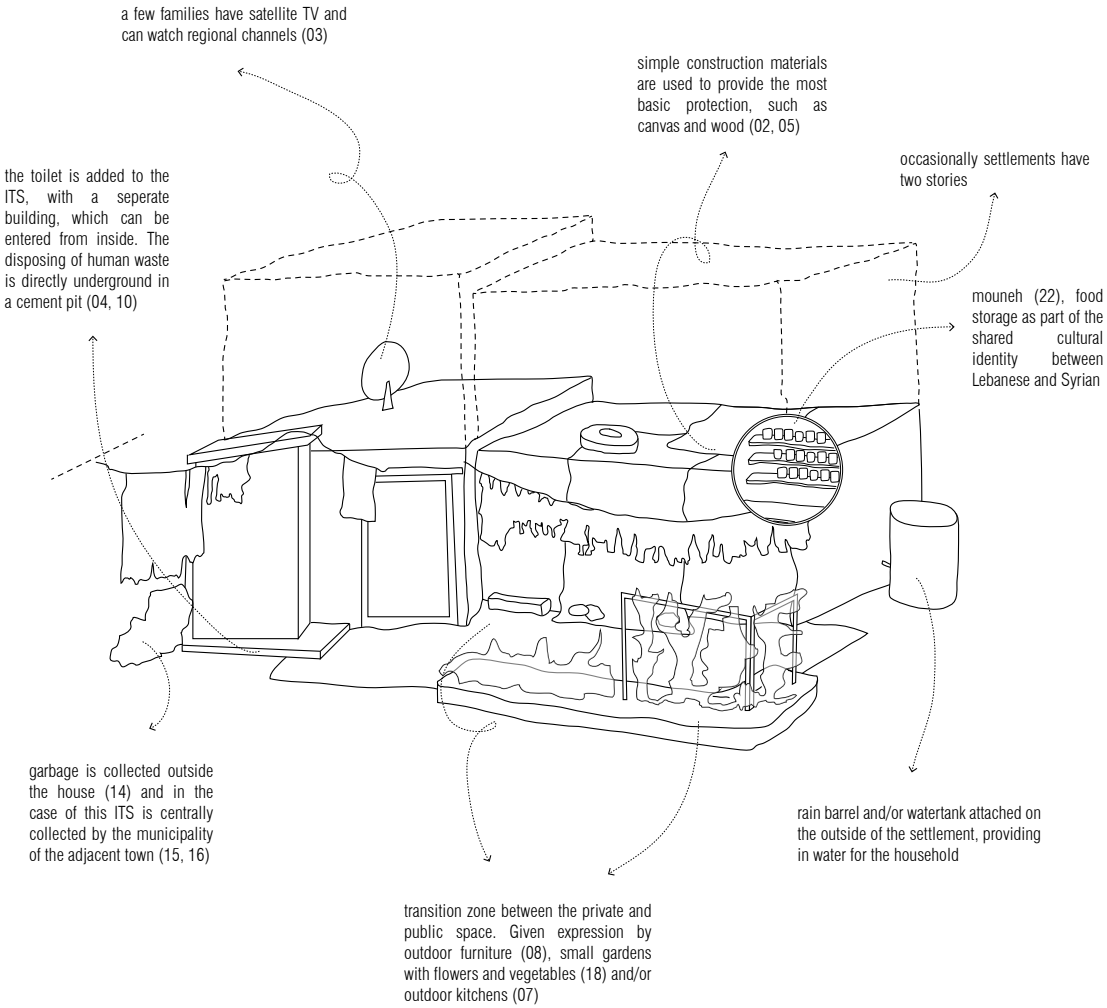


Figure 15: Preliminary findings site-visit, Informal Tented Settlement (own image)

Annex

01

Streets with settlements and on the background the mountains of the valley

02

Different construction materials covered with canvas provided by NGO's

03

Settlements with satellite dish, private scene and public scene merge toget

04

Shower/toilet cabins are added to the living area, some ITS are two stories

05

To strengthen the settlements, local rocks or old tired are used

06

A Syrian family who are proud to show their new home

07

Transition private-public, in which food plays a important role in the scene

08

Private-public transitions space, with an outdoor sitting place

Annex

09

Water tanks are added to the settlements, to supply in water for the household

10

Underground grey water drainage, on the scale of the settlement

11

Water pumps are installed, to provide households in water

12

Some areas are appointed to the cattle from the nomading Syrian communities

13

Primary production in the form of nomadic farming is present

14

Garbage is collected in the undervalued space of the public space (backside)

15

People bring the garbage to the side of the roads to be collected

16

This is possible, because of its proximity to an existing town

Annex

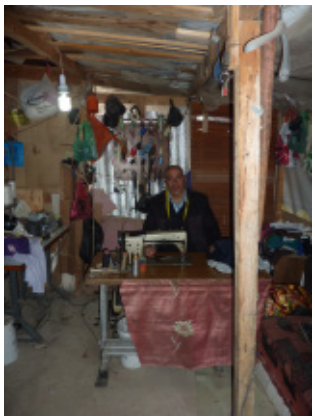
17

Most of the Syrian children go to school, either in the camp or the nearby town

18

Small extension of the urban form, a garden with flowers and vegetables

19



Some inhabitants try to support themselves by carrying out their previous job

20

Or initiate to set up shops for the inhabitants of the camp

21

Part of the living area that is less protected and serves as communal area

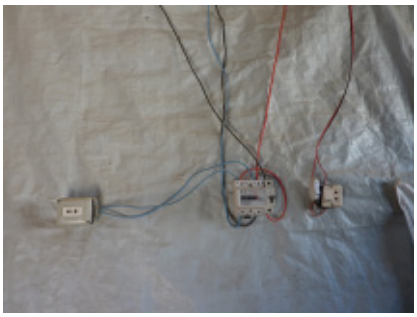
22

Food storage (mouneh), a cultural identity shared by Lebanese and Syrian

23

Food preparation (Arabic gastronomy), a shared cultural identity

24



Dangerous electricity wiring situations

Pcode Name	Governorate	District	Cadaster	Local Name	Latitude	Longitude	Shelter Type
Qabb Elias 001	Bekaa	Zahle	Qabb Elias	Qab Elias 1	33,78079987	35,81990051	IS- Informal Settlement
Qabb Elias 003	Bekaa	Zahle	Qabb Elias	Qab Elias 3	33,78416061	35,82173157	IS- Informal Settlement
Qabb Elias 004	Bekaa	Zahle	Qabb Elias	Qab Elias 5	33,79190063	35,82690048	IS- Informal Settlement
Qabb Elias 007	Bekaa	Zahle	Qabb Elias	Qab Elias 4	33,78490067	35,82149887	IS- Informal Settlement
Qabb Elias 008	Bekaa	Zahle	Qabb Elias	qab elias	33,78123093	35,82030869	IS- Informal Settlement
Qabb Elias 009	Bekaa	Zahle	Qabb Elias	qab elias	33,78540039	35,82160187	IS- Informal Settlement
Qabb Elias 011	Bekaa	Zahle	Qabb Elias	quab elyass	33,78649902	35,82329941	IS- Informal Settlement
Qabb Elias 014	Bekaa	Zahle	Qabb Elias	quab elyas	33,7887001	35,84500122	IS- Informal Settlement
Qabb Elias 015	Bekaa	Zahle	Qabb Elias	qusseir	33,77709961	35,81389999	IS- Informal Settlement
Qabb Elias 016	Bekaa	Zahle	Qabb Elias	quab elyas	33,7772789	35,81594086	IS- Informal Settlement
Qabb Elias 017	Bekaa	Zahle	Qabb Elias		33,7765007	35,81579971	IS- Informal Settlement
Qabb Elias 019	Bekaa	Zahle	Qabb Elias		33,78430176	35,82160187	IS- Informal Settlement
Qabb Elias 021	Bekaa	Zahle	Qabb Elias		33,78744125	35,82309341	IS- Informal Settlement
Qabb Elias 022	Bekaa	Zahle	Qabb Elias		33,7867012	35,82699966	IS- Informal Settlement
Qabb Elias 023	Bekaa	Zahle	Qabb Elias		33,78310013	35,84880066	IS- Informal Settlement
Qabb Elias 025	Bekaa	Zahle	Qabb Elias		33,7859993	35,82899857	IS- Informal Settlement
Qabb Elias 026	Bekaa	Zahle	Qabb Elias		33,78770065	35,82720184	IS- Informal Settlement
Qabb Elias 028	Bekaa	Zahle	Qabb Elias		33,78829956	35,82320023	IS- Informal Settlement
Qabb Elias 029	Bekaa	Zahle	Qabb Elias		33,78730011	35,82329941	IS- Informal Settlement
Qabb Elias 030	Bekaa	Zahle	Qabb Elias		33,77130127	35,81140137	IS- Informal Settlement
Qabb Elias 031	Bekaa	Zahle	Qabb Elias		33,77915955	35,82043076	IS- Informal Settlement
Qabb Elias 032	Bekaa	Zahle	Qabb Elias		33,78079987	35,82260132	IS- Informal Settlement
Qabb Elias 036	Bekaa	Zahle	Qabb Elias		33,78480148	35,82799911	IS- Informal Settlement
Qabb Elias 041	Bekaa	Zahle	Qabb Elias		33,78079987	35,832901	IS- Informal Settlement
Qabb Elias 043	Bekaa	Zahle	Qabb Elias		33,79019928	35,82379913	IS- Informal Settlement
Qabb Elias 045	Bekaa	Zahle	Qabb Elias		33,77479935	35,84009933	IS- Informal Settlement
Qabb Elias 048	Bekaa	Zahle	Qabb Elias		33,78710175	35,82369995	IS- Informal Settlement
Qabb Elias 050	Bekaa	Zahle	Qabb Elias		33,77510071	35,82839966	IS- Informal Settlement
Qabb Elias 052	Bekaa	Zahle	Qabb Elias		33,78030014	35,82839966	IS- Informal Settlement
Qabb Elias 066	Bekaa	Zahle	Qabb Elias		33,78129959	35,82099915	IS- Informal Settlement
Qabb Elias 069	Bekaa	Zahle	Qabb Elias		33,79740143	35,83580017	IS- Informal Settlement
Qabb Elias 071	Bekaa	Zahle	Qabb Elias		33,78639984	35,82450104	IS- Informal Settlement
Qabb Elias 072	Bekaa	Zahle	Qabb Elias		33,79270172	35,82649994	IS- Informal Settlement
Qabb Elias 080	Bekaa	Zahle	Qabb Elias		33,78329849	35,84600067	IS- Informal Settlement
Qabb Elias 081	Bekaa	Zahle	Qabb Elias		33,77109909	35,81230164	IS- Informal Settlement
Qabb Elias085	Bekaa	Zahle	Qabb Elias		33,7928009	35,82759857	IS- Informal Settlement
Qabb Elias 087	Bekaa	Zahle	Qabb Elias		33,79000092	35,83720016	IS- Informal Settlement
Qabb Elias 089	Bekaa	Zahle	Qabb Elias		33,76499939	35,84460068	IS- Informal Settlement
Qabb Elias 103	Bekaa	Zahle	Qabb Elias		33,76679993	35,83969879	IS- Informal Settlement
Qabb Elias 104	Bekaa	Zahle	Qabb Elias		33,78630066	35,82030106	IS- Informal Settlement
Qabb Elias 110	Bekaa	Zahle	Qabb Elias		33,7979126	35,83487701	IS- Informal Settlement

Annex

Shelter Type	Status	Number of Tents	Number of Ind	Date of the Update	Updated By	Updated On	Discovery Date	Date the site was created	Number of Latrines	Water Capacity in L	Number of SSBs	Number of Ind in SSBs	Type of Water Source	Waste Disposal
IS- Informal Settlement	Active	33	240	9-12-2016	Medair	Sixth Update - 2016	24-4-2014	28-2-2011	26	27000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	59	387	9-12-2016	Medair	Sixth Update - 2016	24-4-2014	31-8-2011	47	50000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	8	47	9-12-2016	Medair	Sixth Update - 2016	16-4-2014	9-8-2010	7	8000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	119	658	9-12-2016	Medair	Sixth Update - 2016	24-4-2014	31-3-2011	83	114000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	35	228	8-12-2016	Medair	Sixth Update - 2016	24-4-2014	14-3-2012	24	32000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	27	161	9-12-2016	Medair	Sixth Update - 2016	24-4-2014	28-2-2013	17	25000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	9	67	9-12-2016	Medair	Sixth Update - 2016	16-4-2014	10-2-2013	9	14000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	29	189	9-12-2016	Medair	Sixth Update - 2016	16-4-2014	11-4-2013	15	24000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	10	72	19-12-2016	Medair	Sixth Update - 2016	4-3-2014	28-2-2013	10	10000	0	0	Water Trucking	Burn it
IS- Informal Settlement	Active	4	23	9-12-2016	Medair	Sixth Update - 2016	7-3-2014	7-6-2013	3	4000	0	0	Borehole	Dump it outside the camp
IS- Informal Settlement	Active	10	54	9-12-2016	Medair	Sixth Update - 2016	7-3-2014	7-2-2013	8	10000	1	5	Water Trucking	Dump it outside the camp
IS- Informal Settlement	Active	60	371	9-12-2016	Medair	Sixth Update - 2016	24-4-2014	19-2-2014	36	44000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	15	94	9-12-2016	Medair	Sixth Update - 2016	16-4-2014	10-1-2012	14	16000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	31	202	8-12-2016	Medair	Sixth Update - 2016	16-4-2014	3-12-2013	30	39000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	26	152	9-12-2016	Medair	Sixth Update - 2016	16-4-2014	3-1-2014	25	23000	0	0	Water Trucking	Dump it outside the camp
IS- Informal Settlement	Active	17	119	8-12-2016	Medair	Sixth Update - 2016	16-4-2014	10-1-2014	14	13000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	36	249	8-12-2016	Medair	Sixth Update - 2016	16-4-2014	15-3-2013	34	44000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	8	53	9-12-2016	Medair	Sixth Update - 2016	16-4-2014	15-6-2013	3	7000	6	30	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	20	128	9-12-2016	Medair	Sixth Update - 2016	16-4-2014	15-3-2012	16	19000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	7	45	9-12-2016	Medair	Sixth Update - 2016	22-4-2014	3-9-2013	4	7000	0	0	Water Trucking	Dump it outside the camp
IS- Informal Settlement	Active	24	165	8-12-2016	Medair	Sixth Update - 2016	24-4-2014	23-2-2013	18	25000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	19	118	8-12-2016	Medair	Sixth Update - 2016	24-4-2014	8-4-2014	13	20000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	4	24	8-12-2016	Medair	Sixth Update - 2016	12-8-2014	9-4-2014	4	3000	0	0	Water Trucking	Dump it outside the camp
IS- Informal Settlement	Active	4	30	9-12-2016	Medair	Sixth Update - 2016	12-8-2014	12-2-2014	2	3000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	4	28	9-12-2016	Medair	Sixth Update - 2016	12-8-2014	12-8-2012	2	4000	1	6	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	5	27	9-12-2016	Medair	Sixth Update - 2016	12-8-2014	12-5-2014	3	2000	0	0	Borehole	Dump it outside the camp
IS- Informal Settlement	Active	18	115	9-12-2016	Medair	Sixth Update - 2016	26-10-2014	30-8-2014	15	20000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	16	102	9-12-2016	Medair	Sixth Update - 2016	12-3-2015	4-4-2012	7	19000	4	28	Water Trucking	Dump it outside the camp
IS- Informal Settlement	Active	6	43	9-12-2016	Medair	Sixth Update - 2016	12-3-2015	2-12-2014	3	2000	0	0	Borehole	Municipality Collection
IS- Informal Settlement	Active	63	438	8-12-2016	Medair	Sixth Update - 2016	16-3-2015	2-2-2015	50	55000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	8	41	9-12-2016	Medair	Sixth Update - 2016	17-3-2015	4-4-2013	3	8000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	8	48	9-12-2016	Medair	Sixth Update - 2016	17-3-2015	19-9-2013	5	7000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	32	224	9-12-2016	Medair	Sixth Update - 2016	17-3-2015	12-9-2013	32	40000	1	5	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	5	32	9-12-2016	Medair	Sixth Update - 2016	18-3-2015	17-3-2013	3	3000	1	6	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	5	40	8-12-2016	Medair	Sixth Update - 2016	19-4-2015	17-4-2013	5	6000	0	0	Water Trucking	Dump it outside the camp
IS- Informal Settlement	Active	9	48	9-12-2016	Medair	Sixth Update - 2016	9-6-2015	3-11-2013	7	7000	0	0	Borehole	Municipality Collection
IS- Informal Settlement	Active	4	26	9-12-2016	Medair	Sixth Update - 2016	13-8-2015	13-5-2015	3	3000	0	0	Borehole	Dump it outside the camp
IS- Informal Settlement	Active	4	20	9-12-2016	Medair	Sixth Update - 2016	13-8-2015	13-5-2015	4	4000	0	0	Borehole	Municipality Collection
IS- Informal Settlement	Active	5	29	9-12-2016	Medair	Sixth Update - 2016	20-4-2016	25-5-2014	4	4000	0	0	Borehole	Burn it
IS- Informal Settlement	Active	4	22	9-12-2016	Medair	Sixth Update - 2016	20-4-2016	25-4-2015	1	2000	0	0	Water Trucking	Municipality Collection
IS- Informal Settlement	Active	6	27	8-12-2016	Medair	Sixth Update - 2016	8-12-2016	31-10-2016	0	6000	0	0	Water Trucking	Municipality Collection

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THE THIRDSPACE METHOD: ECOLOGIES OF CO-EXISTENCE

AR3U022, The Theory of Urbanism

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June, 2017

Abstract. Forced displacement as a consequence of the Syria conflict has led to undesirable situations in the adjacent countries of destination. Due to the lack of an integral approach, its prolonged character, and as the opposed to top down masterplanning, underlying many of the contemporary organisation of the forced migration, the goal of this paper to challenge conventional practices dealing with the refugee system by removing or challenging its binary propositions. This is being done by using the Thirdspace method, where a 'third term' is being introduced that criticizes through its otherness. As the founders of the third term, theory on *the state of exception* and *ecologies* will inform the first two pillars, concerned with the spatial practice and representation of space.

Key words – displacement, the state of exception, ecologies, thirdspace.

Introduction

Forced displacement as a consequence of the Syria conflict has led to undesirable situations in the adjacent countries of destination. To deal with the large amount of influx of people or rather to control the situation of chaos, governments collaborate with international and national relief organisations in order to get a grip it. Not only is the phenomenon multidimensional and multiscalar, its complexity seems to be dealt with in conventional ways, that not only lack in creating added value but that are in many cases even counterproductive. Main reason for the underperformance of the refugee system and its spatial derivatives, is its prolonged character and the sectorial approaches that are not adapted to that. Besides, for the specific case of Lebanon, like many developing countries, it are not only the displaced who live in destitute. The host society, especially the ones already living in poor conditions, also become affected by the situation through the unavoidable redistribution of the available resources. Finally, nature is hardly being incorporated in the contemporary approaches that deal with the impact and consequences of the settlements processes that are accompanied with forced displacement.

Due to the lack of an integral approach and as the opposed to top down masterplanning, underlying many of the contemporary organisation of the forced migration, the goal of this paper to challenge conventional practices dealing with the refugee system by removing or challenging its binary propositions. This is being done by using the Thirdspace method, where a 'third term' is being introduced that criticizes through its otherness (Soja, 1996, p. 61). However, in order to get to the point of introducing this third term, first the binary fields that are the basis for it, need to become examined. This is being done using a specific location, namely the West-Beqaa in Lebanon. The first of the two pillars of the 'third term' to be discussed, is a mental construct of space (*the representation of space).* It is the second pillar from the thirdspace method as being set out by Lefebvre (Soja, 1996, p. 66). The most important theory to inform this mental construct is that of Agamben, used to describe and question the refugee system as the exception that functions as an exclusion inevitable in relation to the rule (Agamben, 1998, p. 17). The second approach is a way of thinking engaged with theory on ecologies, that aims to demonstrate the refugee system its interconnectedness with and between other social and natural domains. It can be seen as an extension to the first, emphasizing on the spatial component of the relationships among communities and between communities and the environment. This theory will inform the first pillar of the Thirdspace theory, *the spatial practice*, being the concrete material that allows itself to be mapped, analysed and explained (Soja, 1996, p. 62).

This paper starts off with a brief explanation on the refugee system in Lebanon, followed up by *the zones of indistinction* and its implications in the West-Beqaa valley, together with its relation to

space by using ecology as a way of thinking. Both combined lead to the first conclusions that provides useful knowledge for composing *the space of representation*, being the third and ultimate pillar of the third-space method (Soja, 1996, p. 66).

The refugee system

The refugee system is often seen as self-evident truth, but can be questioned due to its insufficient coping mechanism, many imperfections and its increasing extent of disturbance. Not only because of the reduction of a group of people to a subordinate category that shortens humanity, but also because the chaos that one tries to control is increasingly more complex and prolonged, that even questions the very principles of state, nation and territory (Agamben, 2016, p. 124). In which the refugee system, as the exception, functions as an exclusion that is inevitable related to the rule. The failing mechanism, expresses itself through social, environmental and economic deterioration. In order to get a better understanding of the system as it presents itself in Lebanon, this paragraph will go more into depth to it.

Created by the sovereign, the refugee is excluded from the rule, through the 1951 Refugee Convention (Herz, 2013, p. 40). Policies that are set-up to deal and control forced migration in order to get a grasp on the unwanted situation. In the particular case of Lebanon, the rights that go together with these international policies in order to protect refugees, are not applicable to the displaced Syrians in Lebanon or to other displaced in the region that life outside of the formal camps (Hamill, 2017). In the first place because the definition is not including explicitly protection for civilians fleeing war or allowing territorial access for people fleeing persecution (Hamill, 2017). But moreover, because these neighbouring countries did not, until recently, carried out their own policies on dealing with the large influx of migrants. United Nations High Commissioner for Refugees however, entitled people in the formal camps to the same rights (and more) as those described in the Convention. But although these formal expressions assure particular rights, it is still no warranty for its implementation (Hamill, 2017). It seems rather a negotiation tool between relief organisations and governments, giving the organisations more space to intervene.

Thus, although Syrian population in Lebanon are not labelled as refugee, it still is excluded from the norm, where the Lebanese people act as 'us' and the Syrians as the 'other'. Expressed by the state of exception, through the absence of the rights of citizenship and by the establishment of a separate Ministry for displaced people, that functions as a sectorial department. A ministry of displaced that seems to be dealing with a 'temporary' situation, aiming 'to secure the return of all displaced persons to their areas and villages' (Ministry of Displaced, 2017). So, whether the Syrian people located in Lebanon are called refugees or displaced persons, life has been reduced and allowed to be regulated and governed by a supreme ruler (Agamben, 1995; Bedir, 2014). Agamben refers to the refugee as the human being, who's life can be seen as the life of homo sacer, who may be killed and yet not scarified. An obscure figure of archaic Roman law. Where life is seen as the bare life, that inhabits the state of exception, where the law has been suspended (Agamben, 1998; Bedir, 2014). However, when life and politics originally divided, begins to become one, all life becomes sacred and all politics become the exception (Agamben, 1998).

Mental space

The state of exception has become continuous and the norm, exhibited with a permanent resident of mass of noncitizens that determine the contemporary image of the world. Despite, contemporary practices are still dealing with the phenomenon in a sectoral way of thinking, through the objectification of this group of forced displaced. With the state of emergency outgrown, new responses that recognize the individual cases rather than the mass, related to its wider context, are needed. Eliminating binary distinctions between us/other, exeption/norm, inside/outside is therefore the first action to be taken. Done in the first place, on the basis of *the zones of indistinction,* where the sovereign power and the power of body converge (Agamben, 1998). A place where the state of exception becomes the norm and the interconnectedness between all life and all politics is demonstrated. Besides conceptualizing modern politics, it functions as the conceived space that exhibits unconventional practices that do not take law as its model and code (Agamben, 1998, p. 17). It reveals relationships that deny the binarism of the rule and the exception..

The *zones of indistinction*, can thus be explained as the zone, where the binarity between the exclusion and inclusion, outside and inside, are suspected and enter a zone of irreducible indistinction. According to Foucault, as the point where the political techniques and the technologies of the self intersect (Agamben, 1998, p. 5). The *zones of indistinction* aremarked by lives that are half lived on the margins of social, political, cultural, economic and geographical borders (Downey, 2009, p. 109) A zone that can become exhibited through the specific case of the Beqaa Valley in Lebanon. Here it are not only the Syrian newcomers who are marginalized in the secluded hinterland of Beirut, but also its rural communities who are struggling to support their families. Among who, for example, illegally produce hashish that offers economic compensation, as well as political and cultural benefit (Afsahi & Darwich, 2016, p. 192). The body of power has liberated itself and law has not been taken as the model. The Syrians on its turn, illegally work on these agricultural fields, in order to obtain and sustain the essentials of life. A inevitable result of the economic marginalization, isolation, under development and poor revenues earned for traditional cultivation (Afsahi & Darwich, 2016, p. 193). This specific example shows through *a zone of indistinction,* the resistance and response to the incapability of governments and other agencies. Translated by Agamben from his linguistic theory to a spatial concept, by an aterritorial space where binary distinctions are suspended. An extraterritorial space, that functions as a model where "two political communities dwelling in the same region and in exodus one into each other, divided from each other by a series of reciprocal extraterritorialities" (Agamben, 2016, pp. 120–125). Thus, where 'us' and the 'other' are eliminated.

More insights in the relationships that take place within the zone of indistinction, taking the chaos as the starting point, allows to approach the debate on the refugee crisis and the functioning of the system from another angle. Obviously it is the system within this conceptual 'aterritorial space' that works more efficient than the sovereign system of both governments and agencies. Otherwise it would not function and/or people would not appeal to it. The physical component however, that allows for these activities and relationships to take place, should not be underestimated.

Physical space

The specific socio-spatial configuration of the Beqaa Valley in Lebanon allow, limit or obstruct for certain human activities to take place. Analysing a social relationship as exhibited above or between a community and its wider environment, can therefore be accomplished through the material component of spatiality. Represented through its structuring material, that both functions as a means or a medium. With Lebanon prohibiting formal camps, the most recognizable and clearly defined spatial derivative of the state of exception, settlement processes are characterized with a great amount of dispersion. Half of the Syrian displaced persons find themselves an apartment in the city,

while others start to occupy the land of the periphery or empty and underutilized buildings (UNHCR, 2014). Therefore the demarcation between the every-day lives of Lebanese and Syrians are less extreme than in the other neighbouring countries like Jordan and Turkey, offering opportunities in the search for long-term solutions that deal with forced displace-ment. An inseparable relation of human life to space, acknowledge by the statement made by Soja (Soja, 2010, p. 5) that "everything that is social is simultaneously and inherently spatial, just as everything spatial, at least with regard to the human world, is simultaneously and inherently socialized". A proposition where the role of the landscape is can become more emphasized, as it plays through its configuration and resources an extremely important role in the settlement processes and human activities that occur on a specific location. In the example of the Beqaa Valley, the space accommodates the activities – as set out in the previous chapter - by both the lack of basic infrastructure, the fragmentation of lands, the geographical isolation from the rest of Lebanon, as through its fertility, access to water and enormous plain (Afsahi & Darwich, 2016, p. 193). Exploring the meanings and the significance of space that are inherent to this spatiality of human life, allows us to get a better understanding of the events that take place in the Beqaa, and at the same time to question them. Through the method of ecology these connections and assemblages can be investigated and exposed from a multiscalar perspective, by 'simply' denoting the place where these interactions take place. Ecology – as a way of thinking - points out here "the interaction between human and non-human stressors and their environment[s], with the word oikos, the Greek word from which the word ecology derives, meaning 'house, domestic property, habitat, natural milieu" (Herzogenrath, 2009, p. 5). The spatial configurations and conditions that compose and comprise human life, the physical space, is thus a question being posed as one of the components to become unravelled.

Social space: ecologies of co-existence

Combining the first and the latter, according to the Thirdspace method, *the zones of indistinction* can be observed as "a manifestation where life becomes autonomous in a contingent world and where it is no longer fully dependent on an higher agency" (Cameron, 2001, p. 447). It are the ecologies where Lebanese and Syrian people co-exist, by their mutual dependence, in order to maintain and support their life. Concerned with a different practice of living, it are the underlying capacities of both space and communities, that enable the activities of self-organisation and the adaptation and change over time, that deserve the focus of attention. It are the ecologies of living, where material, environmental, technical, social and mental domains come together. The space where questions on the crisis of subjectivity and the functioning of modern politics can become deposit. Spatial analysis on different scales that identify multiple aspects of living from emerging modes of production, to relations to nature and the organisation of social structures allow to expose and understand modes of living that occur beyond conventional practices (Pereira, Issaias, & Burns, n.d.). This space of representation (social space), the third pillar of the Thirdspace method, is linked to the 'clandestine or underground side of social life' (Soja, 1996, p. 67). New articulations or conditions, that either work in favour or against the already existing social organisations and events can become proposed.

Conclusion

Conventional practices of dealing with the so-called refugee crisis and their settlement processes are under pressure due to its prolonged character. Deterioration of both Lebanese and Syrian communities ask for a critical examination that contribute to the ongoing debate. One that goes beyond administrative borders and sectorial divisions, by recognizing the interrelationship of the refugee system with other social and natural domains. Lifting the - physical and mental- borders, allow to examine the social spaces that carry out unconventional practices where it is the body of power and the denial of law that form the invisible arena. This mental space interwoven with location-specific factors forming the physical space, are the basis of the ecologies of co-existence, a representation of space that exhibit different practices of living that informs, one the one hand to protect these existing social configurations, and on the other hand let new ecologies emerge that contribute to the quality of life of communities inhabiting, in this specific case, the West Beqaa valley.

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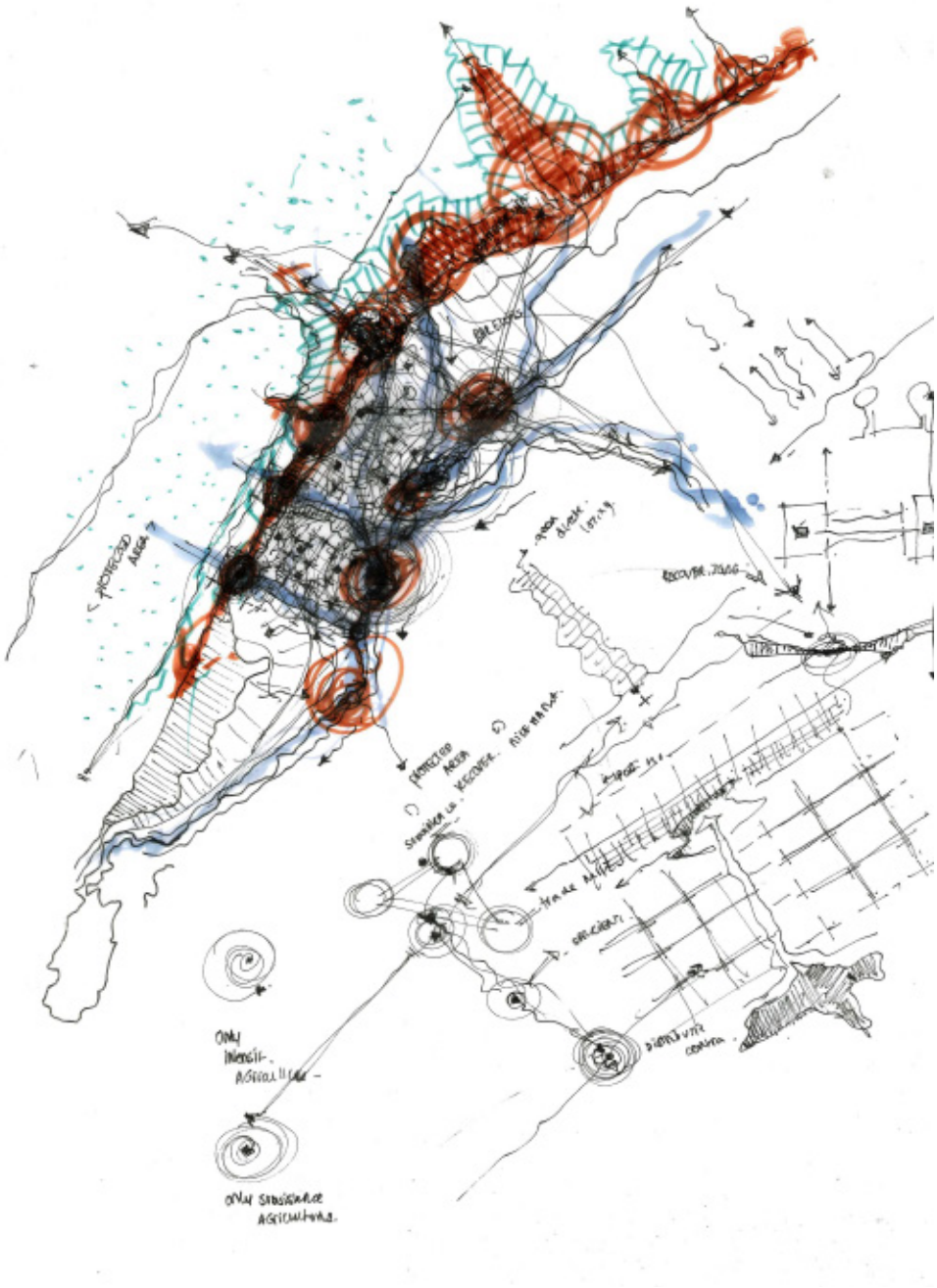

“a tribute to the drawings & sketches that did not make it to this report”

Marrit Terpstra