

By Salam AbuAli ©

Legacy of the Displaced

Designing for the Environment in
Emergency Response



CHALMERS
UNIVERSITY OF TECHNOLOGY

Chalmers School of Architecture,
Department Of Architecture
& Civil Engineering, Chalmers
University

Examination: Emilio Brandao.
Supervision : Joaquim Tarrasó
Marco Adelfio



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Graduation year 2019-2020

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Department Of Architecture & Civil
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Abstract

Refugee camps planned for quick response are transformed into cities of displacement taking on a state of permanence. Through conducting research and a visit to Jordan the thesis investigates a case of displacement of Palestinians to Jordan. The aim is to find connections between the camp and the natural environment it is set within. Concluding to case specific example of considerations to be taken in the design of emergency response. The considerations are steps taken to imagine a legacy image of a camp after the refugees move on.

Kanafani (1976) "you can't find the sun in a closed room" (p.30)

Ghassan Kanafani, Palestinian writer, and activist.

Graphical Manifesto



Refugees leaving behind a legacy for the people and nature.

Manifesto

Treasured is the place that harbours life.

In the moments we strive for our survival, we realize how vulnerable we stand without our roofs and food supplies.

The wars we commit affect all forms of life. We pick up what we can carry and look for safety to protect all the people we love

Facing crisis of identity and Displacement, falling behind while people move forward, feeling the effects of climate change and flooding year after year.

Resources pouring in, creating temporary refugee cities, planned to be temporary.

In the case that it is temporary, and all wars will end someday. What do we leave behind?

Considering that question, how do we plan a city that empowers refugees as another resource to build cities that support human life and dignity while supporting the lives and survival of other species.

Maybe we can consider looking at these temporary cities as one of the fronts for combating climate change.

In the instances where our species is in crisis, where we plan an emergency response, we can reflect on the lives of other species and the environment and understand their plight. As we feel at our most vulnerable and strive to preserve life, the life of the planet cannot be isolated from ours. Maybe here, a refugee can be an empowered fighter for his own life and the 'others' around us.

Author Background

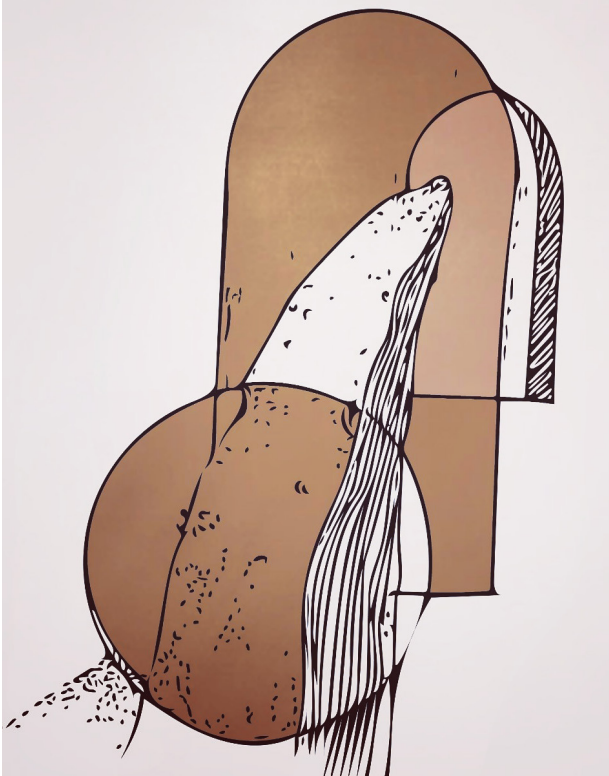


Image Showing a whale (nature) passing through human geometry .

Designing for nature. As an architect, I believe the practice and role of architecture go beyond answering the needs of people who can afford it and then beyond people to extend to the needs of the animals and trees that share the planet with us.

I felt my self drifting from what architecture is doing today to what it can do for the future. Hence this master's program selection and this thesis.

So then diving into the good stuff; I am a Palestinian. I know as many of us know at a young age that also goes beyond nationality and country. I know it meant my whole life would be this constant struggle to make sense of how the world let this thing happen, like many injustices in the fabric of humanity's history, how did we!

Being now pushed to the very edge, by the increasingly wrongful image drawn for refugees from one side and our complete disregard towards our planet. This thesis was a natural next step in my thought process. It's an idea I had to investigate and see-through to be able to imagine what would come after.

The issues I talk about are incredibly personal, and they continuously overlap. Still, I don't view it as a shortcoming but as an accurate representation of these issues in real life.

“

As you prepare your breakfast, think of others
(do not forget the pigeon’s food).

As you conduct your wars, think of others
(do not forget those who seek peace).

As you pay your water bill, think of others
(those who are nursed by clouds).

As you return home, to your home, think of others
(do not forget the people of the camps).

As you sleep and count the stars, think of others
(those who have nowhere to sleep).

As you liberate yourself in metaphor, think of others
(those who have lost the right to speak).

As you think of others far away, think of yourself
(say: “If only I were a candle in the dark”). ”

“Think of Others” a poem by Mahmoud Darwish (palestinian poet), from Almond Blossoms and Beyond (2003).

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Thesis question

How can environmental considerations made in the planning of emergency response have an effect on empowering refugees while combating climate change?

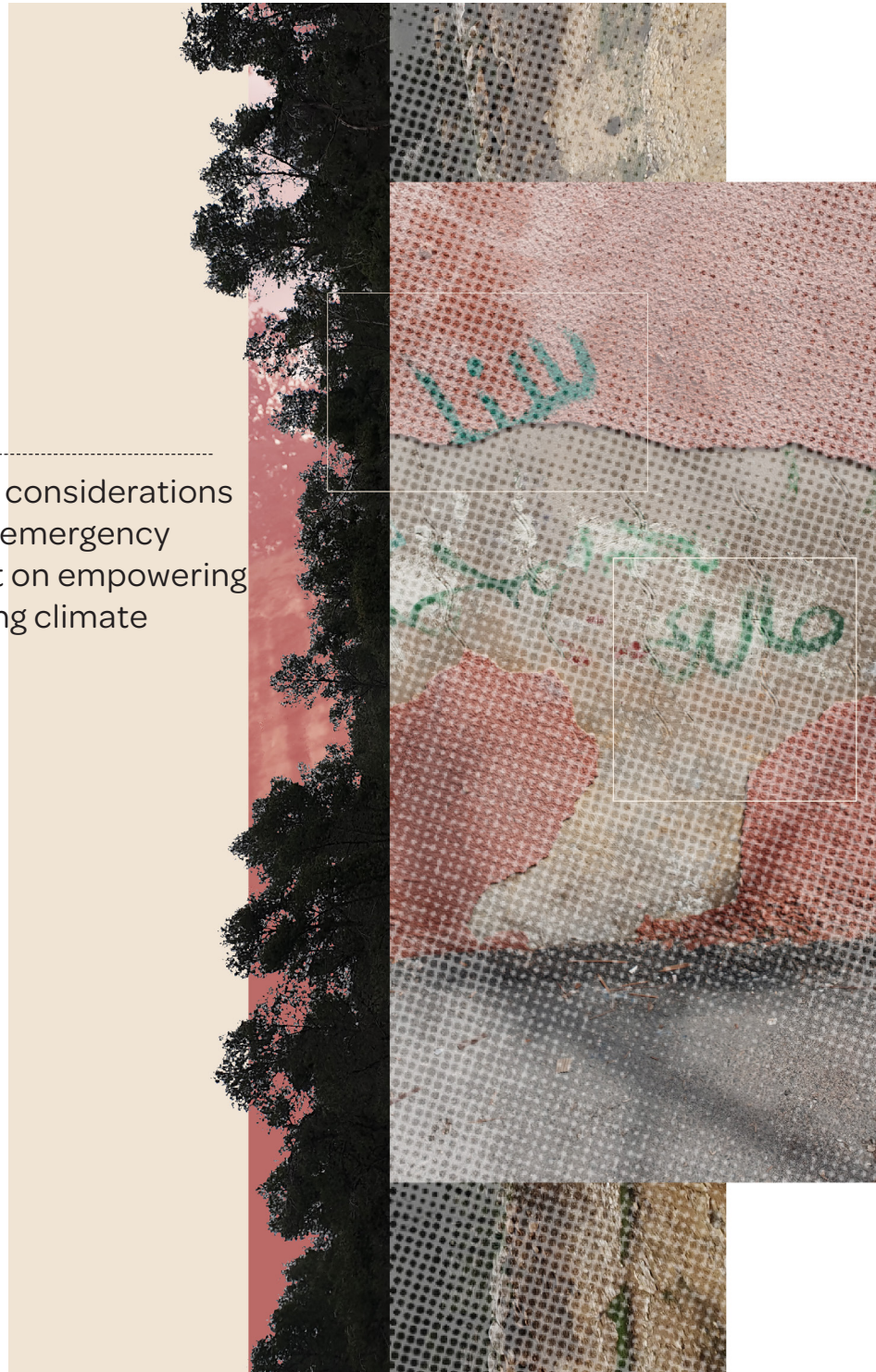


Figure 2. A collage of the forest trees of dibeen and a wall from Gaza refugee camp. Picture taken and edit y author.

Preface

Refugee camps are growing into permanent cities, housing people businesses, schools and infrastructure. As refugee displacement is an ongoing issue, there has been a call recently to change perspective on the state of a refugee camp being temporary and consider its' permanence and effects it has on the hosting communities.

In an example, a recent concept proposal for refugee cities titled 'sustainable development zones'. Explains the shift the UN has been aiming for towards considering refugees and migrants a resource (human capital) with a focus on planning for long term sustainability goals. While also focusing on meeting the needs of host communities. One of the points they call into focus to achieve this new shift is including different stakeholders in the approach of emergency response. (Rucker,2018)

The proposal further discusses the much needed shift within the humanitarian framework when it comes to how refugees are only seen as targets for humanitarian relief and how their potential role in development is still over looked, both in the development of the camp and their surroundings. (Rucker,2018) Their involvement could be a turning point for their role from a passive one to and empowered new role.

This proposal goes on to suggest a solution for the camp development for both the refugees and the host countries in the concept termed "sustainable development zone" SDZ. It combines the two already established concepts: (1) special Economic zones (i.e. Wuhan, China), (2) displaced economics; referring to displaced population lead Economic activity.

SDZ's proposal is a promising multi-stakeholder approach that can empower both the host country and the displaced community. (Rucker,2018)

In taking the former proposal and many other proposals on rethinking the camps as inspiration, this thesis takes on the focus of empowerment through inclusion of refugees and host countries in the development plans of refugee camps. As a quick response is crucial, further responses are often needed to create structure and life for the refugees

Gaza refugee camp in Jerash has been a city for decades, it is still expanding, yet the characteristics of a refugee camp remain evident. This concludes to the argument that decisions made in the planning of emergency response can have lasting effects on the people and the environment.

Purpose

Design based investigation within a refugee camp contextual fabric, experimenting with the possibilities of including non-human actors in humanitarian efforts in emergency response. Including environmental considerations, for both the refugees and nature with its biodiversity, could be an opportunity to address environmental concerns in the new cities of displacement. As we save humans, we save the planet.

Relevance to sustainability

As we live in a critical time for the climate and our planet, we cannot afford to remain on the discourse that we as a race are isolated, and superior to all other living things.

In the future, more displacement is expected. Climate change has resulted in many weather-related hazards since 2008, displacing an average of 21.7 million yearly—about 59600 daily. (EJF ,2017). As climate change continues in the future, more displacement will be a reality.



In the critical situation of displacement from wars or climate-related catastrophe, we respond swiftly and plan with an aim to maximize survival and save lives. As we start creating these new cities, we start tackling other issues that come up, often including the change in the state of the temporality of the refugee city. This planning process can present a valuable opportunity for the environment if we take considerations for the survival of nature and biodiversity alongside humans.

Related practices that benefit environmental sustainability include practices of combating desertification, biodiversity loss, and creating opportunities for food/energy production.

Designing for Nature

The argument in designing for nature in architecture is, that we should consider the intrinsic value of the natural environment. The intrinsic value is the value that nature has in its own right, without the justification that it may only hold value only if it can utilize it for the needs of the human race.

Intrinsic value traditionally lies at the heart of ethics. We can define the meaning of the intrinsic value of something to be: the value that the thing has “in itself,” or “in its own right.” (Stanford Encyclopedia of Philosophy,2002).

Environmental ethics, a branch of philosophy, stands behind the fact that all forms of life on earth have the right to live. According to that statement, we can consider it unjust and unethical to destroy nature or deny life forms their right to live. If we try to embody that reasoning, we might better adopt a mindset ready to question the current practices of architecture. Then we might start to imagine architecture as more than a tool to reach only human comfort, justice, or even freedom. Architecture could be a tool to reach comfort, justice, and even freedom for all, on this planet. (Oak,2018)

“All of us are creations of nature and we depend on one another and the environment. Respecting the existence of not just other humans but also the non-human entities, and recognizing their right to live is our primary duty. With environmental ethics, morality extends to the non-human world.” (Oak, 2018)

In addition to the previously mentioned multi-stakeholder approach to planning a camp, this thesis includes nature as a critical stakeholder while emphasizing the effects of refugee camp on the climate issues of the host country.



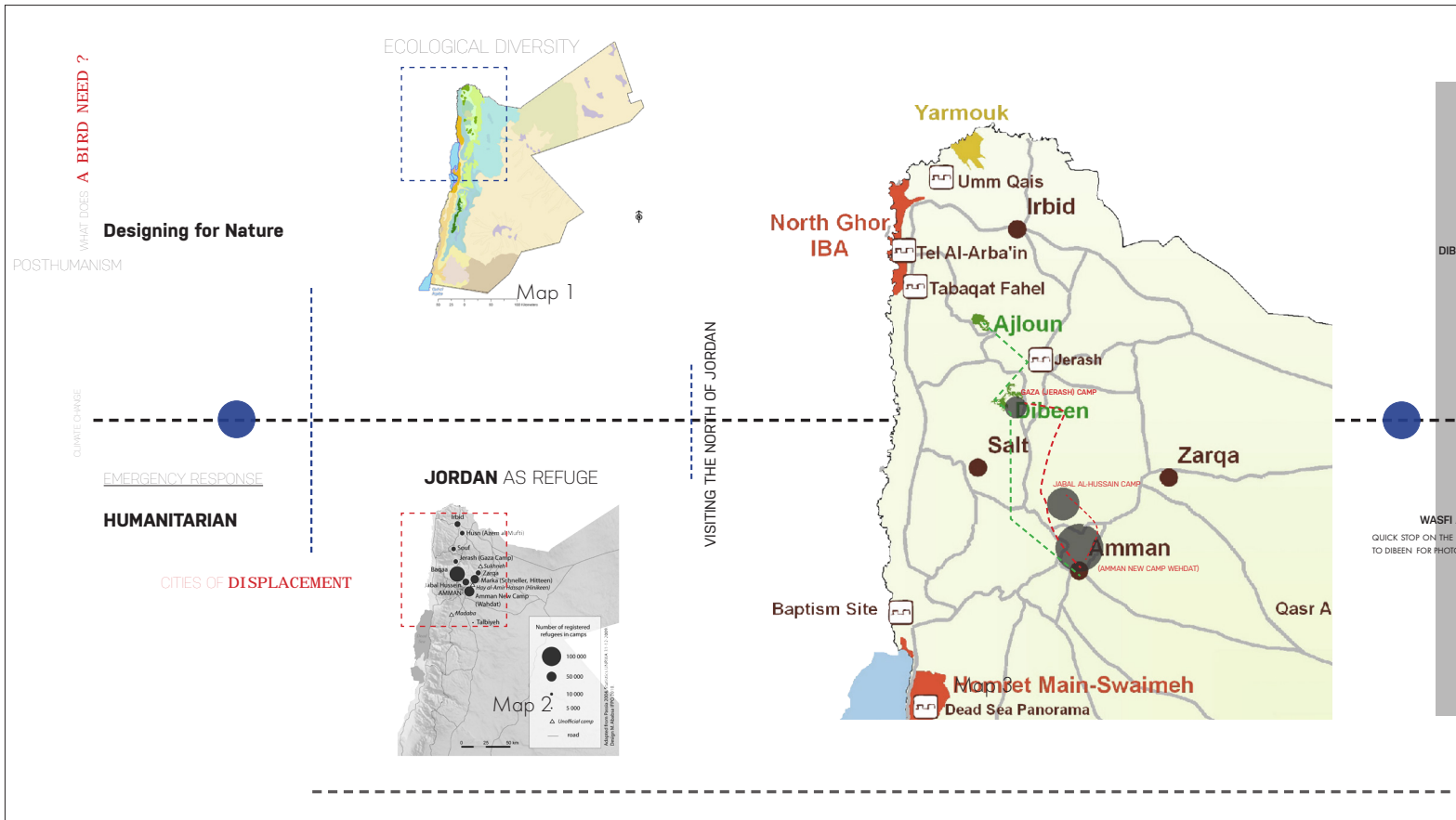
Figure 4. Taken from Jonathon Cooke collection of: Vintage Fabric; A selection of posters and flyers for Fabric London.

Research Process Diagram

Literature Search

Theoretical background

Contextual background



Map 1 source: RSCN, obtained on study visit
 Map 2 source : written on picture. Adapted from Passia 2004 by M.Ababsa.
 Map 3 source:RSCN, obtained on study visit 2020.

Inquiries and observations.

Developing a context-specific design strategy.

Environmental considerations and Case Study

Investigation by Design

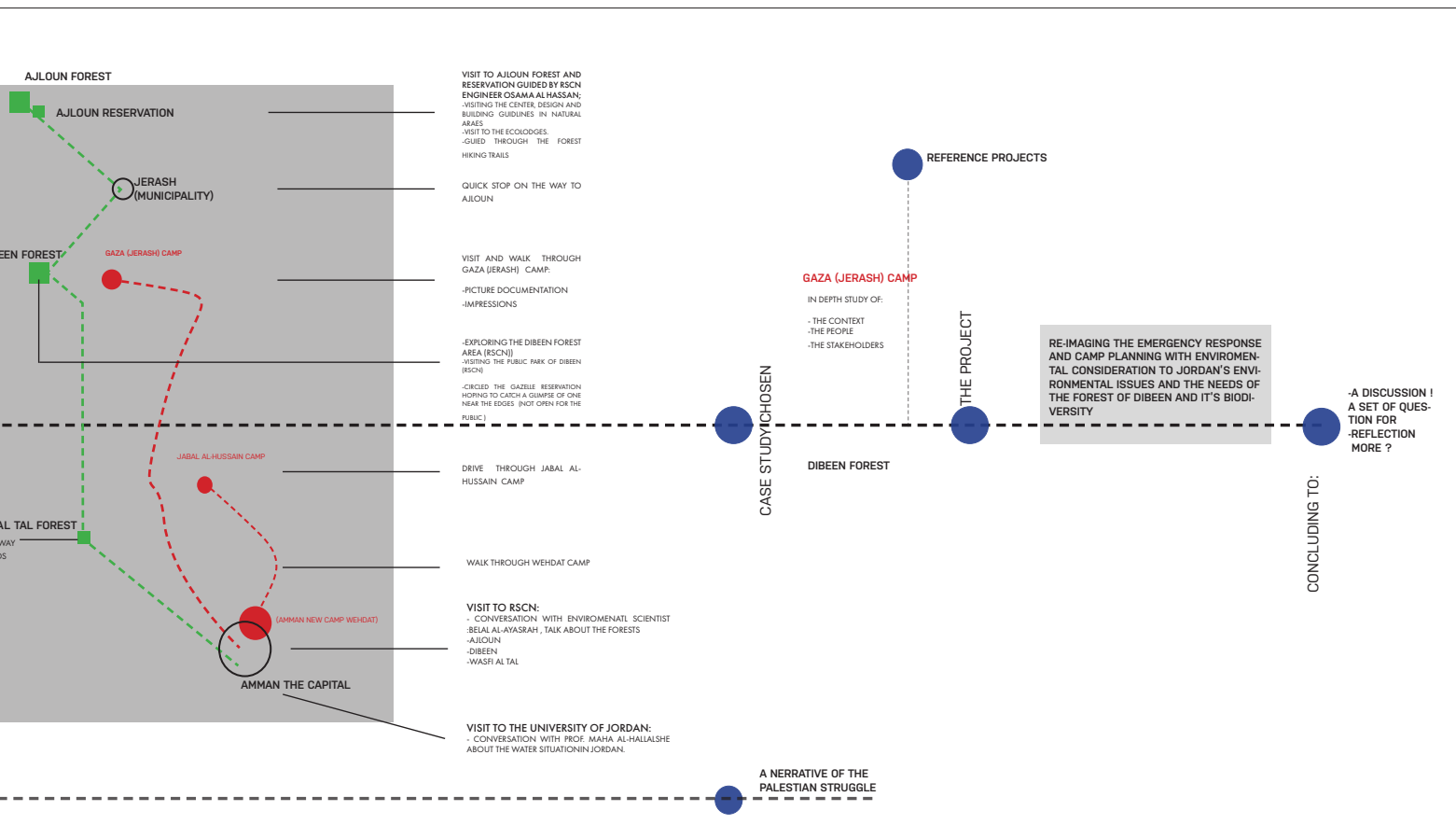
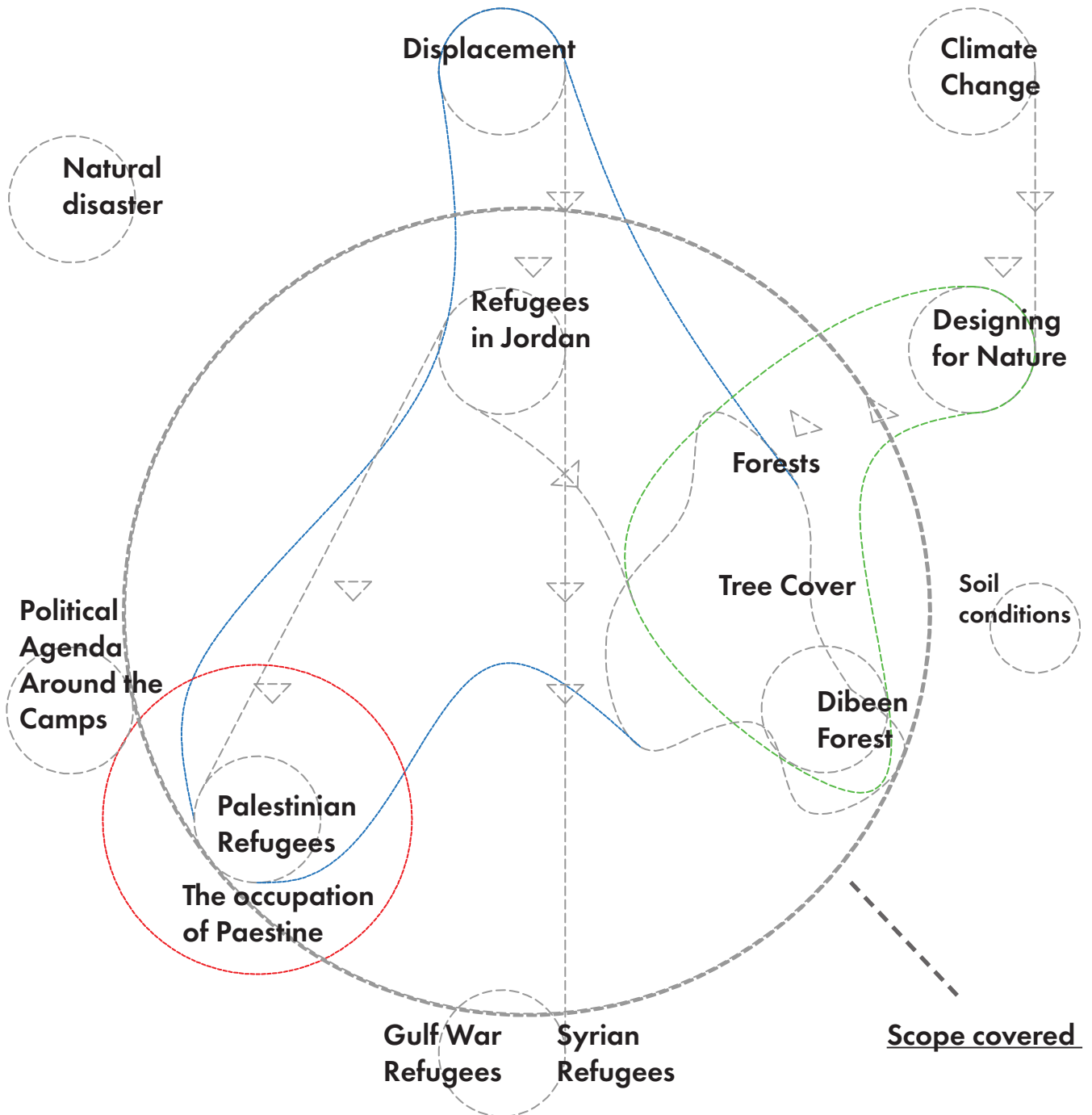


Diagram presenting the different stages of the research process



Narration through References

Description and visitation

Analysis and connections

Delimitations;

While constructing a background for the displaced refugees in Jordan, the thesis refers to the instances of events causing this displacement. As for the full spectrum of the political disputes that have caused displacement in Jordan, it is not in the scope of the thesis to cover it.

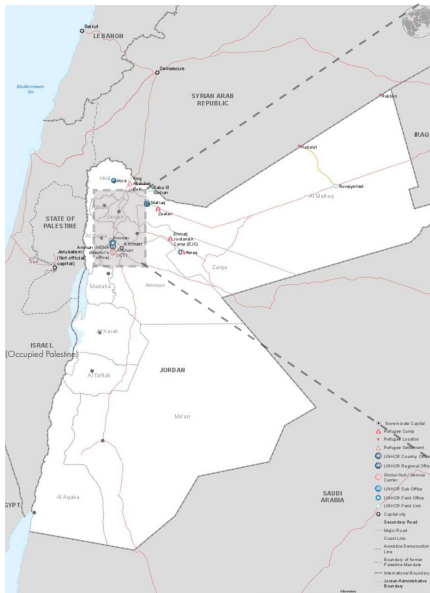
As the chosen camp is for displaced Palestinians, a narrative describing the critical dates in the struggle are in parallel with the background as it is vital to the understanding of the specific state of Palestinian refugees. The narrative offers a reference for the reader to further investigate Palestinian history and cause outside the reading of this thesis.

The project in the thesis tackles considerations applied as concepts to the phases of the camp development. It does not go into details of shelter units.

The thesis scope is determined by the inquiry of knowledge as the research follows the connections continuously drawn between the Environment and refugees. The scope was determined by the steps emerging in the research process. Not the scope nor the steps were predetermined. The starting point (thesis question) led the way.

As to the natural environment, visits and descriptions of the forests are the extent of the research in the natural areas. These were derived from communication with researchers in Jordan. The nature of the soil and the techniques of planting natural areas are outside the scope of the thesis.

Literature search was carried out to create the background for the thesis work, both theoretical (rethinking the camps and designing for nature) and contextual (Jordan and Palestine). The parallel process of the Literature studies was conducted with specific intent on following the thesis question and creating the context for the study visit.



Map of Jordan (in white) adapted from UNHCR situation map Jordan.

Inquiries and observations

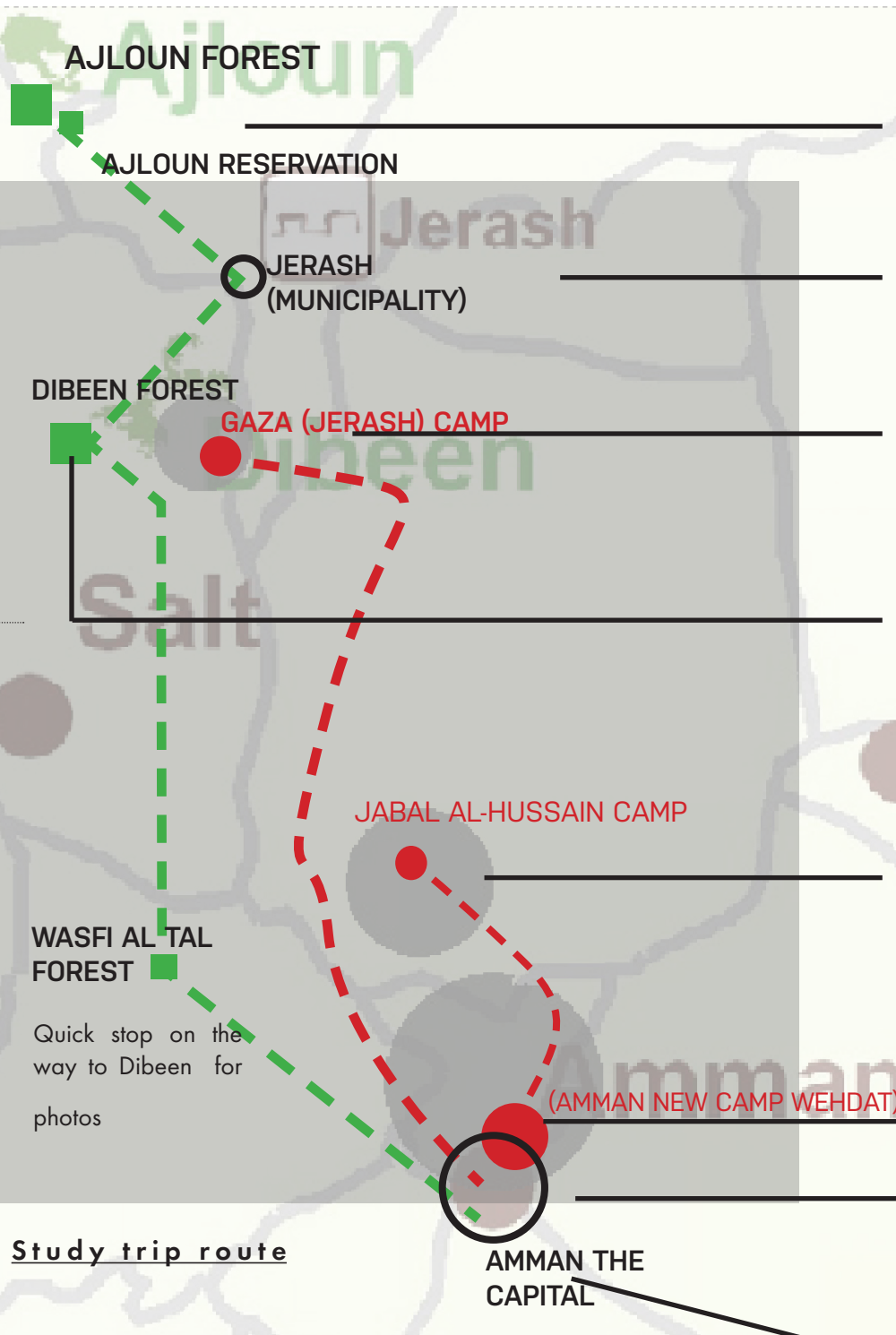
(During a study visit to a host country, Jordan)

Inquiry referring to what Abraham Kaplan in his book 'conduct of inquiry' (Kaplan, 1998, pp. 1-3) used to describe communications that are more general than specific

"interview techniques" as the steps of the research developed according to the findings of previous steps. It was more beneficial to have an open conversation with an expert or researcher that could lead to further literature search than it would have been to have a predetermined set of questions. Most conversations were off the record.

Developing a context-specific design strategy.

A strategy concerning the phases of emergency response for the re-imagined camp. By describing The phases and the stakeholders managing the different aspects. As a drawn connection between the defined "Environmental Consideration' and the development of the camp.



Visit to Ajloun forest and reservation guided by RSCN engineer Osama Al Hassan;

- Visiting the center, design and building guidelines in natural areas
- Visit to the lodges.
- Guided through the forest

Quick stop on the way to Ajloun

Visit and walk through Gaza (Jerash) camp:

- Picture documentation
- Impressions

-Exploring the Dibeena forest area (RSCN)

-Visiting the public park of Dibeena (RSCN)

-Circled the gazelle reservation hoping to catch a glimpse of one near the edges (not open for the public)

Drive through Jabal Al-Hussain camp

Walk through Wehdat camp

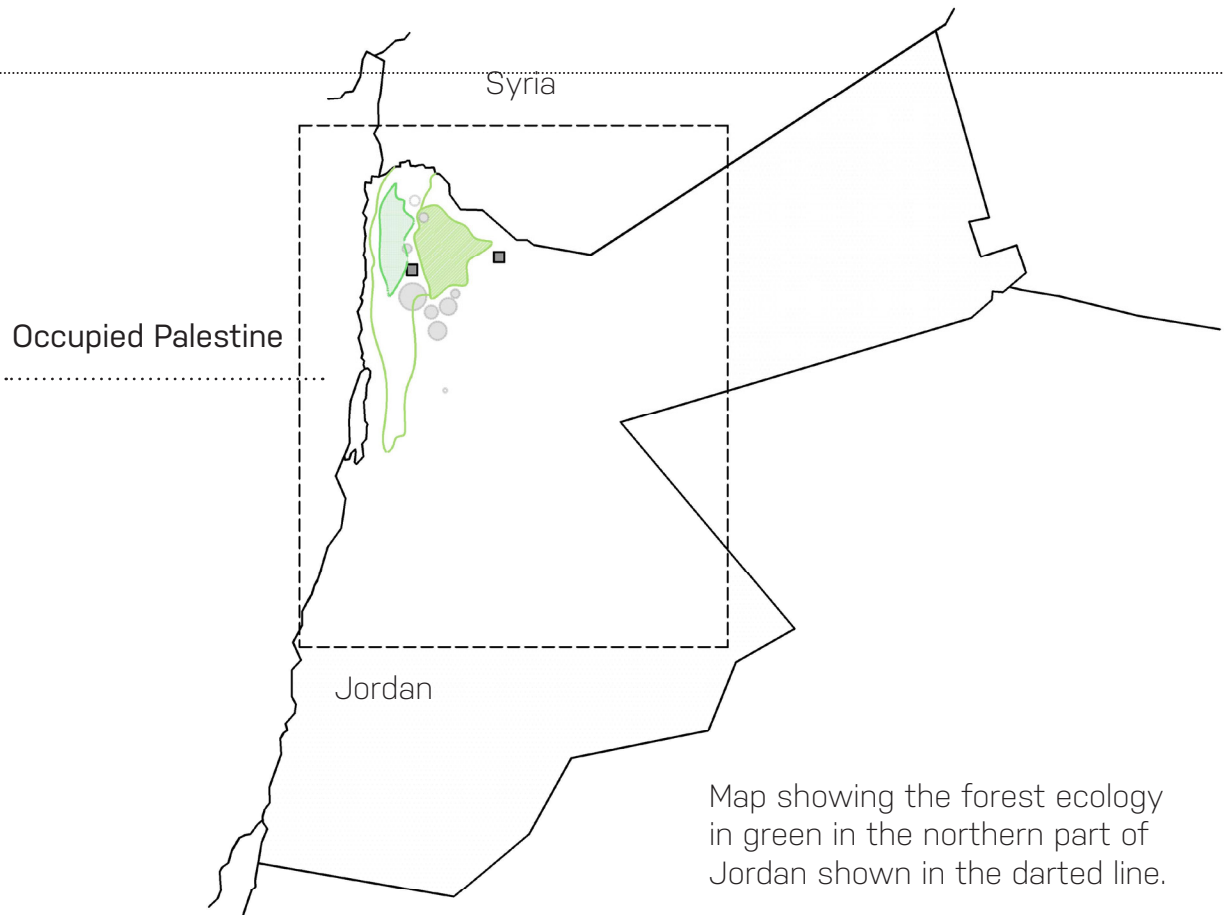
Visit to RSCN:

- Conversation with environmental scientist : Belal Al-Ayasrah , talk about the forests

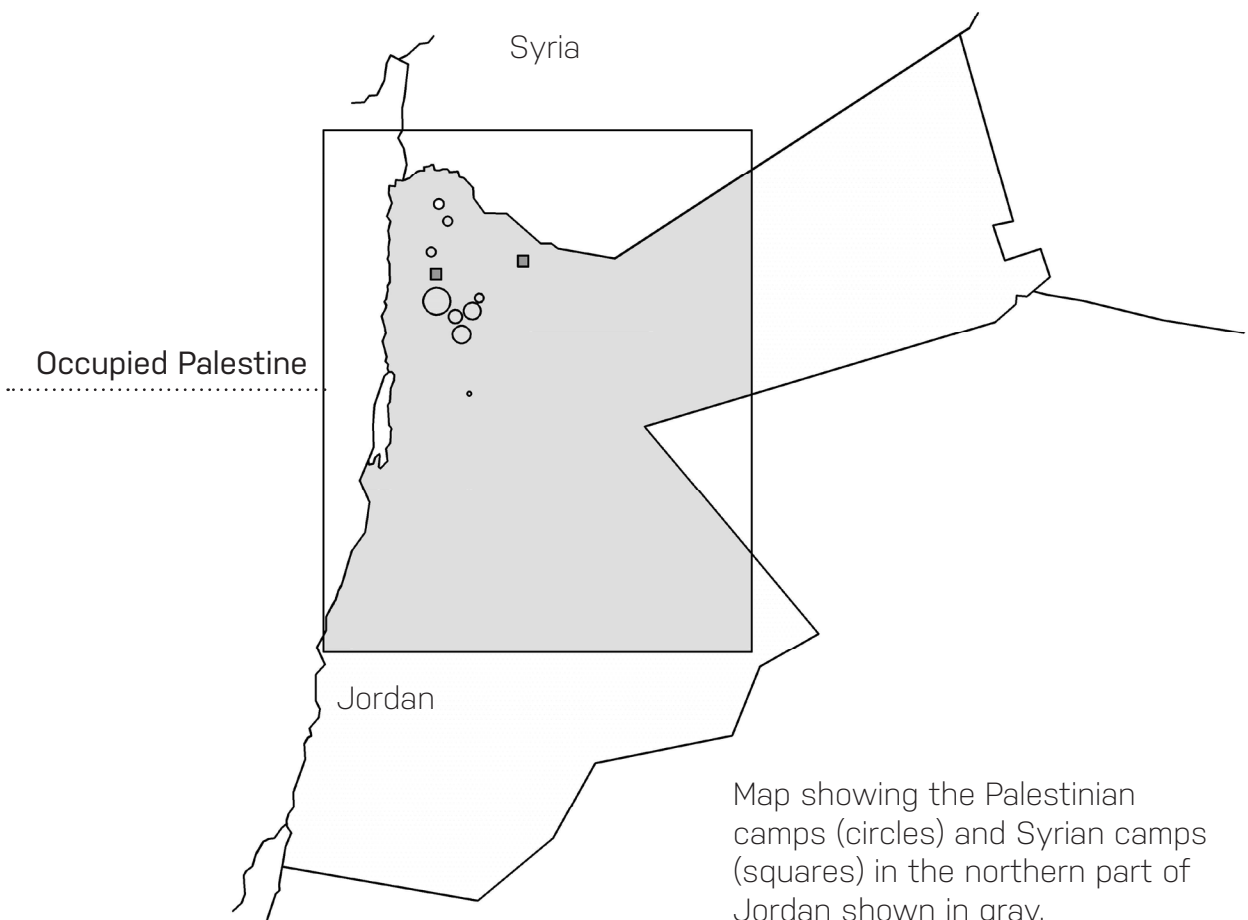
Visit to the university of Jordan:

- Conversation with prof. Maha Al-Hallalshe about the water situation in Jordan.

Map in background source: RSCN, obtained on study visit 2020.



Map showing the forest ecology in green in the northern part of Jordan shown in the dashed line.



Map showing the Palestinian camps (circles) and Syrian camps (squares) in the northern part of Jordan shown in gray.

3.1. A brief history of Jordan and Palestine

Jordan, as we know it today, gained its independence in 1946 soon after it became known as a refuge for the displaced. Beginning in 1948 with a surge of Palestinian refugees resulting from Al-Nakba in 1948.

“1948 was the year of the Palestine Nakba (Catastrophe), the uprooting of the Palestinians, and the dismemberment and de-Arabisation of historic Palestine. In the course of the 1948 war and immediate post-Nakba period, the name ‘Palestine’ was wiped off the map.”
(Masalha, 2012, P:1).

Over 2million registered Palestinian refugees live in Jordan. Most of which have Jordanian citizenship. 18% of the total Palestinian refugees live in 10 official camps throughout the country, and three unofficial . (UNRWA)

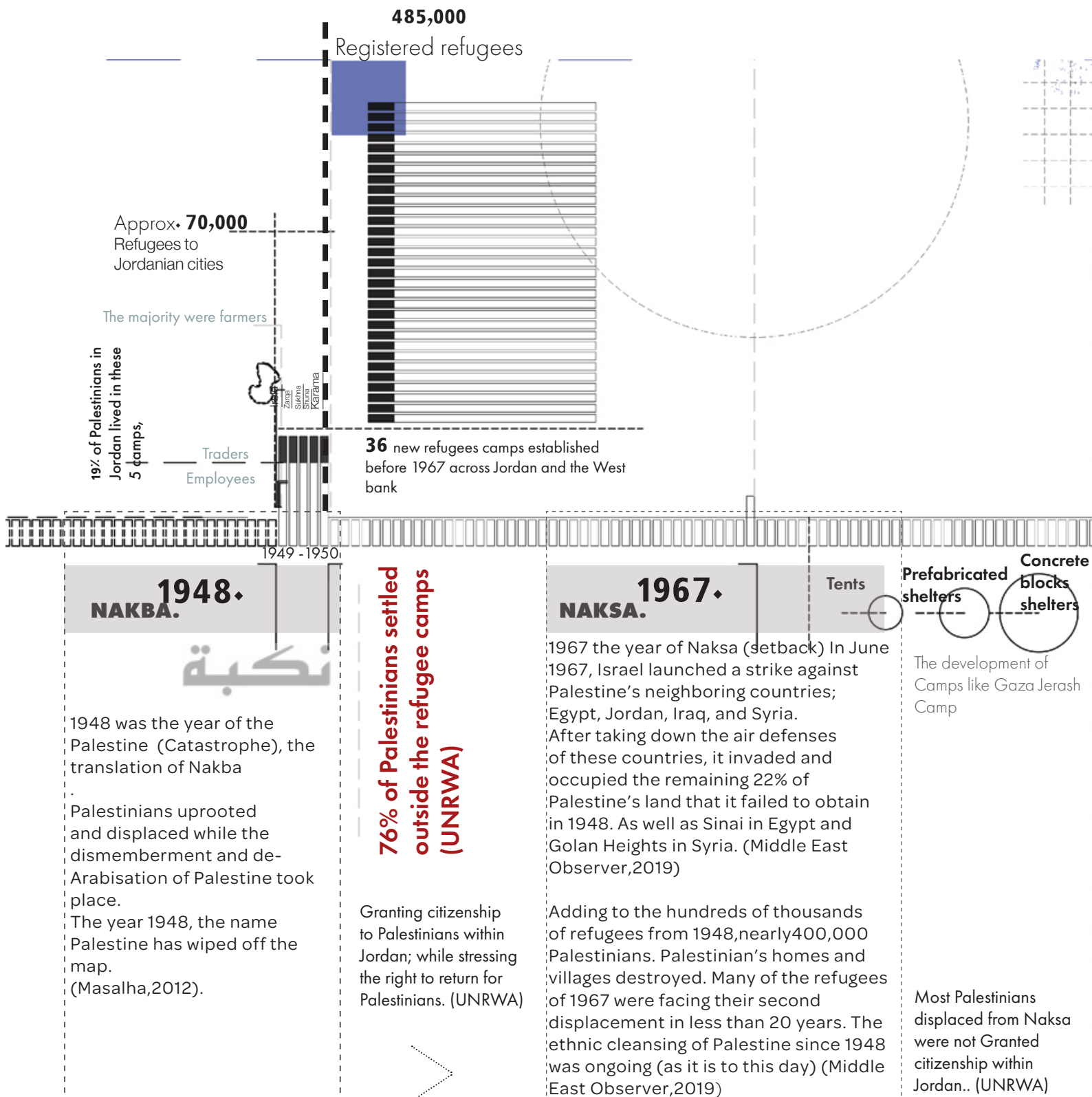
This makes Jordan a good example to study in terms of hosting refugees in camps that seem now, for me as a resident of Jordan , to be cities of displacement .

As part of my research. I decided to take a 10 day trip back to Jordan to visit certain refugee camps and meet with people concerned with the environment and the people of Jordan. In the coming sections we will take a closer look on the environmental issues facing Jordan and how these issues relate to displacement ad refugees.

The majority of the refugee camps are located i the northern part of Jordan close to the boarder of Palestine and Syria. The north west part is where the Mediterranean Forest ecology spreads. This part will be the focus of the study as it includes the two main interests in;

- Nature to be preserved
- Refugees as a resource

It is essential to understand the background of the Palestinian refugees coming to Jordan. To both understand their current state and their hopes of return. The specific status of this displacement is what this thesis builds upon as these refugees (mostly farmers) came to a country and stayed for decades waiting to go home. What legacy could they have left behind if their skills and activism were harnessed for the land which they hold most dear?



Figures and information on the diagram are obtained from the UNRWA website .unless stated otherwise.

Palestinian Narrative

The refugees are central to Ghassan Kanafani's narrative. Reading the stories that were inspired from real events witnessed by Ghassan himself helped me personally understand the progression and the full reach of destruction to lives of Palestinians after 1948. (Brehony, 2017) As it is not in the scope of this thesis to dive into the full history of the Palestinian struggle, referring to instances from Kanafani's work might help the the reader of this thesis with establishing the mindset for understanding the refugees, which this thesis draws on as an abundant resource for the environment they influence on their journey back home.

Kanafani was at the age of twelve when he went through becoming a refugee in 1948. He talks about his people forced to make a life for themselves in the camps. His stories describe the inevitable destiny that fell upon Palestinians as activists and freedom fighters in his book "the land of sad oranges " published in 1963. (Brehony, 2017) In Kanafani's letter to his son, he recounts the moment his son realized his identity as a Palestinian ;

"I heard you in the other room asking your mother, 'Mama, am I a Palestinian?' When she answered 'Yes.' a heavy silence fell on the whole house. It was as if something hanging over our heads had fallen, its noise exploding, then – silence. Afterwards...I heard you crying. I could not move. There was something bigger than my awareness being born in the other room through your bewildered sobbing. It was as if a blessed scalpel was cutting up your chest and putting there the heart that belongs to you. I was unable to move to see what was happening in the other room. I knew, however, that a distant homeland was being born again: hills, olive groves, dead people, torn banners and folded ones, all cutting their way into a future of flesh and blood and being born in the heart of another child.

Do you believe that man grows? No, he is born suddenly – a word, a moment, penetrates his heart to a new throb. One scene can hurl him down from the ceiling of childhood onto the ruggedness of the road" (Kanafani, 1963)



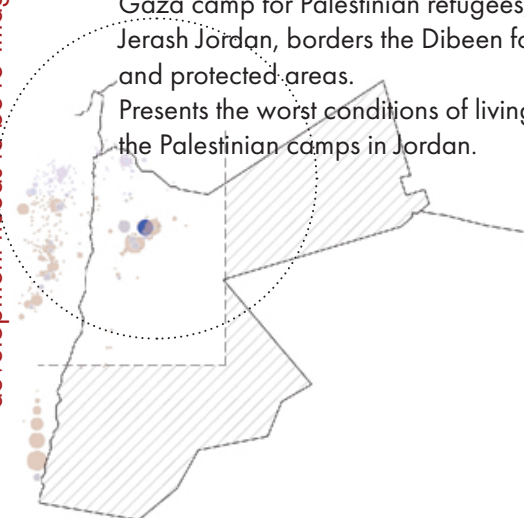
Poster By Hafez Omar Commemorating The Land Of The Sad Oranges (Image: Palestine Poster Project Archives)



the refugee camp has no space to grow, development needs to be re-imagined

To reach **5 m**illion Palestinians in the future

Gaza camp for Palestinian refugees, in Jerash Jordan, borders the Dibeen forests and protected areas. Presents the worst conditions of living in all the Palestinian camps in Jordan.



1.38 million refugees (WEIR, 2016)

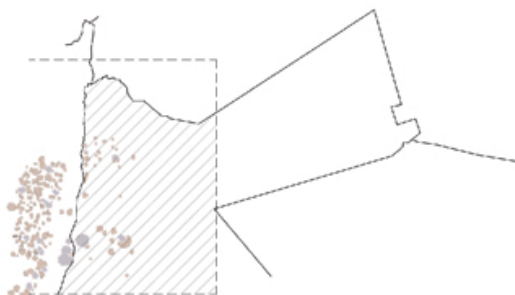
1.8 million sheep, goats, and camels (WEIR, 2016)

7.1 million hectares of range-land were grazed down rapidly (weir, 2016)

Forests and natural areas effected by population surges and urbanization

Continued population surges and urbanization 1968-1989

How important is the destitution of refugees in the fight for justice (as in the right of return, for example?)



Camps relocated away from borders further away from the borders with the Israeli occupation in coming years (UNRWA)

1990-1991 **GULF WAR.**

An oil-driven dispute between Iraq and the United States and its allies. For fear of the threats Iraq posed to the oil reserve in Saudi Arabia after its invasion of Kuwait. United States and NATO rushed troops to Saudi Arabia. The allied coalition formed against Iraq launched an offensive on Jan 1991. (The Editors of Encyclopaedia Britannica, 2020)

Figures and information on the diagram are obtained from the UNRWA website unless stated otherwise.

Out of the total exiled by the occupation of Palestine, 90% were driven out of their lands (Masalha,2012)

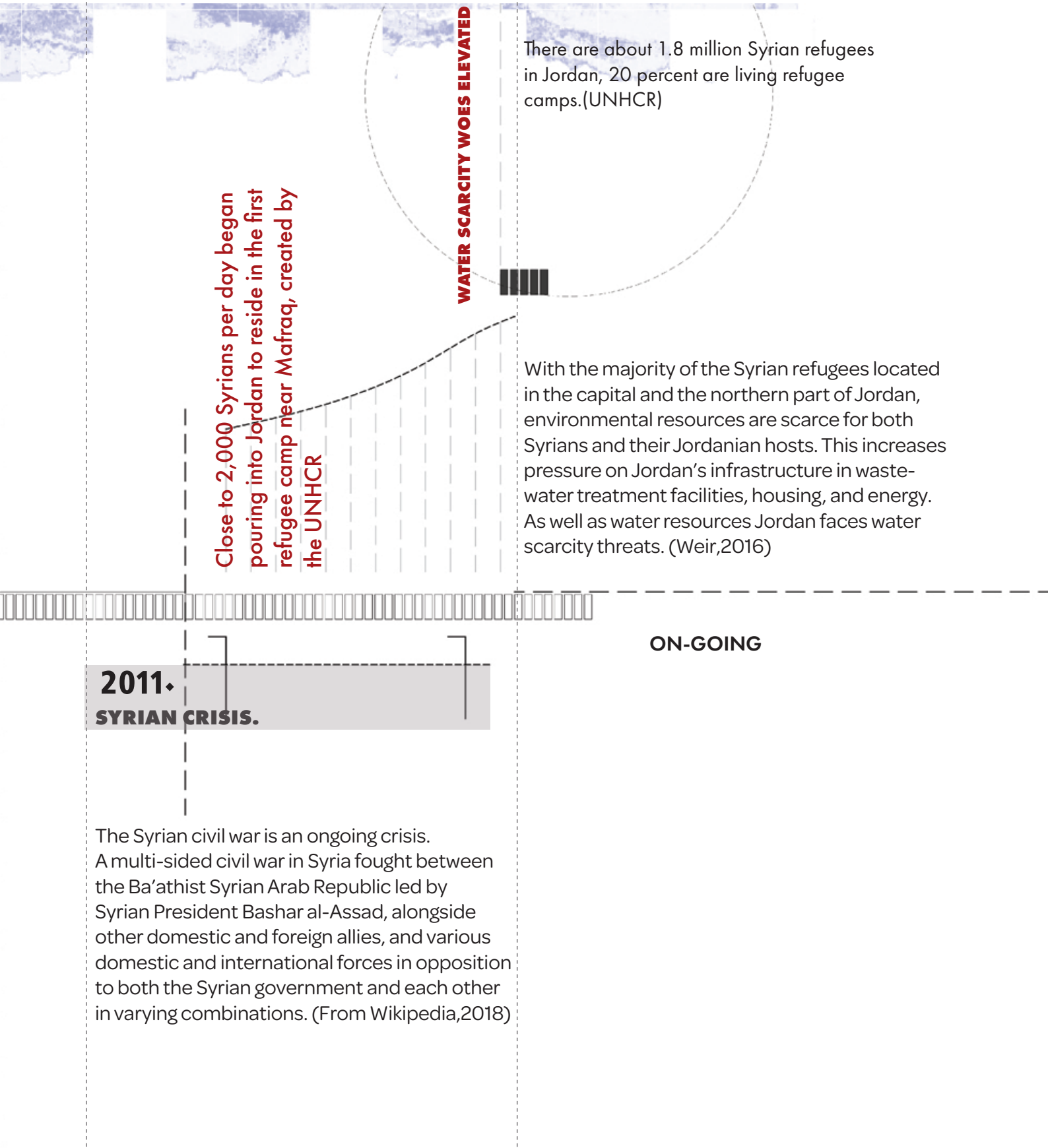
as the naturalization of Palestinians coming into Jordan in 1948 happened almost immediately while still asserting the 'right of return.'

The Palestinian refugees driven out in 1967 as a result of the six-day war, most of which displaced twice already, were not given the Jordanian citizenship.

They remain until this day in limbo as they and the Jordanian government hold on to their temporary state and assert it as they call for their return to Palestine. (O'Toole, 2014)



The Search by Ismail Shammout ,1970 ©
Collection of Palestinian Posters Nominated for the
UNESCO Memory of the World



Figures and information on the diagram are obtained from the UNRWA website unless stated otherwise.

The Palestinian displacement offers a unique situation in both the political and historical aspects, as well as giving an insight into what it means to live in a temporary state for 72 years. But as the event line continues, we see the displacement from the gulf war that had devastating effects on the natural areas in Jordan. The event line sadly extends to include the Syrian dispute that has resulted in a continuous population surge across the Jordanian- Syrian border to this day.

This asserts what was mentioned before that displacement is in our future whether from climate change-related disasters or from political disputes and wars. This motivates re-thinking emergency response and further asserts the need to consider the natural environment as it is continuously affected by our disputes and displacement.

3.2 Three forests in Jordan;

This section offers a glance at three forest located in the northern part of Jordan, explaining their importance to Jordan.

Jordan has many different ecologies, the one in focus spreads across the north and comprises the majority of the land cover forests of the country.

Wasfi al Tal forest, 1973.

During a study visit to Jordan in February 2020, I visited Wasfi al-Tal forest on the way to Jerash. While it is not directly part of the scope of the thesis it is worth mentioning what can be learned about this human-grown forest.

During a discussion with RSCN researcher Bilal Ayasrah, the example of wasfi al-Tal as a forest that is unable to grow and spread further than the trees initially planted starting in 1973, due to the soil type not supporting the growth of the seeds from the growing trees.

While the forest as it is today, is a commendable project, that has many benefits. Mr. Belal argues that for the forest to prosper and support undergrowth a different kind of vegetation should have been planted.

(Personal communication with BilalAyasrah, nature researcher in plants, RSCN).



Wasfi al Tal forest, 1973. (photo taken by author, site visit, february 2020)

Dibeen Forest and Reserve



Photos from Dibeen forest, taken by author during study visit in February, 2020

Dibeen forest is home to the natural reserve established by the Royal Society for the conservation of nature (RSCN) in northern Jordan in 2014. Expanding over an area of 8.5 square KM. Covered in pine-oak Habitat (*Pinus halipensis*-*Quercus calliprinos*).

The **Aleppo Pines** in Dibeen (some of the oldest in the Jordan) are the southerneast geographical limit of this forest type in the world. (RSCN, 2015)

Further significance lies in Dibeen being one of the best remaining examples of the original pine-oak forest cover in the region,

it moreover supports 17 threatened species (such as the Persian squirrel) and other types of biodiversity of global significance. (RSCN, 2015)

Concluding from this, the vital role of the forest in supporting wild life. The land shows the potential of the regions pine-oak cover as a naturally growing forest which furthers the hope this area could expand if conditions are favorable. fostering this hope to reserve and expand the forest is a main focus in this thesis.

The entire forest that is over 60 km squares. Spreading over steep slopes supports a distinct under-canopy as well. (RSCN, 2015)



The reserve contains three main stand types in the core area, distributed according to the altitude as follows:

According to RSCN website

“- lower elevations, **Aleppo pine** (*Pinus halepensis*) are the dominant species.

- Middle elevations; a pine-oak species prevail (*Pinus halepensis* / *Quercus calliprinos*)

- In the higher altitudes, the dominant species are oak with small stands of deciduous oak (*Quercus infectoria*) on the uppermost slopes.

-Some of the other tree species in the forest; wild olive (*Olea europea*), Strawberry tree (*Arbutus andrachine*), pistachio tree (*Pistachia palestina*) and; the ground flora including several orchid species is exceptionally rich as well. “ (RSCN, 2015)

Concluding from the visit to Dibeen and the research is the importance to support the preservation and expansion of this forest. Aleppo Pine being the dominant species of tree cover is a point of focus for the thesis in achieving the goals of supporting this forest.



Dibeen Forest Reserve map , courtesy of RSCN, obtained on a study visit to Jordan in February,2020

Ajloun Forest Reserve

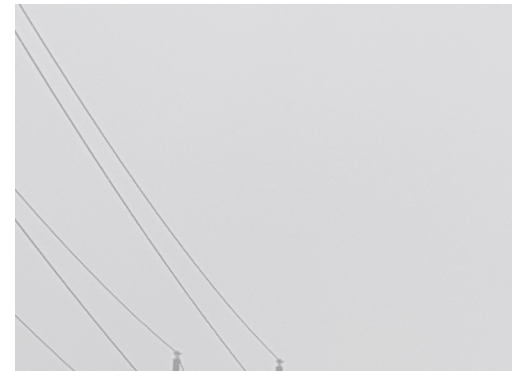
In my research visit to Jordan in February of 2020, I was fortunate enough to get a walk through the Ajloun forest reserve. Visiting the Eco-lodges, and the forest rangers academy. Guided by RSCN engineer Osama Al-Hasan, he overlooked the construction of RSCN projects on the reserve and around it.

Ajloun Forest seems to present a great example in the development of a natural area reserve; through RSCN's captive breeding program to support the natural biodiversity in their natural habitat (as the Roe Deer) on the one hand, and raising the awareness of the local community around it, and succeeding in creating cooperative initiatives between the reserve and the people living around it. (RSCN,2015)

Established in 1987, covering an area of 13 km square and located in the Ajloun highlands north of Amman (capital of Jordan). Reaching in altitudes ranging from 600-1100 m above sea level. (RSCN,2015) The forest importance lies in multiple factors:

-Ecological importance as part of the Mediterranean bio-geographical region. It is dominated by open woodlands of evergreen vegetation type, making it a significant portion of the forested area in all of Jordan, (which does not exceed 1% of the country's land). (RSCN,2015)

Thriving tree cover consisting of; Evergreen Oak *Quercus calliprinos*, Carob *Ceratonia siliqua*, wild Pistachio *Pistacia Palaestina*, and Strawberry tree *Arbutus andrachne*. The land cover to the local people is significant for its medicinal and nutritional value and as a source of food and wood. As well as supporting a collection of wildflowers. (RSCN,2015)



-Biodiversity habitat. As mentioned RSCN's report on Ajloun:

*"The woodlands also support a wide range of plant and animal biodiversity, including herds of wild boars *Scrofa*, the Stone Marten *Martes foina*, which is a carnivore that is known to be restricted to forest habitats. the Golden Jackal *Canis aureus*, which can still be found in good numbers in and around the reserve, as well as the Red Fox *Vulpes vulpes*, Striped Hyena *Hyaena hyaena*, Persian Squirrel *Sciurus Anomalus*, Indian Crested Porcupine *Hystrix Indica*, and wolf *Canis lupus*."*

-(RSCN, 2015)



Photos of Ajloun Forest taken in February 2020, by the author during study visit to Jordan

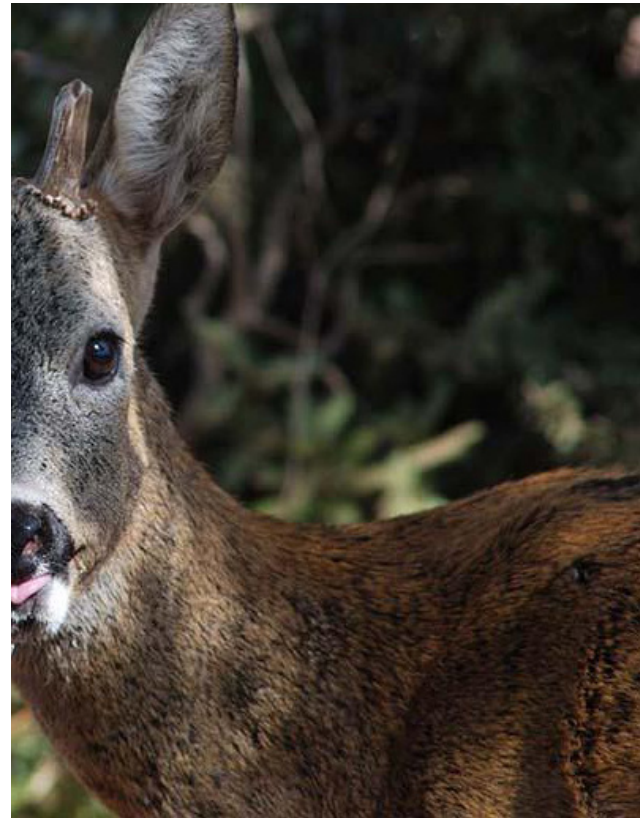
Ajloun Forest Reserve

During our conversation eng. Osama Al-Hassan explained the importance of following specific guidelines for building in a natural reserve. As an example, pointing to the eco-lodges elevated from the ground as not to disturb the land cover and habitats, as well as incorporating sustainable waste treatment systems for projects with site-specific solutions studied and weighed by the consultants and the researchers of RSCN.

As we walked over to the Academy that was on the hill facing the Eco-lodges but outside the limits of the reserve, he explained that the site was extremely disturbed by human activity as it was a quarry.

A decision was made to keep the human-made cut in the mountain and have the visitors walk over the cut on a bridge to the building as to bare witness to the effects of humans on the land. The interior of the Academy reflects the thought process of the architect and RSCN, in conservation. as you step inside, the eye immediately travels upwards to the skylight layered with stone quarry waste left on site. (Personal communication, 2020)

The Royal Academy for nature conservation, the first of its kind in the Arab world, was established in 2010. Its role is to train and educate in nature conservation and ecotourism. it supports the functions of the reserve and utilizes the reserve in return for on-site training. (RSCN,2015)



The Rou Deer in Ajloun forest Reserve, target of captive breeding program by RSCN. Source :Wild Jordan online gallery, 2015



Ajloun Eco-lodges , located within Ajloun Forest Reservation, built by RSCN
Source :Wild Jordan online gallery, 2015



Ajloun Royal Academy for Nature Conservation , located on the borders of Ajloun natural reservation, built by RSCN and Designed Architect Ammar Khammash

(Photo taken by author, study visit, February 2020)

3.3 Refugees and the environment in Jordan

During the study visit to Jordan to find a case study, I took advantage of the accessibility to local experts, and I would strike up a conversation whenever I managed. Through discussions with the Royal Society for the Conservation of Nature (RSCN) people and researchers from the University of Jordan, I asked about refugees and their connection to the environment, how they influence and are influenced by the natural context of Jordan.

The content of the following section was prompted by those conversations, directed by some personal communication with several researchers in Jordan, several articles follow that describe the connection between refugees and the environment.

An article published in 2016, on theecologist.org, titled "Jordan grapples with environmental consequences of its refugee crisis," (Weir, 2016) explains the effects the recent population surge (from the Syrian conflict) of refugees has influenced the environmental issues in the country.

Falling in line with the purpose of this thesis, the article points out the importance of addressing the population surges' impact on the environment during the planning of emergency response. Even though the urgency is in humanitarian response, including the environment as an afterthought has proved to pose severe threats to the already strained environmental situation in Jordan. (Weir, 2016)

Threats to the environment in Jordan:

- . Desertification (loss of forests and land cover)
- . Climate change (mostly in draughts and water scarcity)



Wasfi al Tal forest, human-grown forest in 1973.
(Photo taken by author, site visit, February 2020)

The article goes on to mention the previous instances in history where Jordan took-in refugees and explains further how “Environmental impacts are escalated by population surges “ example: 1991 gulf war. 1.38 million refugees(mainly herders) came through the border bringing with them 1.8 million sheep, goats, and camels. As a result, 7.1 million hectares of rangeland were grazed down rapidly.

This led to habitat destruction of many natural species living around these areas. (Oryx, Gazelle, and Caracal). 160 million dollars were allocated for the restoration of these range-lands, but that is a long process of recovery.

About the environmental impact of more than 1.5 million Syrian refugees in Jordan, of which 638633 are registered. Three issues have been flagged nationally:

- . Land and resource degradation.
- . Deterioration of air quality
- . Hazardous waste management.

In addition to the more localized impacts from the formal refugee camps and informal settlements. For example, the effects of Al-Zaatari Camp as it is located on one of the largest aquifers in Jordan (seen in; Water scarcity section).

In the section titled ,Main-streaming the environment in response and recovery, the article mentions the efforts to respond to the situation by establishing “a national response platform, bringing together different stakeholders”. (Weir,2016) The response platform published an environmental assessment that puts mainstreaming environmental factors into refugee projects at the forefront, through:

- Conducting environmental risk assessments on all refugee projects
- The use of clean technologies
- The use of alternative income generation to alleviate the impacts on the natural resources.
- National waste management and environmental capacities to be strengthened.

Water Scarcity

“As Jordan is finding, a failure to fully integrate the environment into humanitarian response carries with it risks not only for public health and environmental quality but also political risks, as host communities face rising costs due to competition over natural resources.”
(Weir,2016)

During a discussion with prof. Maha about the location of Al-Zaatari refugee camp she explained that the camp is located close to the borders as an emergency response strategy of offering people aid as soon as possible. The camp, however, ended up being located on top of one of the largest water Aquifers in the country. Although it managed to secure the water needs for the growing population of the camp, it imposed an added strain on a country already suffering from water scarcity without offering a long-term solution. (Kerttula, 2019)

The other point she mentioned was the environmental impact on the water management infrastructure. As the camp established waste-water collection tanks that go through the national waste-water treatment facilities.

(Personal communication with professor Maha Halalshe a professor and researcher at the University of Jordan. Water, energy and environment centre during my study trip, unpublished,2020)

The discussion prompted further research in the case of the growing Syrian camp and water scarcity.



In an article titled 'Climate change, refugees worsen Jordan's water woes: Scientists" by Chris Arsenault as he writes about a recent Stanford University report on climate in Jordan.

The report confirms high pressure on the water management infrastructure in Jordan as numbers of Syrian refugees displaced in Jordan increase. Evident through: The number of droughts and their durations in Jordan are expected to double in the period between (2071-2100). and further more through the effects this displacement has on agriculture and food security on the one hand, and desertification on the other hand . (Arsenault,2017)

The article mentions the country's Future solutions:

- Desalinate water from the Red Sea (future project)
- Improving water management infrastructure.

(Chris Arsenault commentary on a Stanford University report, 2017)

A Syrian boy fills water jugs in Jordan's sprawling Zaatari refugee camp. [Photo source; UNHCR Jordan]

Written in the picture is 'I love you' in Arabic.



4.1. Understanding the Camp

4.2. Environmental Considerations

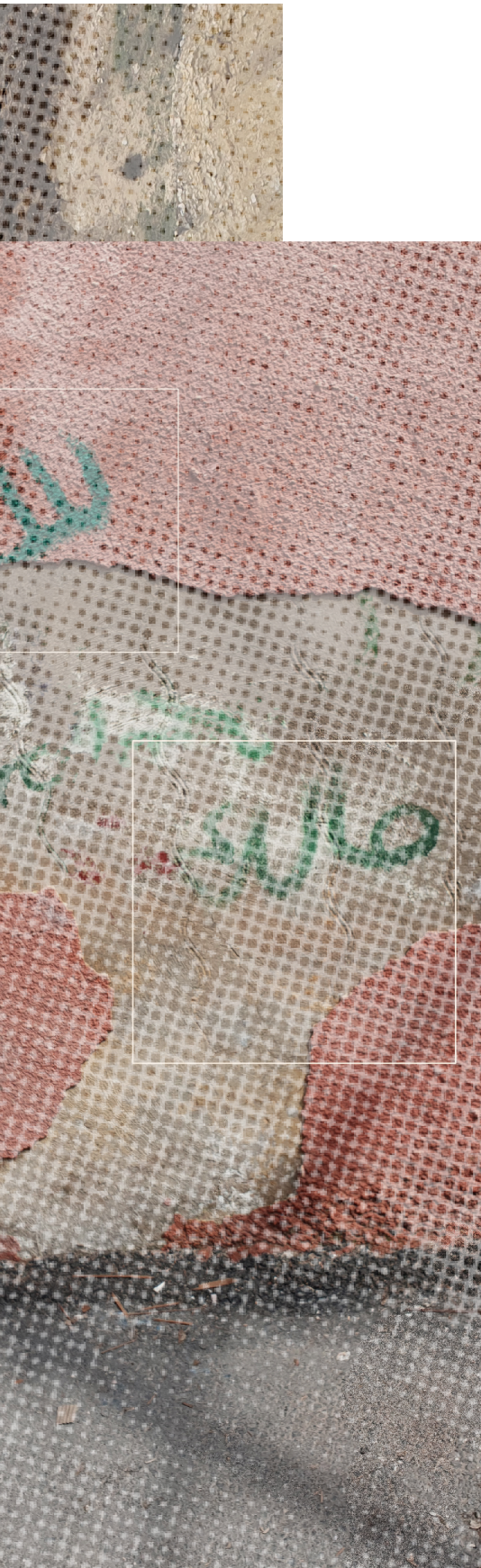


Gaza Camp as seen from Dibeen forest , picture taken and edited by author, 2020

As a conclusion of my study visit to Jordan. The study of the forests and the specific environmental consideration Jordan defines as crucial. The case study chosen in Gaza refugee camp and Dibeen forest. Offering an opportunity to connect the needs of the camp's human inhabitants, to the needs of the forest and its inhabitants in applying the environmental considerations crucial to both components of the case study: the Camp and the Forest.



Gaza Camp, picture taken and edited by author, 2020.



Understanding the Camp

- Gaza camp, established 1968, is the most destitute among the ten Palestinian refugees in Jordan. attributed to the background of the refugees coming after 1967 and not granted citizenship. Which enforced many limitations to their life in Jordan, in terms of employment and ownership. Starting with 11,500 Palestinian refugees grew now to 29,000 registered refugees living in Gaza Camp. (UNRWA) This situation specific to the people of Gaza camp contributed to the decision to choose the camp for the case study.
- In the period between 1968-1971, tents were replaced with prefabricated shelters (asbestos sheets) to be replaced later by the inhabitants with concrete shelters, many of which still have corrugated Zinc and asbestos sheet roofs. (UNRWA). Understanding the phase of the camp is crucial to understanding the phases of the emergency response.
- Gaza Camp covers an area of 0.75 square km (UNRWA). It is a distance of 5.2 km from Dibeen Forest. Although closer to stretches of woodlands scattered along the forest borders. The proximity to this forest of ecological significance to Jordan is another contributing factor for choosing the camp for the case study.

The Camp selected

- Gaza (Jerash) camp
 - Located in Jerash /Jordan
 - Established by UNRWA in 1968 as a result of a refugee surge after the six-day War (al-Naksah,1967)
 - Set on land rented for the UNRWA for 99 years.
-

The People

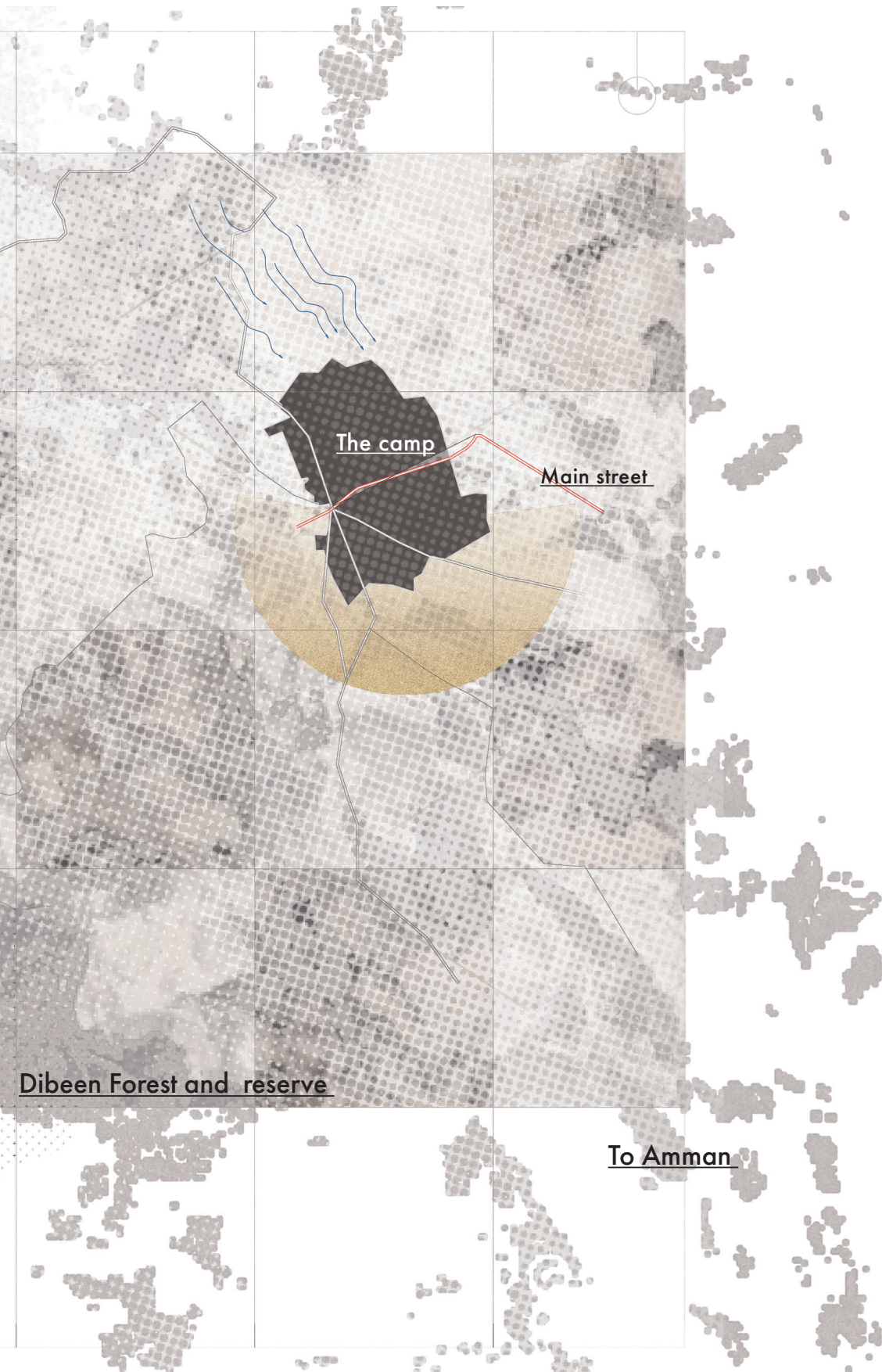
As previously discussed, the situation of the people as not having the Jordanian citizenship means they cannot work in the public sector and will need special permits to work in private sectors. Furthermore, not having accessibility to professions that require memberships in syndicates. These limitations contribute to the poverty of the camp. (Nakba. Amnesty international,2019)

In December 2018, the Government of Jordan decided to allow the heads of the families of the Palestinian refugees to own property and land not exceeding 1 acre (4046,86 meters). As to help alleviate the dire conditions of this. (Nakba. Amnesty international,2019)



Gaza Jerash camp. Source: From an article for the independent "Jordan's Palestinian refugee camps" by Paddy Dowling, 2018.





Stakeholders

Due to the complexity of the Camps situation, the governance over the camp is a complicated matter. 4 main bodies are involved in Gaza Camp:

- The Jordanian Government; through the Department of Palestinian affairs. (DPA) (security and governance)
- UNRWA; The United Nations Relief and Works Agency for Palestine Refugees in the Near East.
as the leading humanitarian organization. (Shared governance, schools and health center..)
- NGO's and individuals; providing further humanitarian aid and initiatives for the camp inhabitants.
- The local municipalities close to the camp, one of which Jerash.
(Information concluded from multiple UNRWA reports)

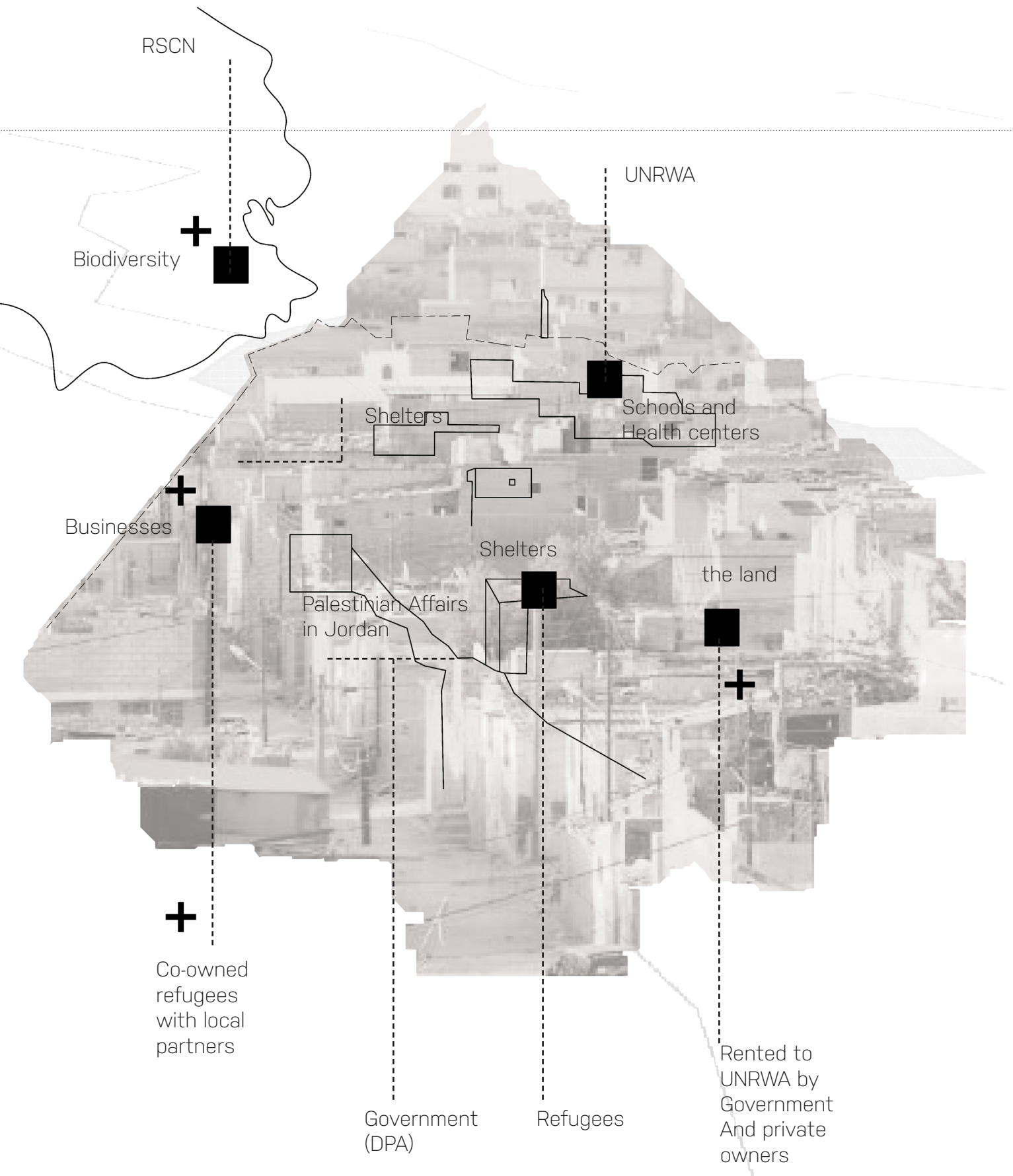


Image showing the Stakeholders inside and outside of the camp border (represented with the colored portion). produced by author

Multi-Stakeholder approach and environmental consideration

Including nature as a stakeholder, in considering what legacy and effect the camp can have on the forest and protecting it. The host country's environmental issues are taken into account when planning and developing the camp. Refugees as a main stakeholder can assume an active role in providing their own food security as was mentioned in the chapter 2, most of Palestinian refugees were farmers and this could be considered a main asset. As the people in this particular camp are not allowed to work in Jordan.

UNRWA and other NGO's have been hoping to adopt a new approach towards camp planning (see chapter 1) they hope to support the empowerment of refugees, and providing funding to plans that encourage the permanence of the development of the area the camp is in.

The considerations overlap naturally as they all work towards a better environmental outcome in the camp and a more active role for the refugees.

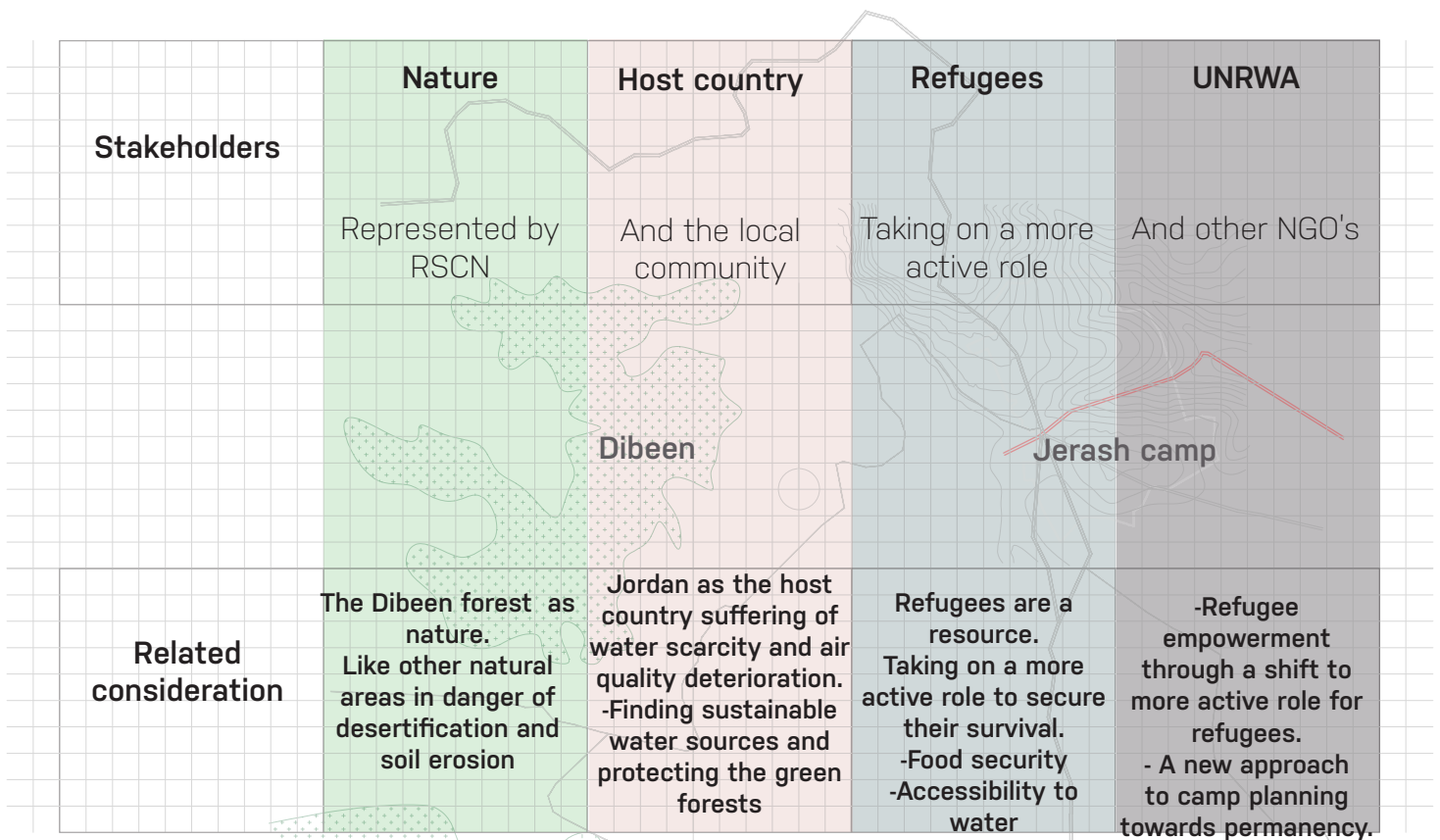


Diagram showing the Stakeholders to be included in the re-imagined process of designing the camp.

Considering the special case of Jerash Camp and the Palestinians Right of Return the future of the refugee camp would be, in concept, the Legacy of what the Palestinians leave behind for Jordan, its' people, and its' environment when they go back home.

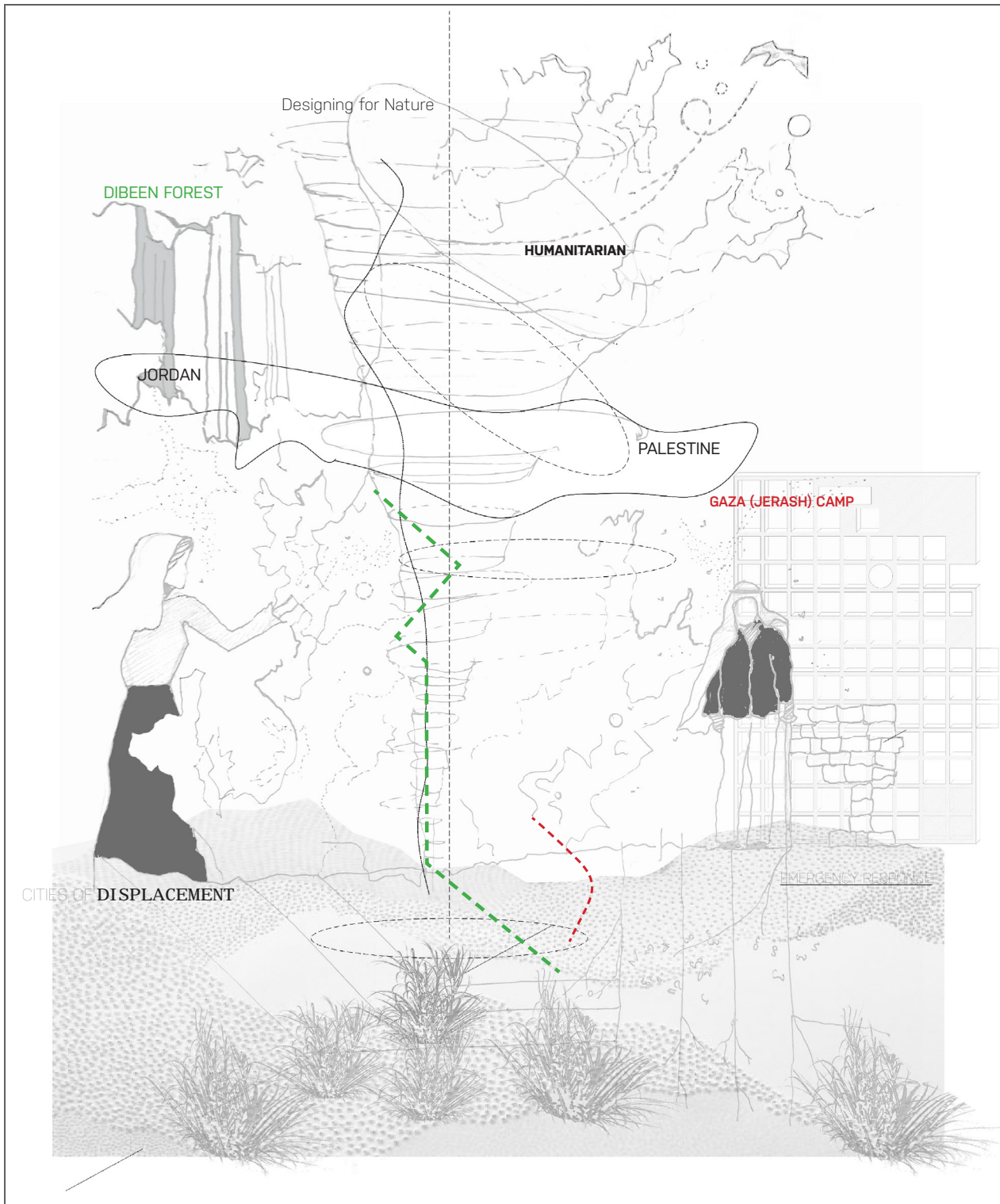
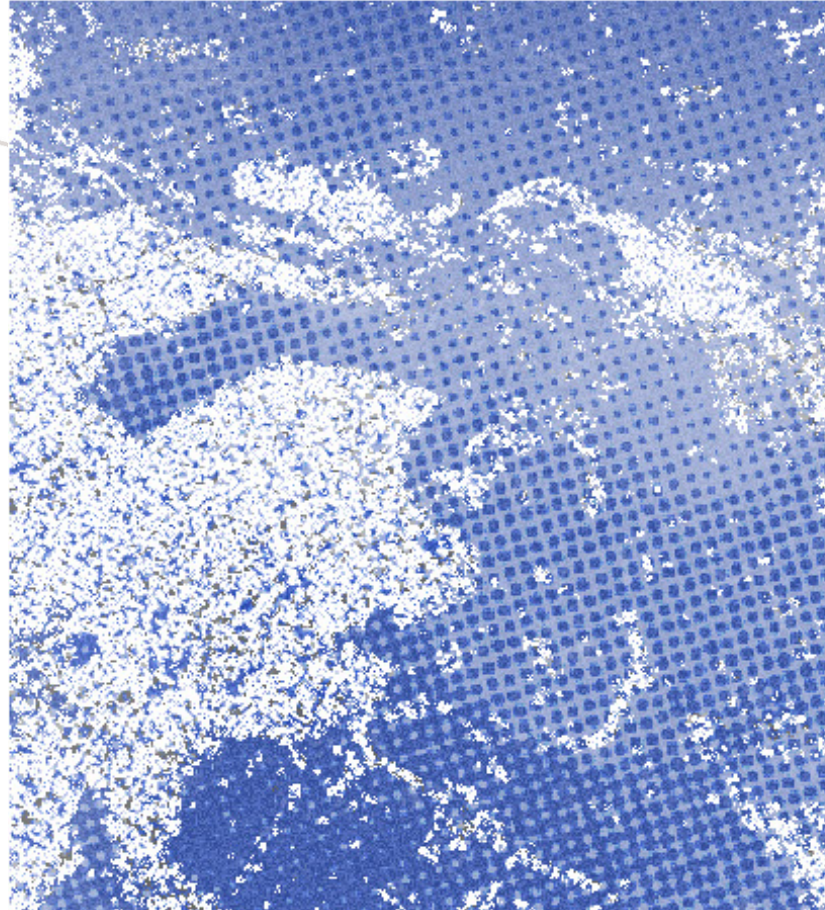


Image : An attempt to reflect the complexities concerned in the camp and the Palestinian situation by the author.

Environmental Considerations



In the Images the white areas are the woodlands and natural forests of dibeen, the darker blue color on the map is the Gaza refugee camp.

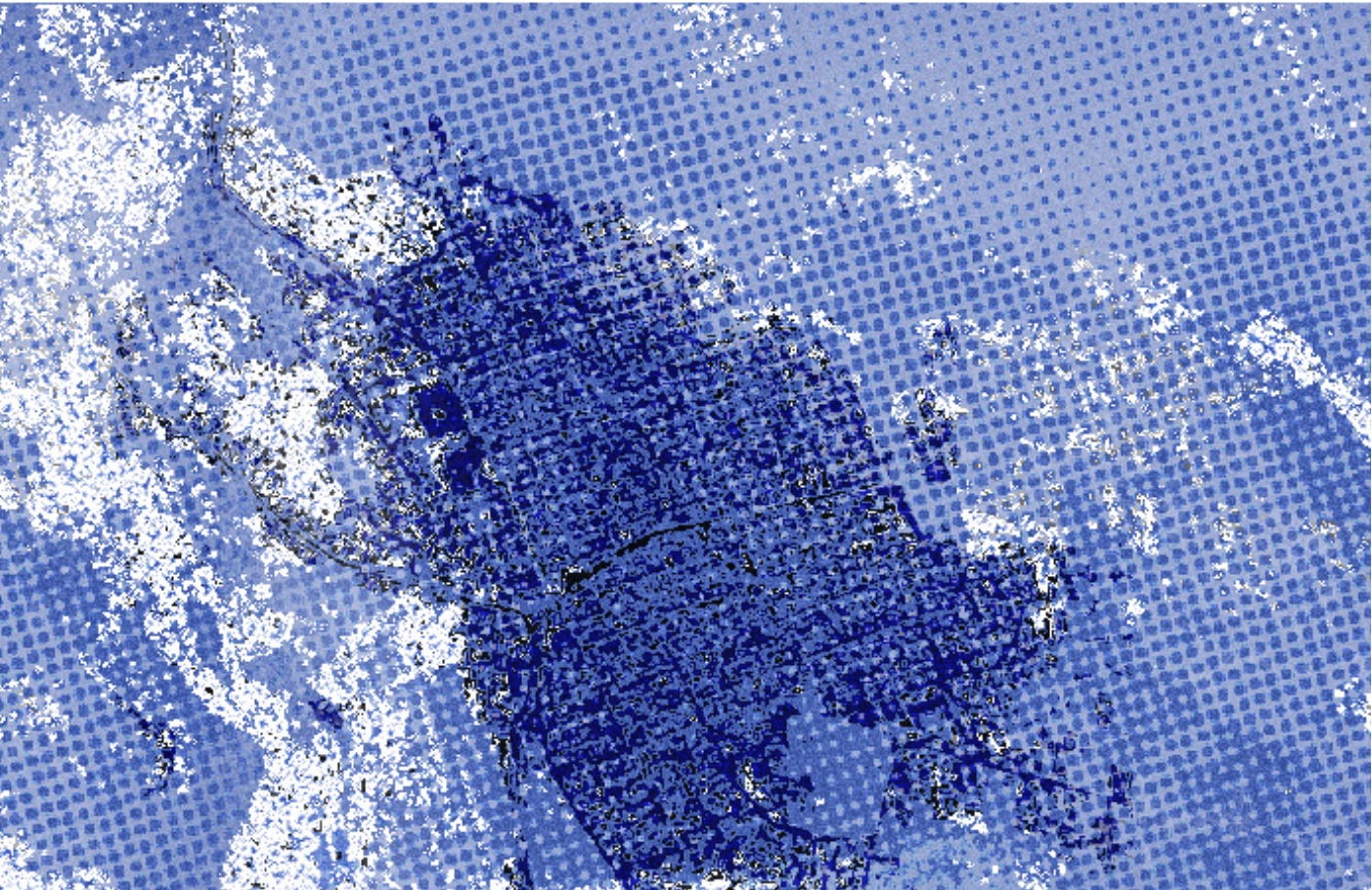


Dibeen Forest

As previously discussed, Dibeen forest's ecological importance as an Aleppo Pine natural area, with biodiversity that needs to be protected, such as the Persian squirrel making these forests home, among many others.

The considerations here are:

- To preserve the continuity of the forest as one of Jordan's prevailing issues is the desertification and deforestation of forest areas. (Weir,2016)
- Raising awareness of the local communities towards the forest and biodiversity. Gaza Camp being one of these communities.



Gaza Camp

Considerations for the camp and the people aligns with the considerations of the whole country in concern over:

- Water scarcity
- Air quality degradation
- Wastewater management.

Bringing these considerations for the two components of the case study forward into the design stage as I will attempt to include the combined interests of humans and nature.

Gaza Camp:

Roofing

Most roofs in the camp till this day have are temporary, some still containing asbestos.

View from the Camp

South views as seen from the slope in the north part of the camp.

Roads

Other that the main streets, the roads are mainly used for pedestrians



Gaza Camp, picture taken and edited by author, 2020.

Electricity

What can be done about energy ?

Gaza Camp;

Drainage pipe

When infrastructure is an after thought. As the refugee camp turns into a city needs arise.

Water is valuable,

Water storage tank, elevated on concrete bricks, placed by the entrance



Gaza Camp, picture taken and edited by author, 2020.

5.1 Concept

5.2 Strategy

The Project

From what was collected on the Camp, I gained insights into the Camp's growth and development organically way inside the structure of the limitations.

Things to work with:

the plot area, the ownership of the land, the nature of people's connection to their temporary state, and the proximity of the Camp to the natural forest of Dibeen.

The project will be an attempt to re-imagine the Camp, with all the knowledge we know now.

Thesis question;

How can environmental considerations made in the planning of emergency response have an effect on empowering refugees while combating climate change?

Dibeen forest as seen from the narrow roads in the camp



Gaza Camp, picture taken and edited by author, 2020.

Inspiring remnants;
Re-imagined as a high fenced courtyard with an integrated steel support for re-fabricated unites



The unit shelters reflect the permanent -temporary state of living in Gaza camp

Concept

the concept for the project is to re-imagine the camp planning at present. The project begins with Refugees from Palestine, mostly farmers, crossing the border and located in an area close to a natural forest. What would the planning of the camp consider?

Combining the knowledge gained so far about:

- The people, as temporary residents, not granted citizenship and living without rights with only hopes towards their future and their return.

- The environmental considerations of the camp and forest.

- Stakeholders in the area. The stakeholders will play a role in the phases of planning the camp and assume responsibility to different parts of the zones.

We take the next step into the strategies.

1st Strategy:

Defining the elements that mandated the growth of the camp as it is today. These will remain fixed aspects of the planning as they initially shaped the camp. They are also elements that go beyond the scope of this thesis and are connected naturally to the area and the number of refugees.

- The roads

The main road (east-west) going through Gaza (Jerash) camp connects the city of Jerash to the forest of Dibeen. It is a lively street. Passing through it in a car, one could feel like a visitor passing through a private area, acting as a distinct intersection in the camp's area.

A local road is connecting to villages north-west. Set along the western part. (UNRWA, 2015) this road acts more like a border between the camp and privately owned lands.

The eastern part seems to be growing outside the limits of the camp borders as an urban area with villages along the main road between Jerash and the Camp. (observations from study visit by the author, 2020)

- The Plots

The site is relatively flat to the area around it, except for the hill in the north part. The camp's tents, erect on an 8*12 m plot for each family, were replaced with 2000 shelters of prefabricated asbestos in the period between 1968 and 1971. (UNRWA, 2015)

Plot given to refugees
12M*8M

There are narrow passages
between the plots parts of
which were later taken into the
plot

The built units mostly contain
an open indoor courtyard

Keep the narrow passage as
part of the plot essentially by
building the limit wall parallel to
the 12m and turning the indoor
paved courtyard into a planting
plot surrounded with perforated
screen walls.

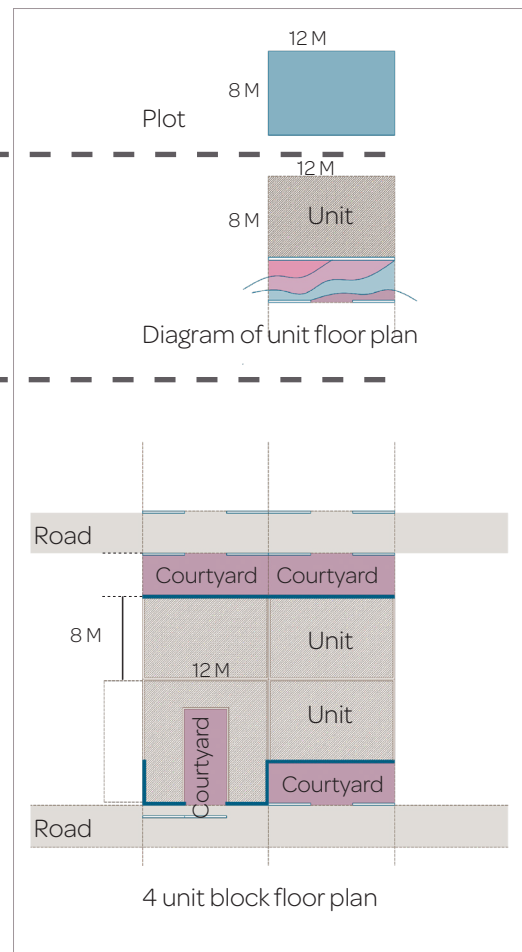


Diagram showing the initial plot given to refugees (in plan view) and some experimentations and additions done by the author.

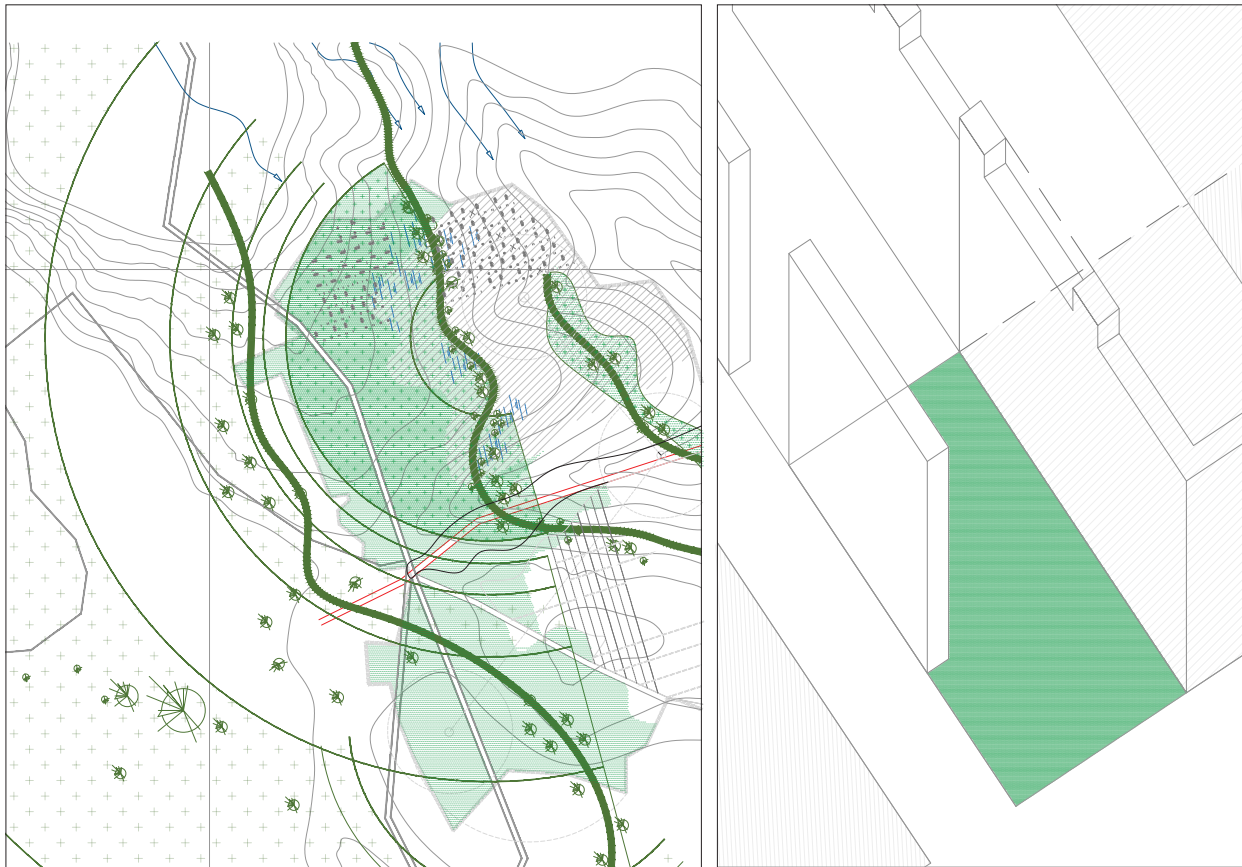
2nd strategy

For the second strategy we identify the consideration and the respective stakeholder, and suggest applications to meet the needs that arise from considering the environmental issues. Leading to Breaking the area of the camp into different zones connecting to the context and the set of considerations.

What does the forest need?

-The biodiversity zone, including the RSCN as stakeholders at this point. Their involvement would be crucial, As they are among the current stakeholders of the Dibein Forest reserve. This zone will act as a protection layer for the forest and the biodiversity, which could be implemented in the camp along the west side closest to the natural area and where no urban growth from the camp has extended. The zone will provide a planted area of Aleppo pine to increase land cover to fight desertification.

This zone will meet considerations for humans, in combating climate change by increasing the dwindling vegetation of Jordan and improving Air quality.

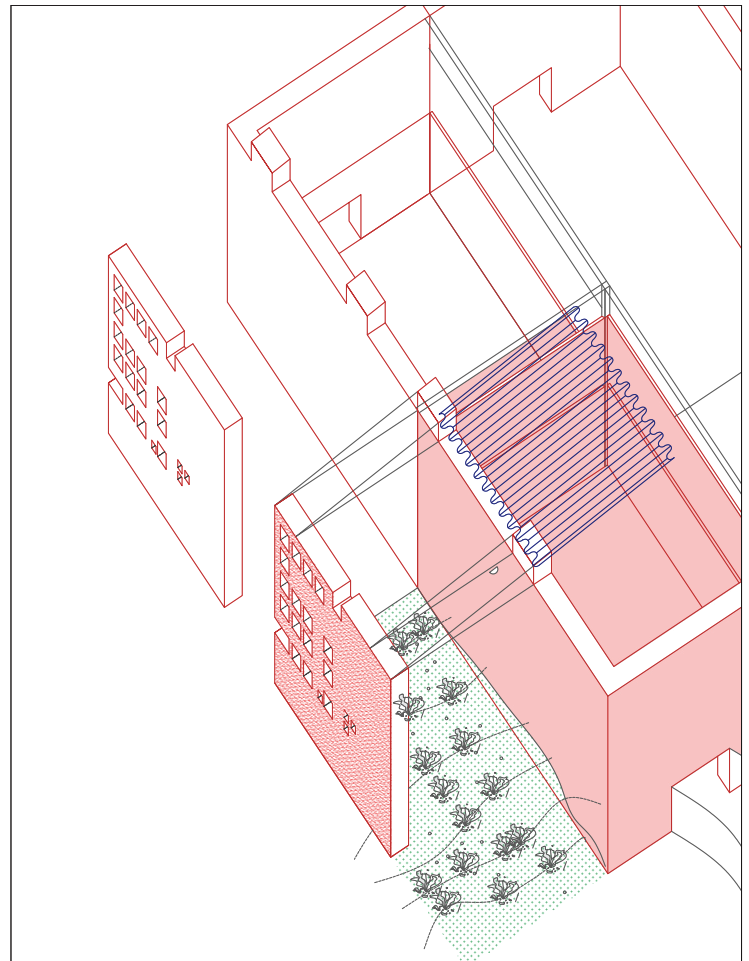


Images showing the plans for the biodiversity Zone, on a camp Scale (Right) and on a Unit scale (left).

What do the people need?

-The Energy Production Zone; to alleviate the living situation of the refugees in water scarcity and energy and food production. This area will contain water collection points to collect rainwater. Sun cells (photo-voltaic) cells to be installed and managed and owned by the Government rented to UNRWA as this clean energy production would benefit the county's environment.

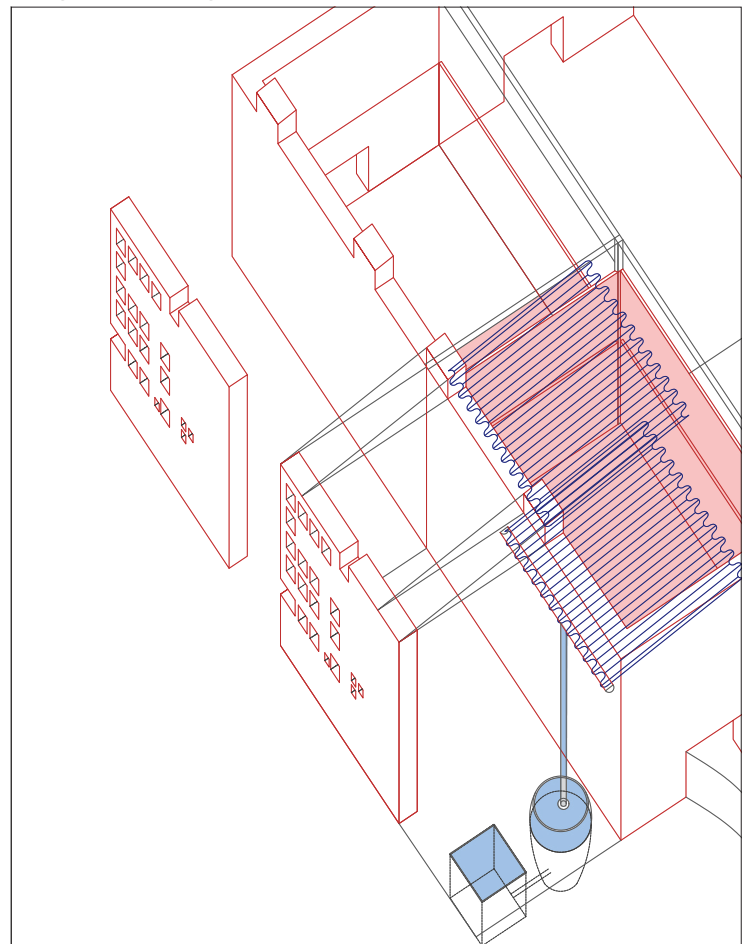
- The expertise of the refugees as farmers would come into play by assign a planting plot to each housing plot in the camp, with regulations against paving the extra plot.



Images showing a view in a food production unit.

What does the country need?

- The Urban zone; The rapid urbanization caused by the population urges (discussed in the background chapter) has put higher demands on the infrastructure and the housing sector. To the southeast of the camp, with the urban growth beyond the borders, it is ideal for the more permanent facilities of infrastructure, such as wastewater treatment as an area that is expected to witness more urbanization. (Observations from study trip by the author, 2020.



Images showing a view in a rain water collection unit.

The Plan For The Zones

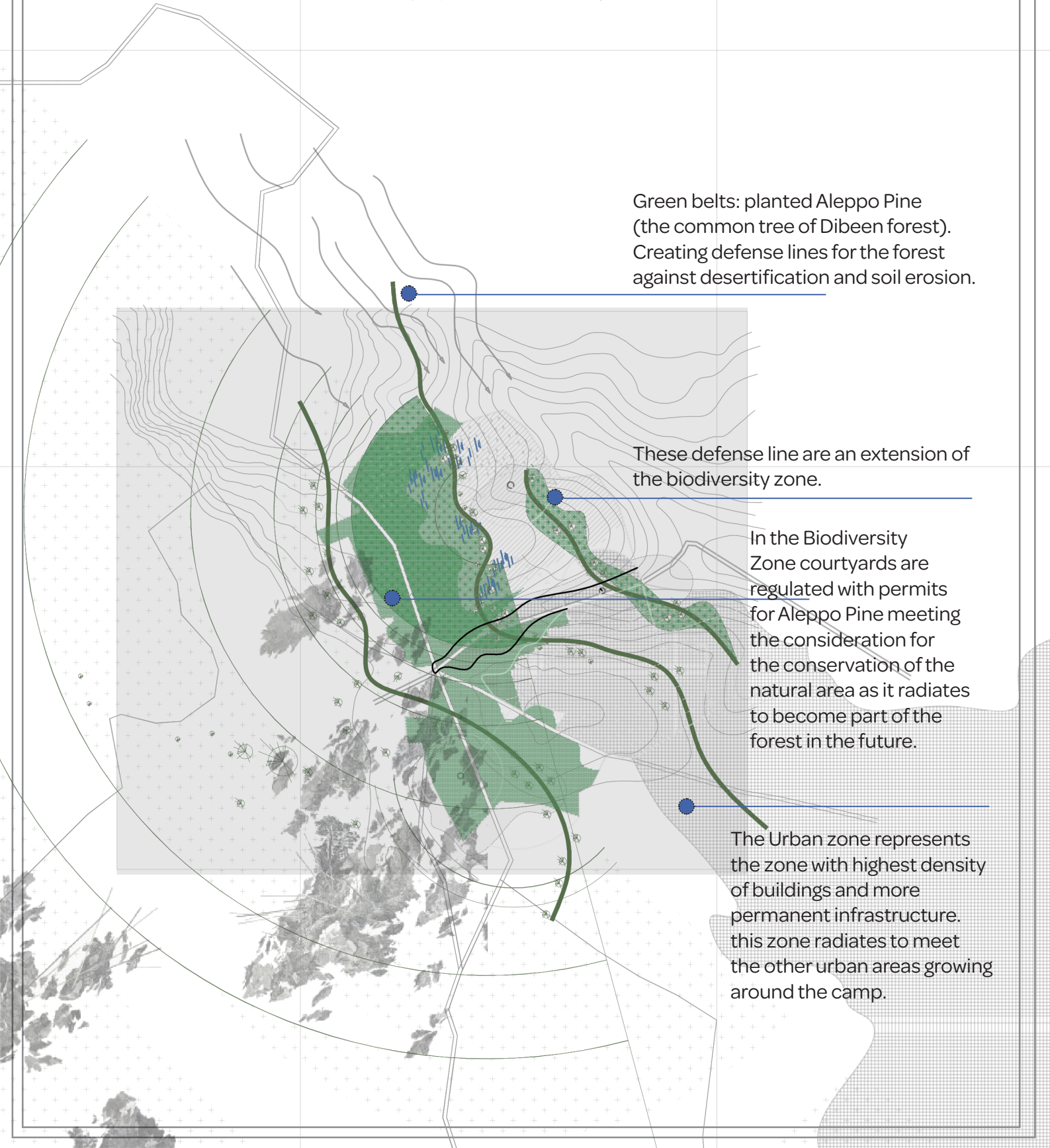
With the urban growth beyond the borders, it is ideal for the more permanent facilities of infrastructure, such as wastewater treatment as an area that is expected to witness more urbanization. (Observations from study trip by the author, 2020).

Green belts: planted Aleppo Pine (the common tree of Dibeen forest). Creating defense lines for the forest against desertification and soil erosion.

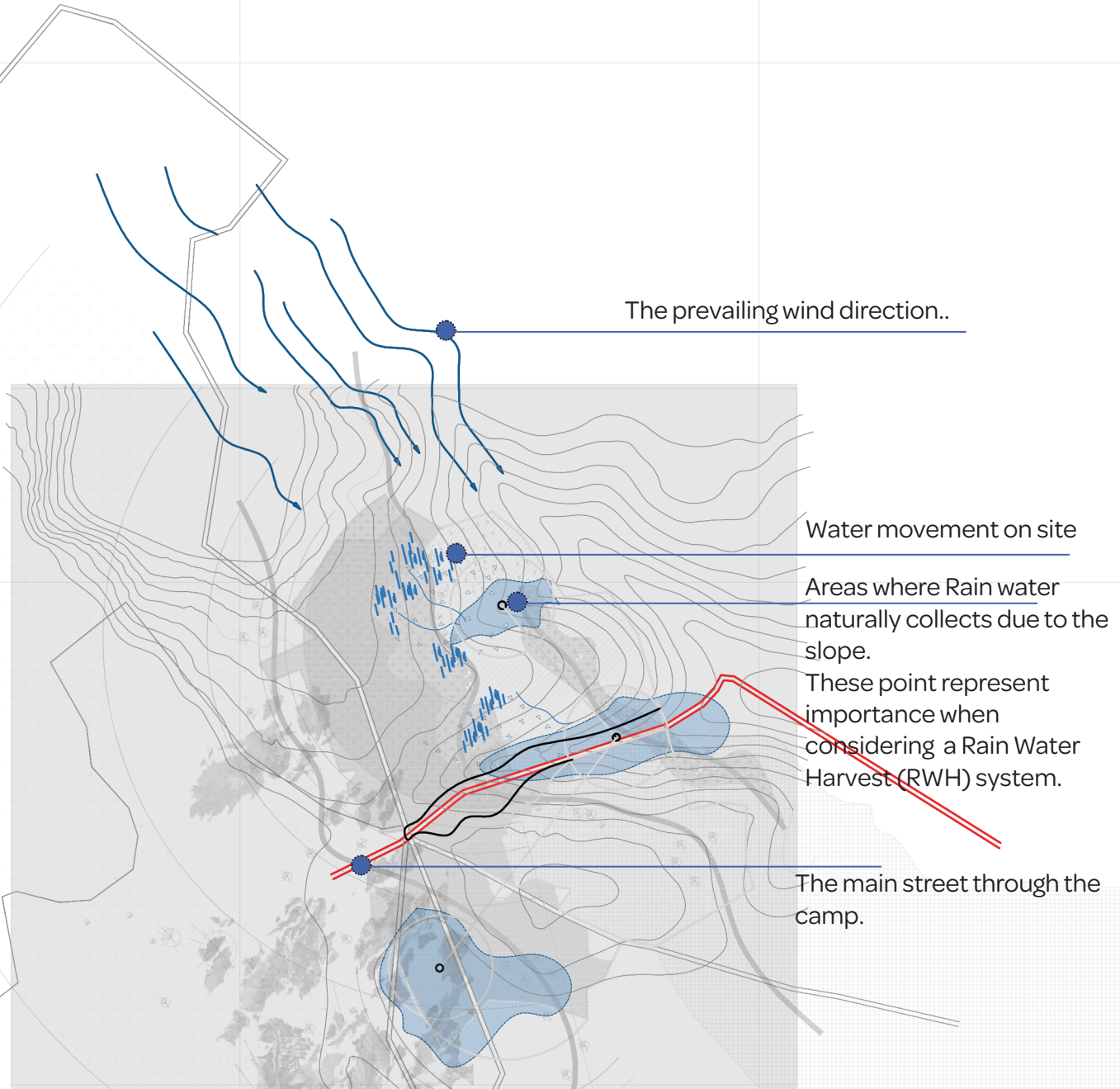
These defense line are an extension of the biodiversity zone.

In the Biodiversity Zone courtyards are regulated with permits for Aleppo Pine meeting the consideration for the conservation of the natural area as it radiates to become part of the forest in the future.

The Urban zone represents the zone with highest density of buildings and more permanent infrastructure. this zone radiates to meet the other urban areas growing around the camp.



Water movement on site



The prevailing wind direction..

Water movement on site

Areas where Rain water naturally collects due to the slope.

These point represent importance when considering a Rain Water Harvest (RWH) system.

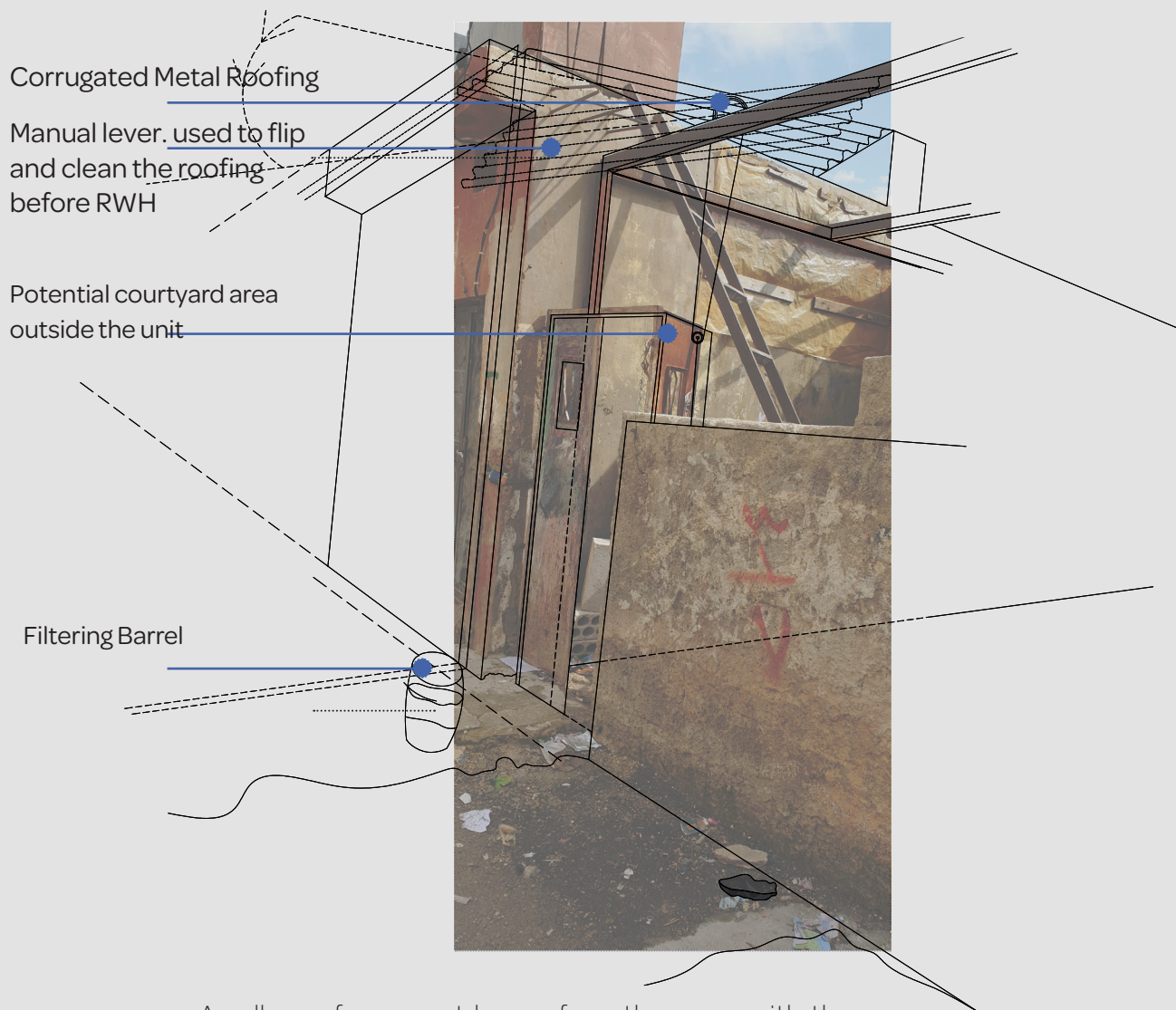
The main street through the camp.

Chapter 6:

Design

6.1 Building Typologies

6.2 Phases

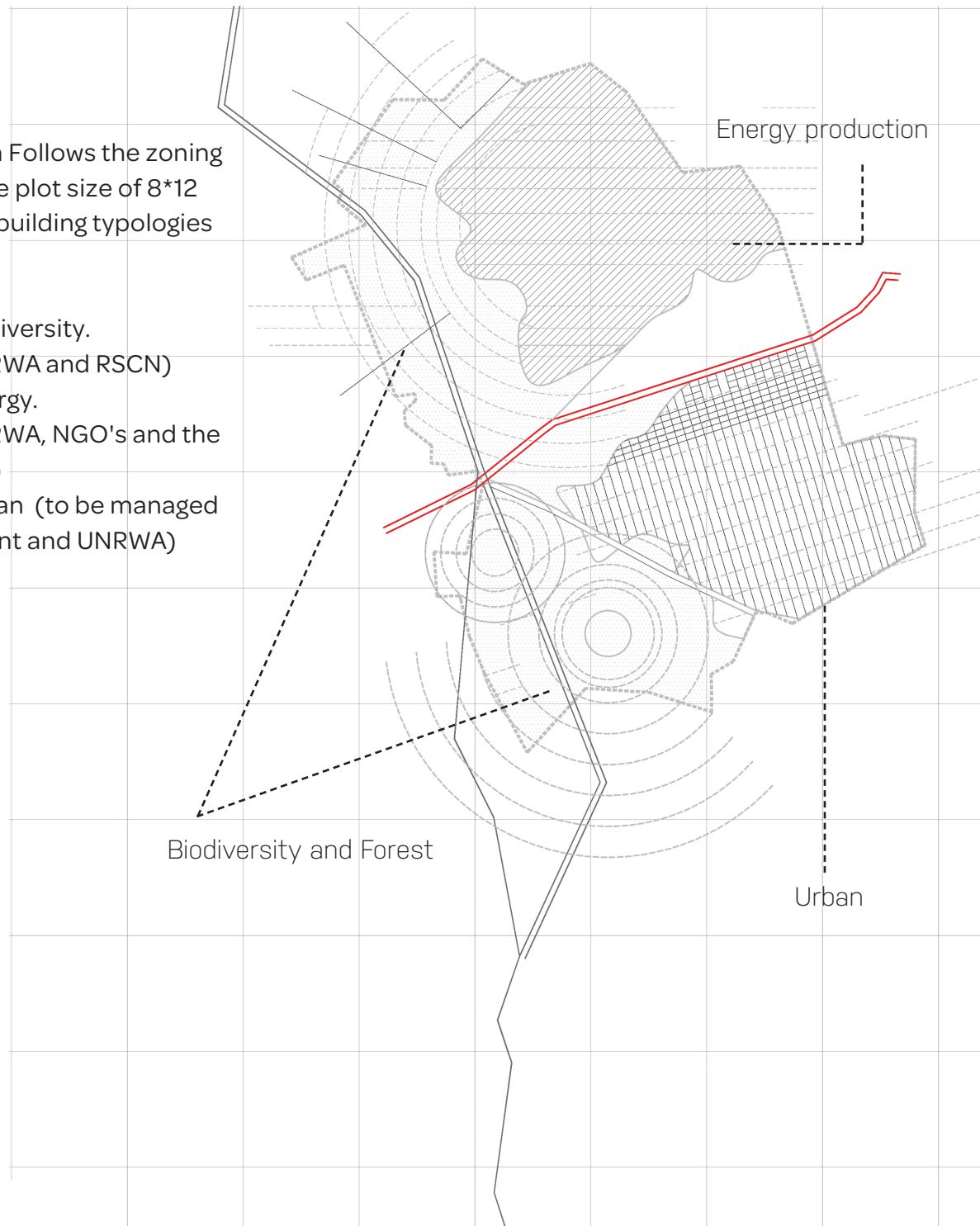


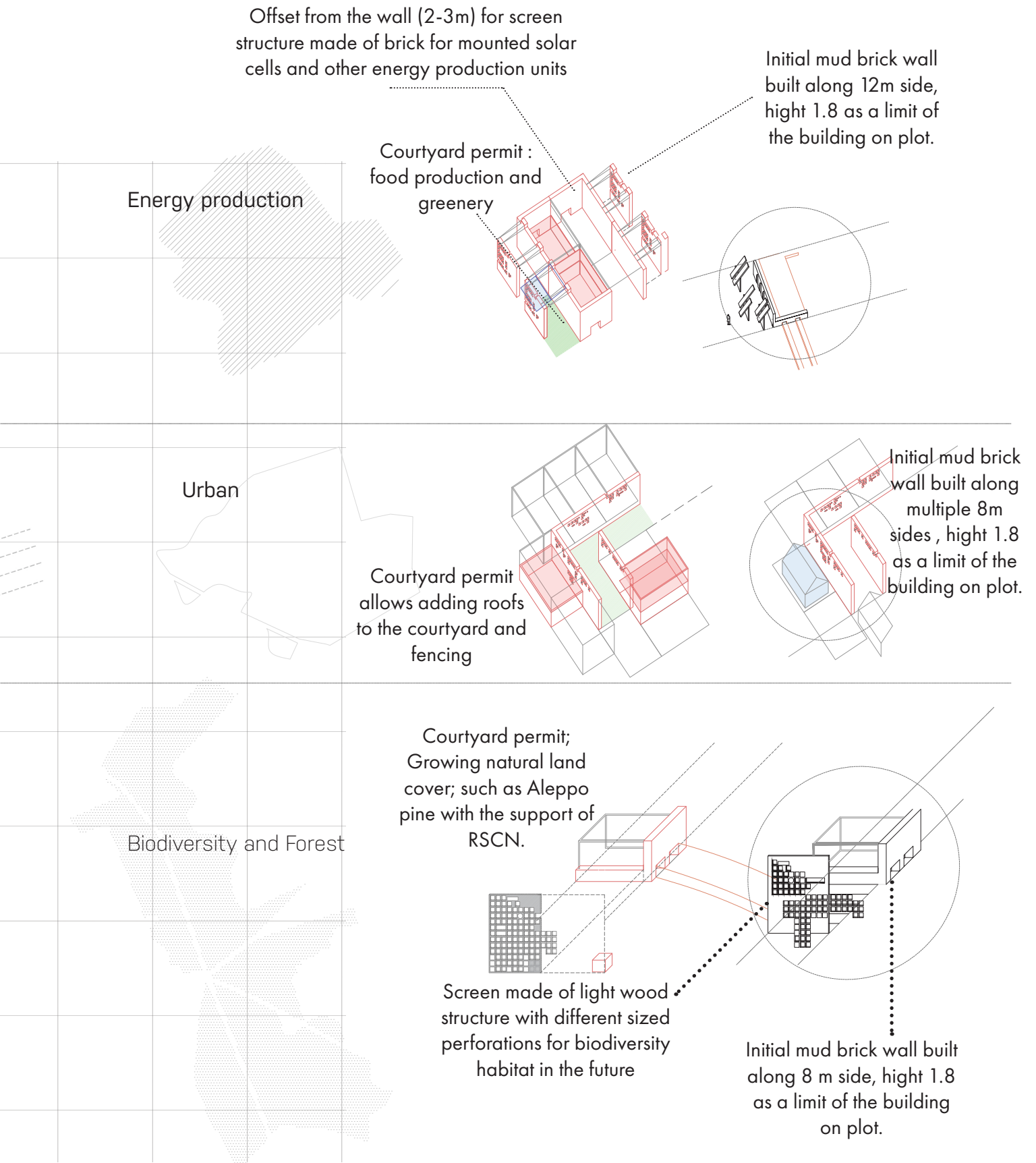
A collage of a current house from the camp with the implementation of the RWH strategy as reflection During the progression of the work.

Building typologies

Typologies design Follows the zoning of the site with the plot size of 8*12 m in mind. Three building typologies were created.:

- Typology 1; biodiversity.
(Managed by UNRWA and RSCN)
- Typology 2; Energy.
(Managed by UNRWA, NGO's and the government PDA)
- Typology 3; Urban (to be managed by the Government and UNRWA)





Phases

-Humanitarian aid and receiving of refugees:

As it took three years to fully replace the tents with prefabricated units, this time will be dedicated to phase one of building, where motivated by the importance of the environmental considerations; the stakeholders, volunteers, and refugees start with implantation of the building blocks that organize the camp into zones and neighborhoods. It is essential that the refugees are part of the process, as many plots were later swapped between the refugees to connect families together (UNRWA, 2015).

In this phase:

Building the brick wall to define limits for the building on the plot is carried out, implementing perforated screens to define the border of the courtyard plot. In the biodiversity and energy zones. A water piping network, one for rainwater, and another for the wastewater are to be laid over the ground and then buried as not the excavate the natural ground. In the urban zone, the network will be gradually implemented underground.

1



- Development

Prefabricated units, as we imagine it in the present times, would not be asbestos as the dangers of the material are known today. The placing of the prefabricated units on an elevated platform of the water network within the limits of the brick wall.

In this phase:

*The prefabricated sheets arrive and are implemented along the 12*8 dimension in one story height, as it was not until later that the refugees were allowed a second story. Depending on the period of displacement, concrete walls might be constructed by the refugees as a more durable option. It is reasonable in the case of Gaza camp for this temporary state to start taking on some permanent forms to support the quality of life as the camp has been there for decades now.*

2



-Humanitarian aid and receiving of refugees:

- Development

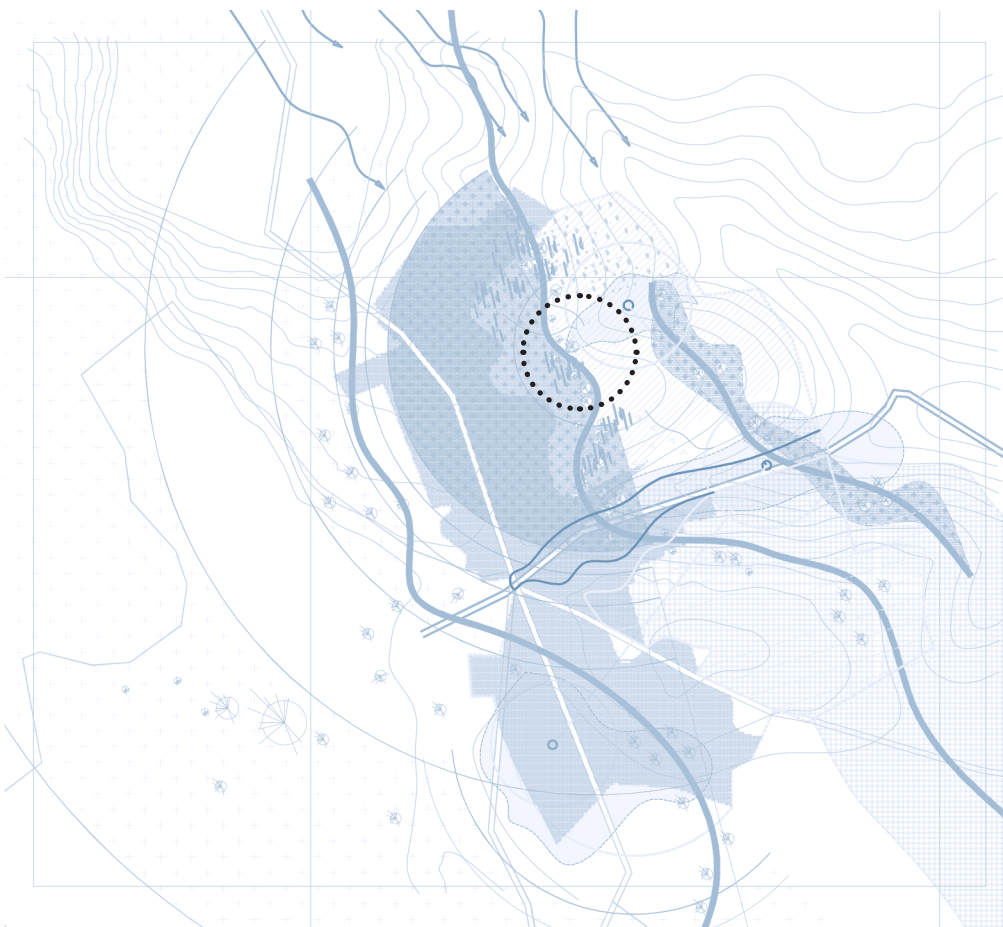
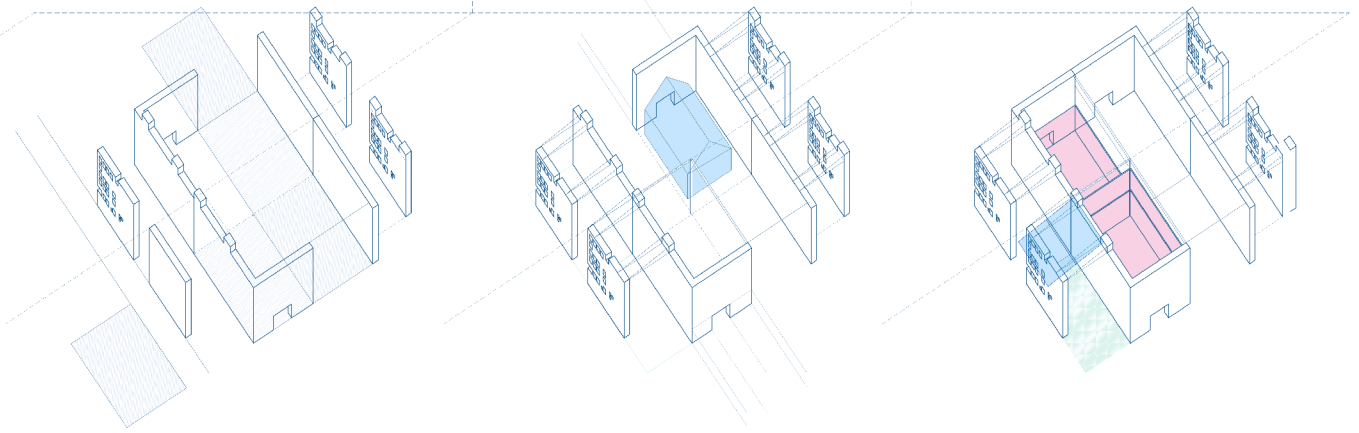
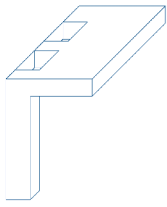


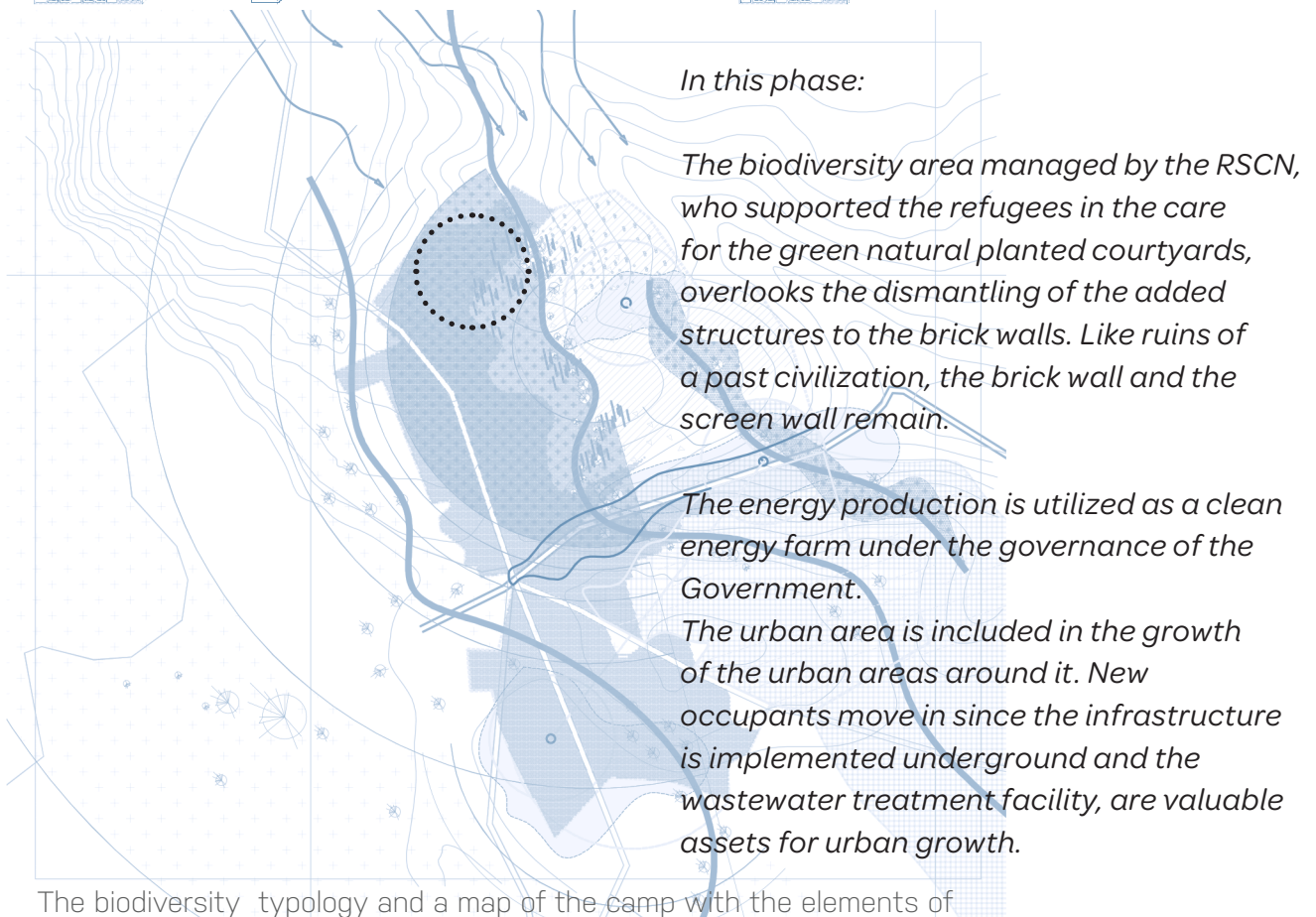
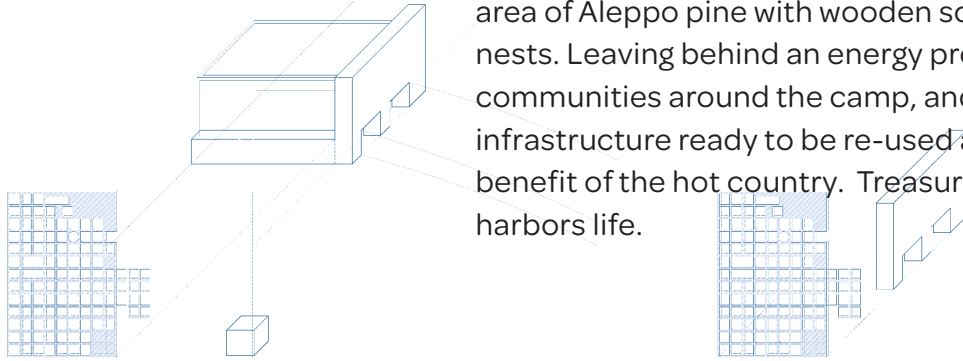
Image showing the phases of the energy zone typology and a map of the camp with the elements of the site.



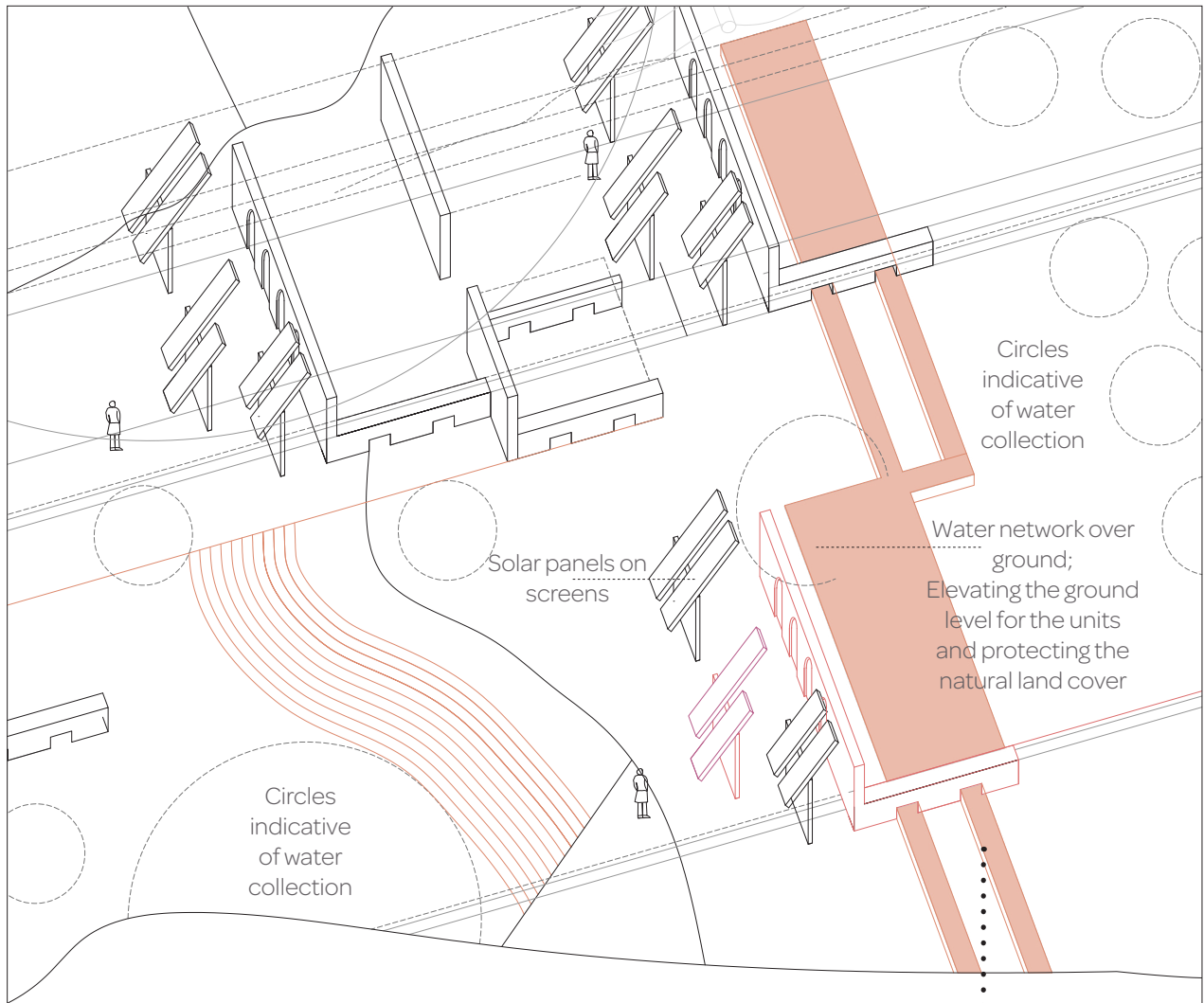
- LEGACY

This thesis shares in the hope of the Palestinians living in Gaza (Jerash) camp for their return to Palestine. So as we re-imagine the camp and circling back to the title of the thesis, the legacy of the displaced. This phase starts with:

...The Palestinians watering their courtyard plants one last time, Part with the camp leaving behind a natural area of Aleppo pine with wooden screens full of bird nests. Leaving behind an energy production farm for the communities around the camp, and a cluster of urban infrastructure ready to be re-used and utilized for the benefit of the hot country. Treasured is the land that harbors life.



The biodiversity typology and a map of the camp with the elements of the site..



Energy production zone close up

- a joined effort between local government and NGO, with recommendations from the RSCN
- Local crafts men volunteers and workers
- Volunteers

Tents in the boundaries of the plots

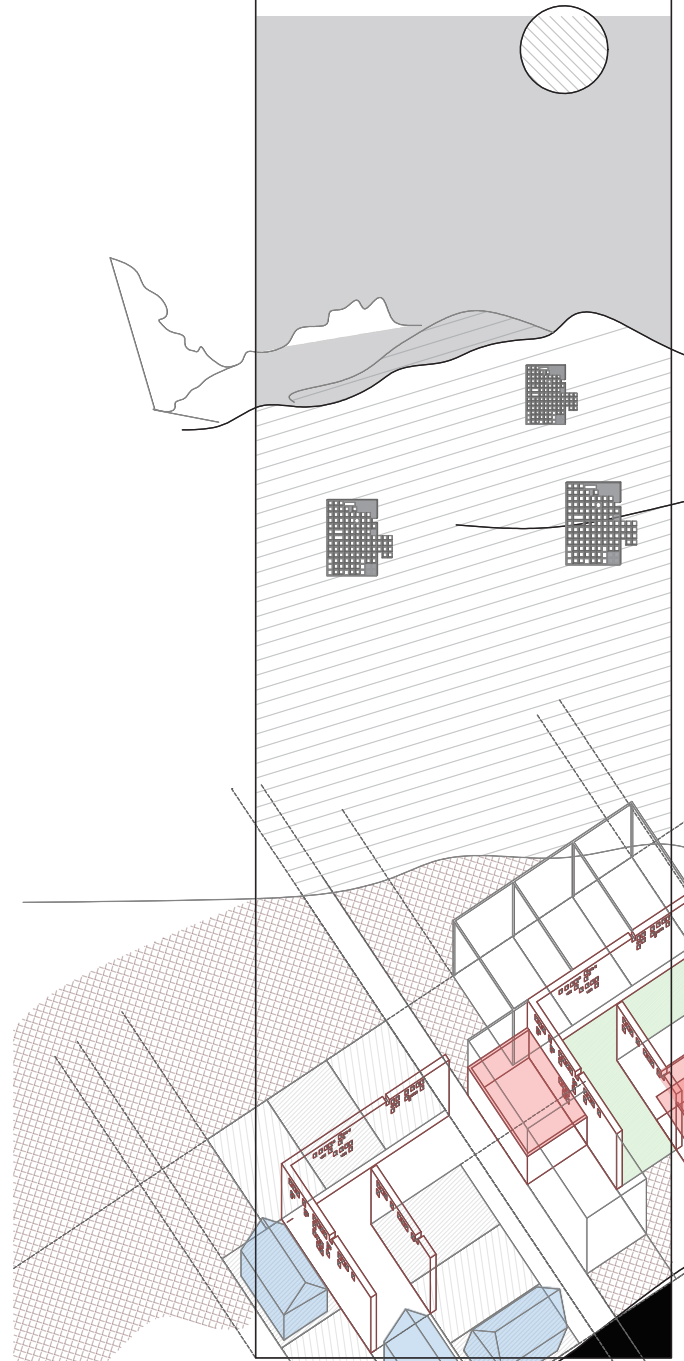
Prefabricated living units

Image showing a close-up on a potential proposal for the "energy production Zone" in the transitional period between the first and second

Phases

Humanitarian aid and receiving of refugees:

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Development

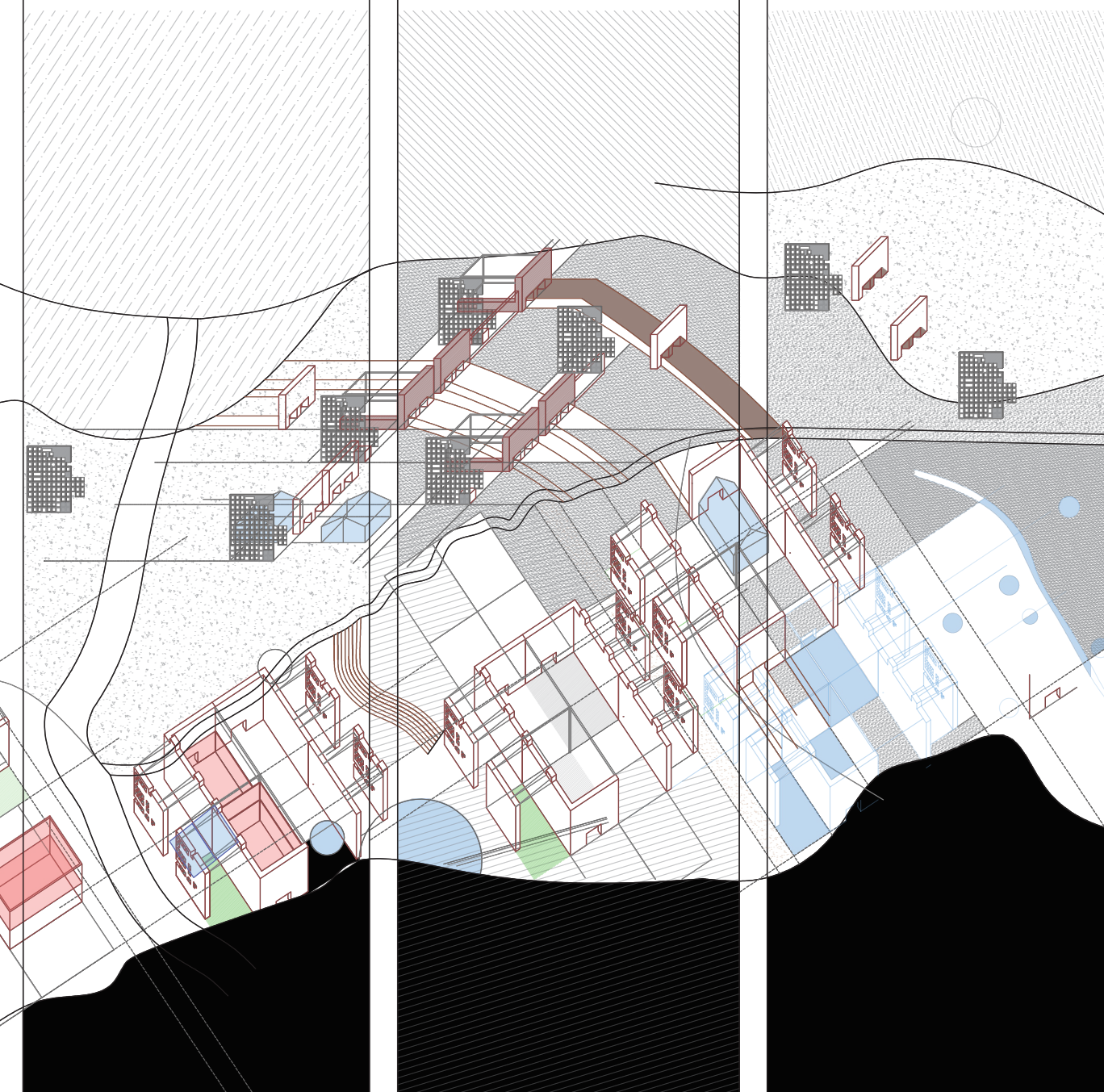
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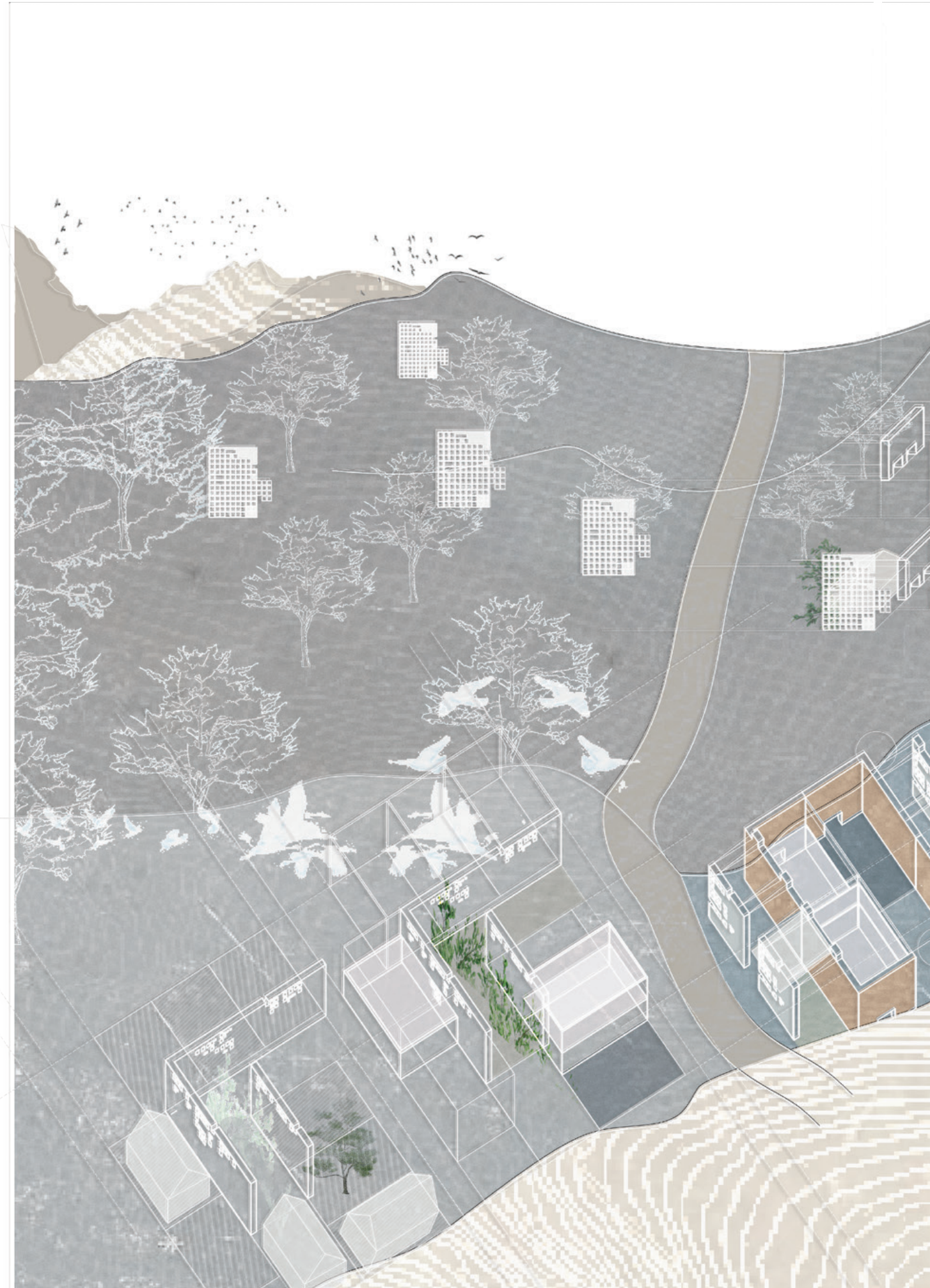
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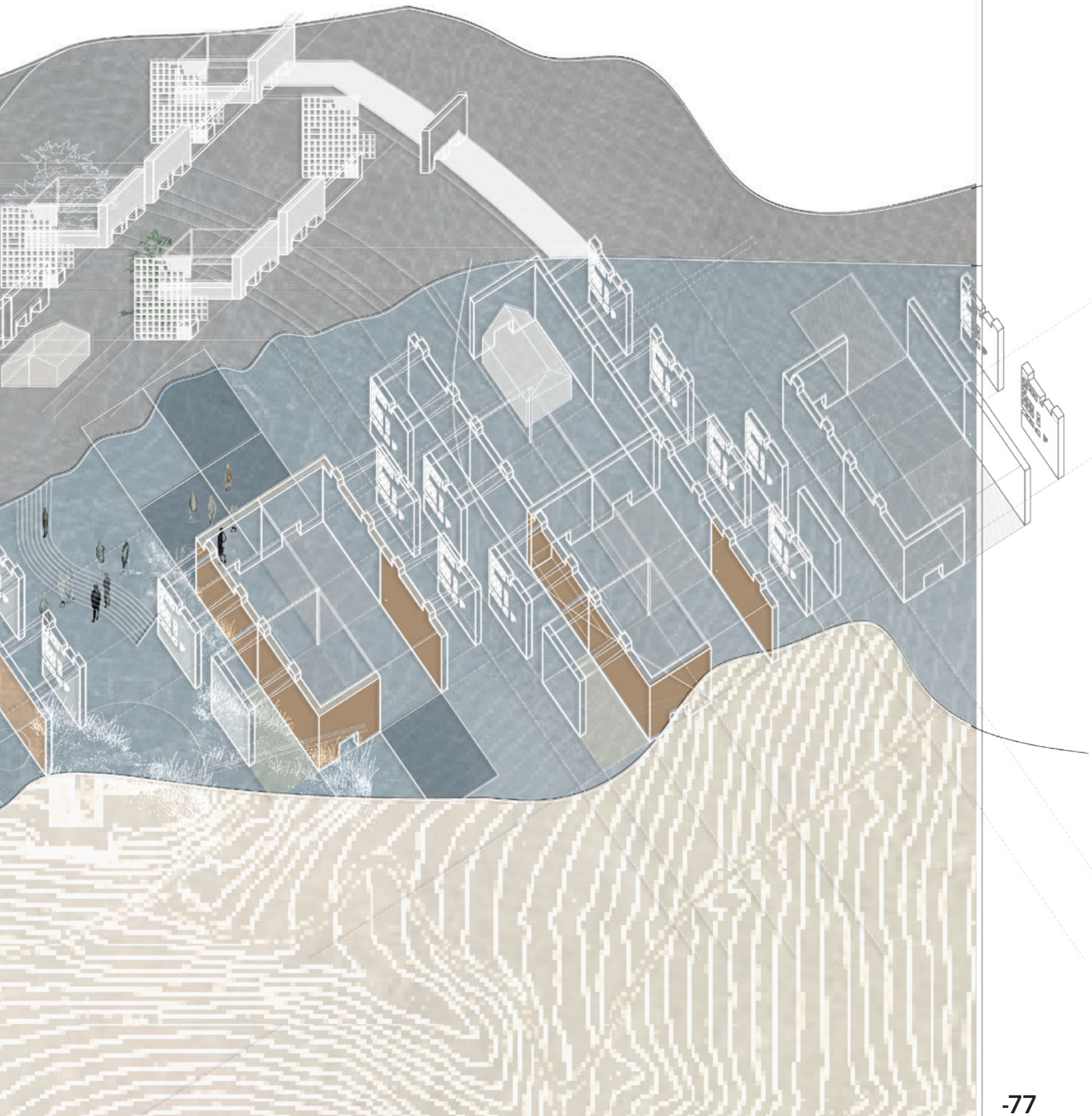
LEGACY

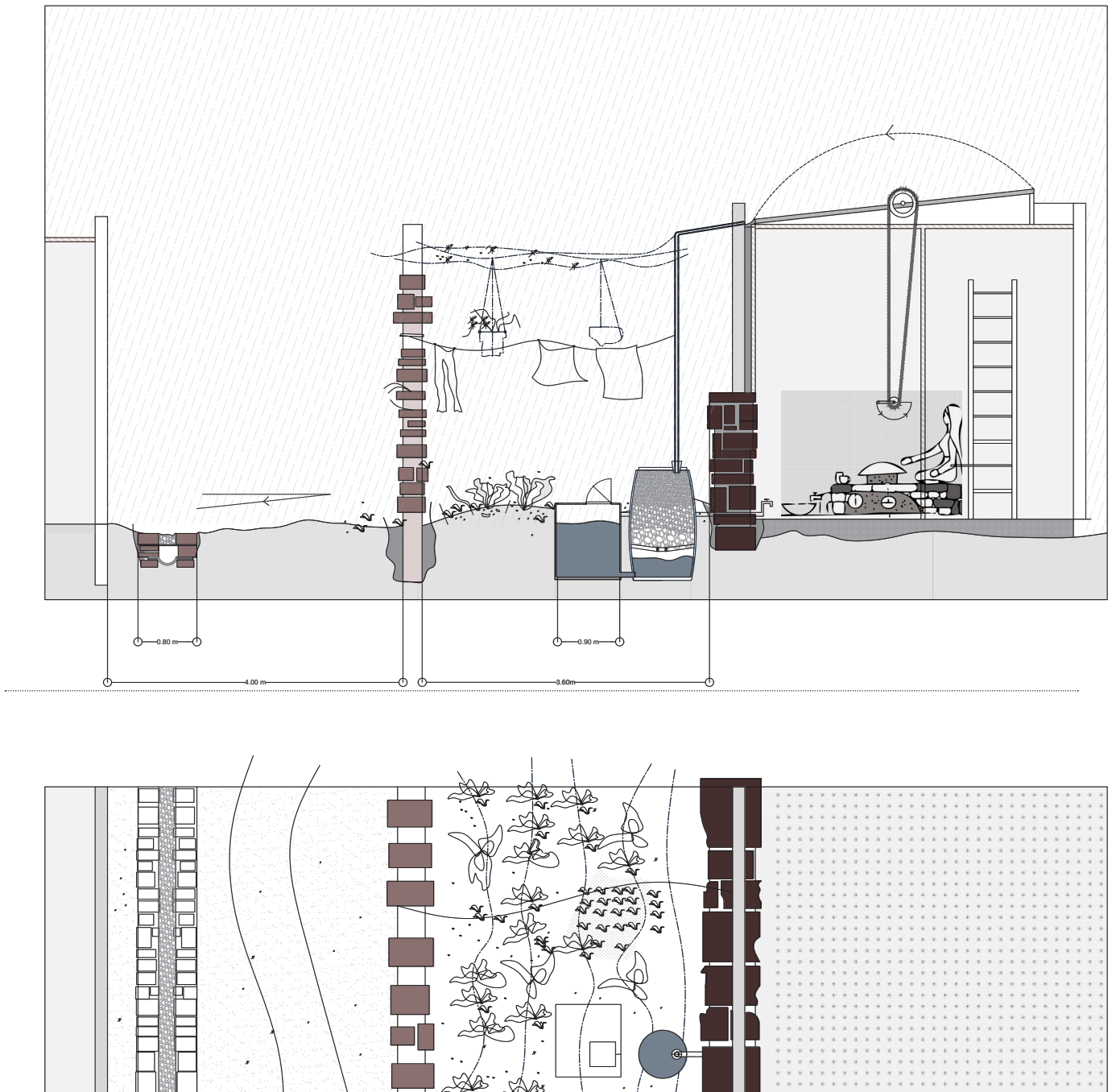
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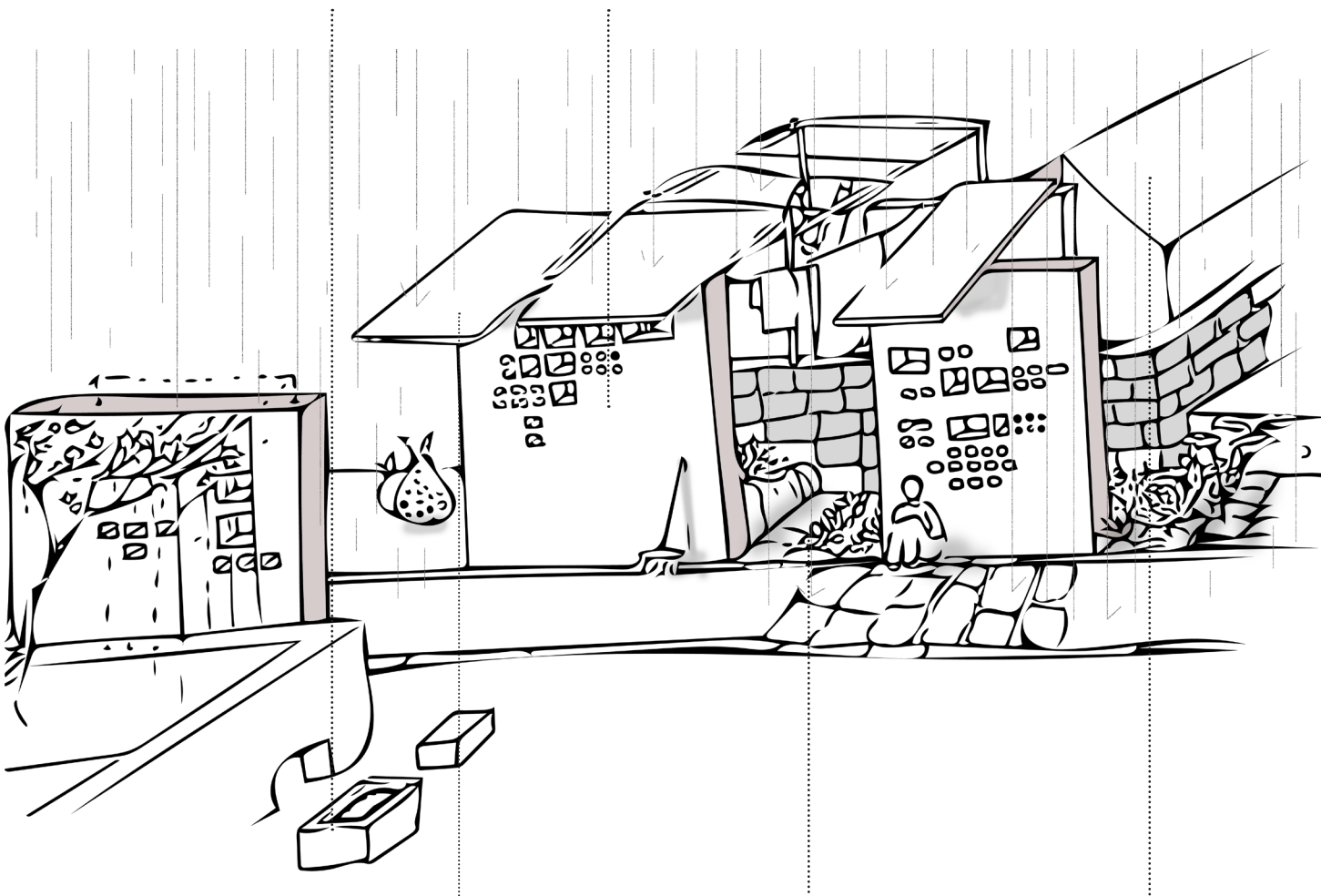
a view of the camp shown in different phases in the different zones.





Mud brick making in wooden molds. A practice known in the region. This might be substituted in real life with concrete bricks.

Strong Mashrabyia structure. Providing;
-Support for energy cells
-Privacy for the unit and yards.
-Shading.



The use of energy production. unlike this rainy day most days in Jordan are sunny solar cells are suggested.

Food production courtyards;
regulations for yard include use for greenery and energy production, in the energy zone. Fencing around the yard is allowed to provide further privacy. (Possibility of later adding more Mashrabyias around yard.

The tents are still standing inside the wall limit in the transitional period between phase 1 and 2.

In conducting this thesis, the hope was to investigate the possibilities emerging from including environmental considerations in the emergency response of humanitarian aid. After walking through the complexities of a 'situation of displacement', and researching/analyzing the contextual fabric which surrounds Gaza (Jerash) camp in Jordan, I attempted to develop a concept. This study concludes to—re-imagining the phases of emergency response and camp development with accounting for the needs of humans and nature.

The aim is not to give a solution guideline to Camp planning, but to take part in the discussion of architecture practice in a humanitarian context. Including perspectives of "intrinsic value of nature," beyond the reflected benefit to humans.

The hope is that in provoking thoughts and questions to be asked in Emergency response, we might manage to save lives beyond our own.

The contrast of that last sentence is where the radical perspective of valuing all lives equally in a context meant essentially for humanitarian aid lies.

Concluding to these thoughts to be further investigated;

-Including stakeholders that represent non-human actors in the emergency response, such as RSCN representing the Dibein Forest. It can lead to long term positive effects on the environmental situation of Camps.

-The emergency response encompassing an exit strategy, such as posing the question of what legacy is left behind? How can refugees be part of the process? Moreover, what do we do when they leave this temporary city?

This can change the shape of the process and mandate the urgency with limitations set to protect nature and people.

-The self-reliant temporary city, in the empowerment of refugees, through things like energy and food production, can alleviate the direness of their situation in the years of displacement while minimizing the pressure on the host country's resources.

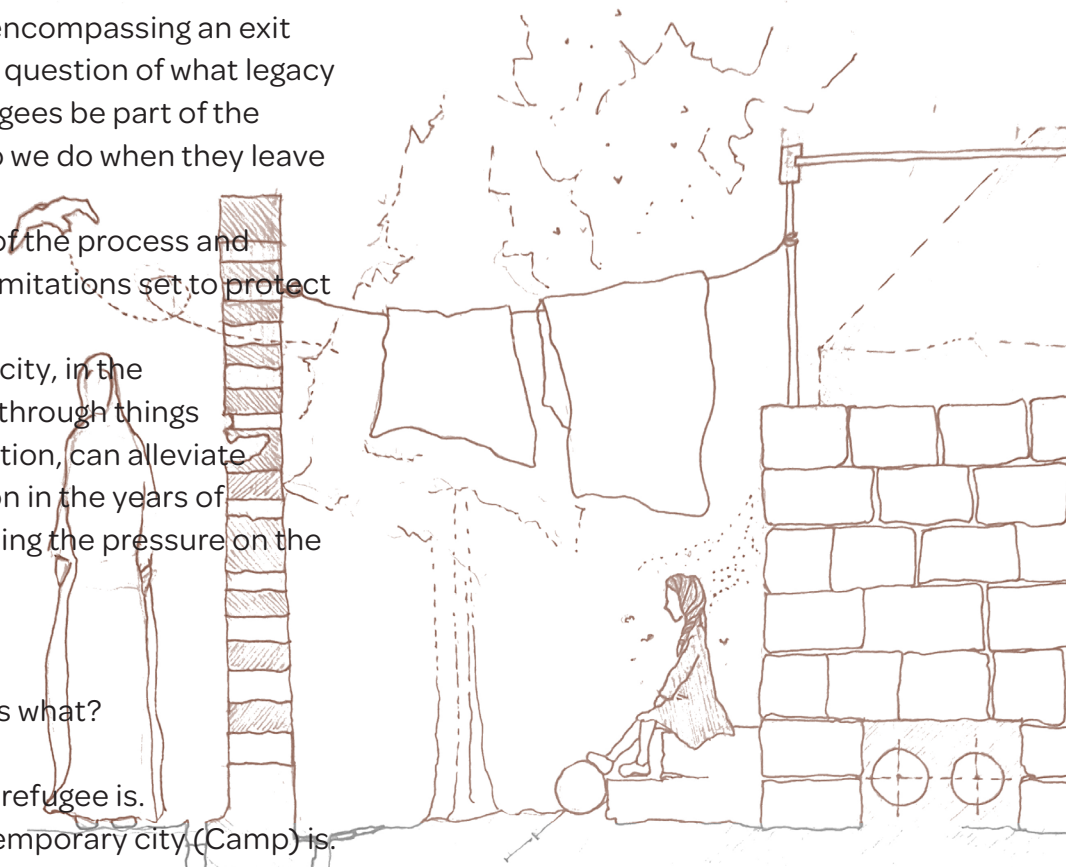
Considering The legacy does what?

It could...

Change the image of what a refugee is.

Change the image of what temporary city (Camp) is.

Change the perspective on the urgency of designing for nature.



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Vernacular practices

From the traditional building characteristics and typologies of the middle-eastern architecture, the courtyard house and the Mashrabiya will be discussed, as they regional practices that draw a connection between human users and the natural environment around them.

The courtyard house

In his article “the traditional Arabic house,” Basam Behsh raises a discussion that places the environment at the heart of the development of the courtyard house type. Behsh draws a comparison between the courtyard house as ‘habitat,’ which can relate to a cultural period with its social requirements, and on the other hand, the courtyard house as “shelter’ that relates to the environment. as the environment played a dominant role in the traditional Arabic house’s architectural character emerging from the accumulated human experience throughout the area’s history. (Behsh,1988)

This drawn connection to the environment that seems to have been marginalized as the cultural, religious conditions further developed the architecture of the region is the reason I am choosing to include this typology in the concept. It is both connected to the history of the area and the people; it also addresses issues of ownership as the caring of the courtyard would fall on the family living in the house. The planted courtyard also clearly presents an instance of where an architectural element developed to include nature and non-human actors in human shelter.

An example of this typology is the Courtyard houses of Agadir after an earthquake hit the area in 1960, this project was part of the reconstruction efforts. The project was planned as a compact middle-income housing development consisting of 17 units of single-story row houses. the architect arranged the houses to provide each house private patios and a service courtyard. (Agha

The project hits good points that relate to shelters arranged in a compact form with minimum resources and bringing in nature within the borders of the shelter. the Agadir project was praised by the jury of the Agha han 1980 cycle for being an architectural response to the climate and the demand for privacy. (Agha Khan Trust for Culture,1980 cycle)

Source: Agha Khan Trust for Culture (From Archnet.org)

Agadir, Morocco (place)
 Jean-François Zevaco (architect) (b. 1916,
 8 August, d. 2003)

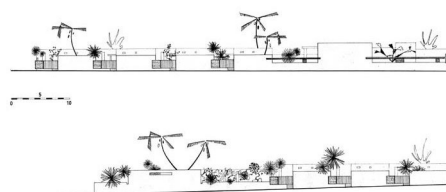
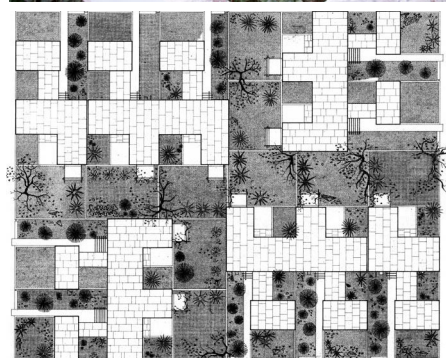


Image source: Agha Khan trust for culture,1980 cycle.

The Mashrabiya

The Mashrabiya is considered one of the most traditional elements of vernacular Arabic architecture (Alami, M., 2013).

Besides being a decorative element, it contributes climatic functions, such as circulating air, controlling light, and enabling occupants to retain contact with the outside world while preserving their privacy (Alami, M., 2013).

Architecturally, Mashrabiya's are perforated screens consisting of intricate geometric patterns used as both interior and exterior elements.



Interest in the Mashrabiya

The Mashrabiya presents another instance in vernacular, where we can meet climate and social needs with an architectural element.

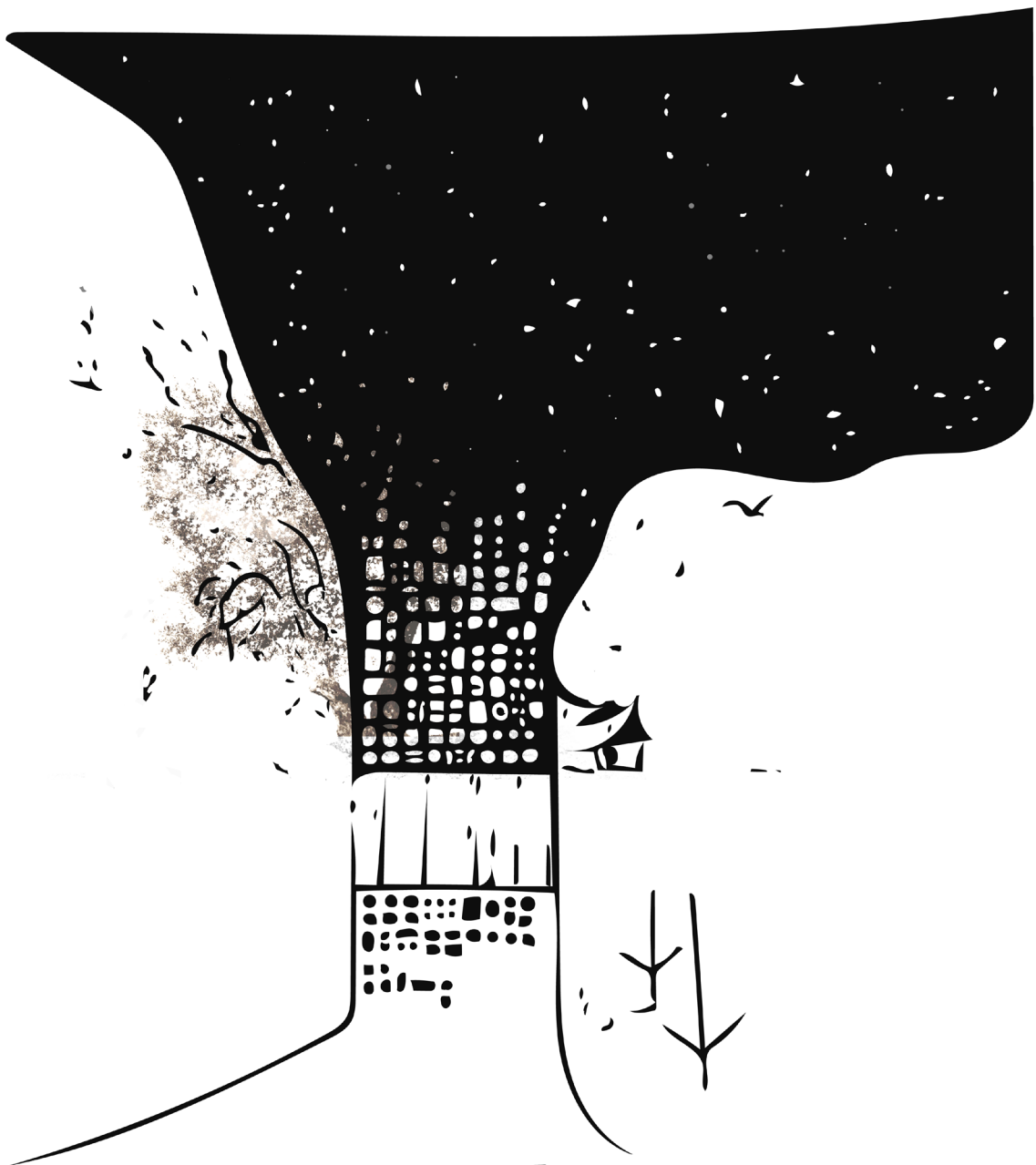
The Mashrabiya is

-Lightweight

-It is semi-enclosed providing privacy
Provides shade while regulating natural light

-With its perforated surface, it has the possibility of blurring the limits between humans and nature.

As other species could use it for habitat. The interest here lies in trying to re-adapt this practice as an organizational element. As in most cities of displacement cars and transportation is an afterthought, in my opinion, roads should form around the shelters instead of fitting the shelters in the grid of an ordinary city.



Using this element as a building block in new cities of displacement might help guide the growth of the camps while still using an element that is aimed to encourage the building of natural habitats to create links between natural areas and urban areas.

The Mashrabiya and the Courtyard in the concept

I will further explore the use of these elements in the proposed design answer to the thesis question.

RESEARCH WHIRLWIND

Design For Nature

Courtyard and Mashrabiya

Intrinsic value of Nature

PALESTINE

Right Of Return

Designing for Nature

Jordan

LEGACY

Environmental Consideration to be taken in the planning phase

REFUGEES

1948.

1967.

Brief History

FORESTS IN JORDAN

DIBEEN FOREST

Site And Context

The Forest

The Camp

Camp Analysis

The people

GAZA CAMP

The Environmental considerations

What does the forest need ?

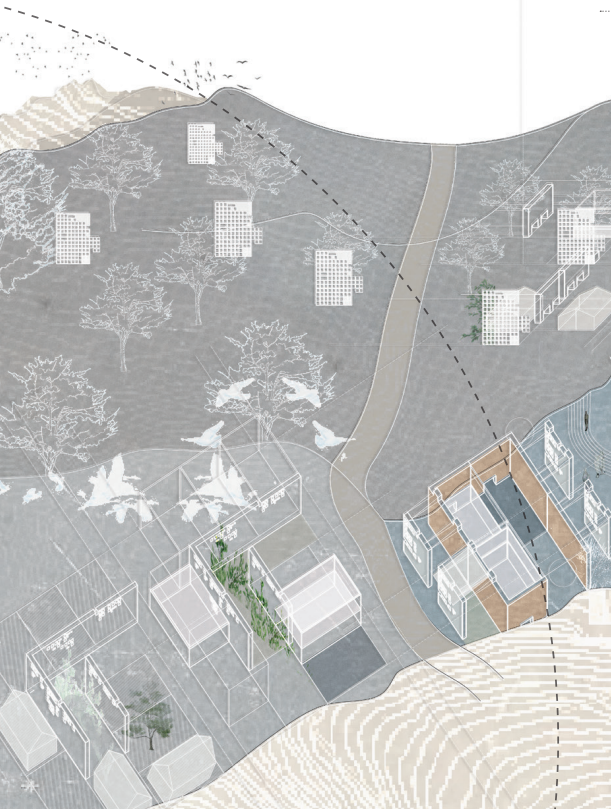
-The biodiversity zone, including the RSCN as stakeholders at this point.

What do the people need?

-The Energy Production Zone; to alleviate the living situation of the refugees in water scarcity and energy and food production

What does the country need?

-The Urban zone; To the southeast of the camp, with the urban growth beyond the borders, it is ideal for the more permanent facilities of infrastructure,



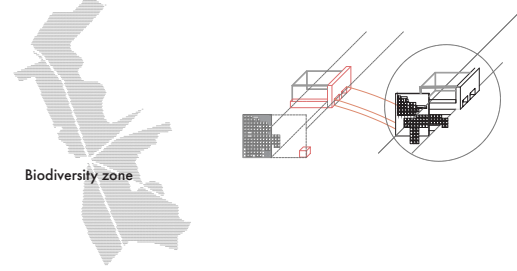
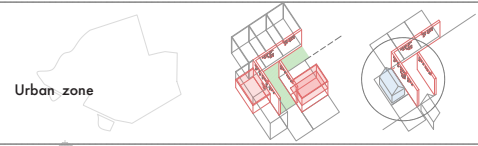
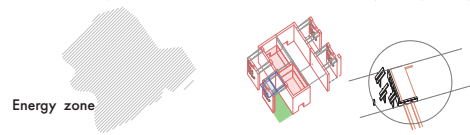
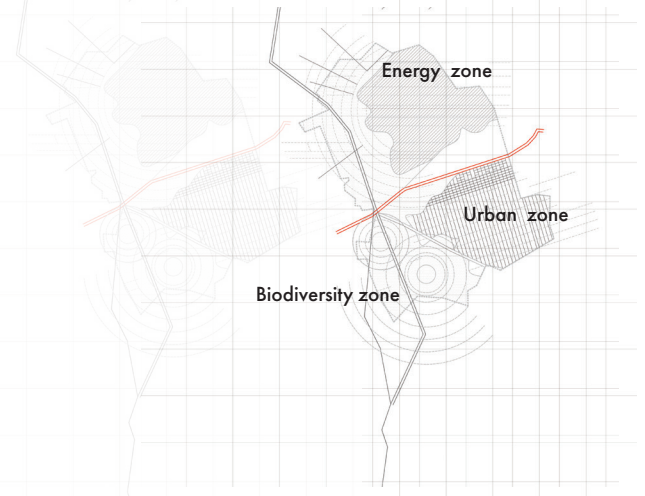
Zones

Typologies

- Typology 1; Energy. (managed by UNRWA, NGO's and the government PDA)

- Typology 2; infrastructure. (to be managed by the Government and UNRWA)

- Typology 3; biodiversity. (managed by UNRWA and RSCN)



3.

- Legacy

In this phase;

The biodiversity area managed by the RSCN, who supported the refugees in the care for the green natural planted courtyards, overlooks the dismantling of the added structures to the brick walls. Like ruins of a past civilization, the brick wall and the Mashrabiya remain.

The energy production is utilized as a clean energy farm under the governance of the Government.

The urban area is included in the growth of the urban areas around it. New occupants move in since the infrastructure is implemented underground and the wastewater treatment facility, are valuable assets for urban growth.

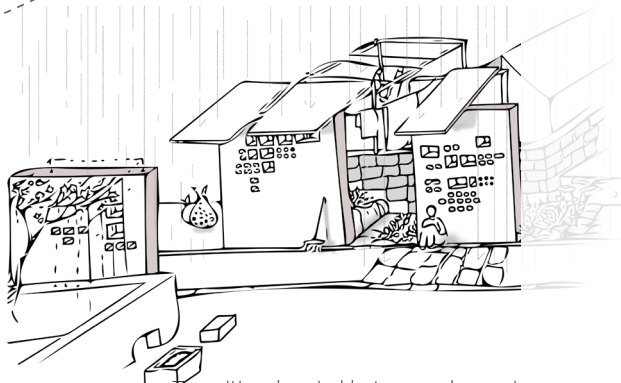
Phases

1.

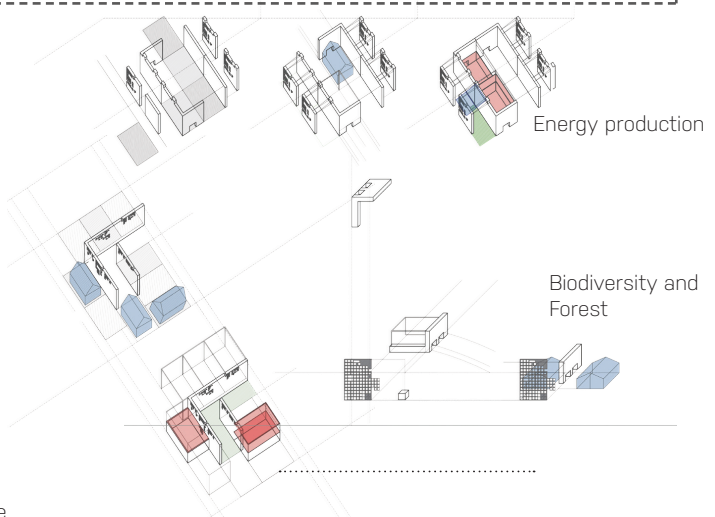
-Humanitarian aid and receiving of refugees;

2.

- Development



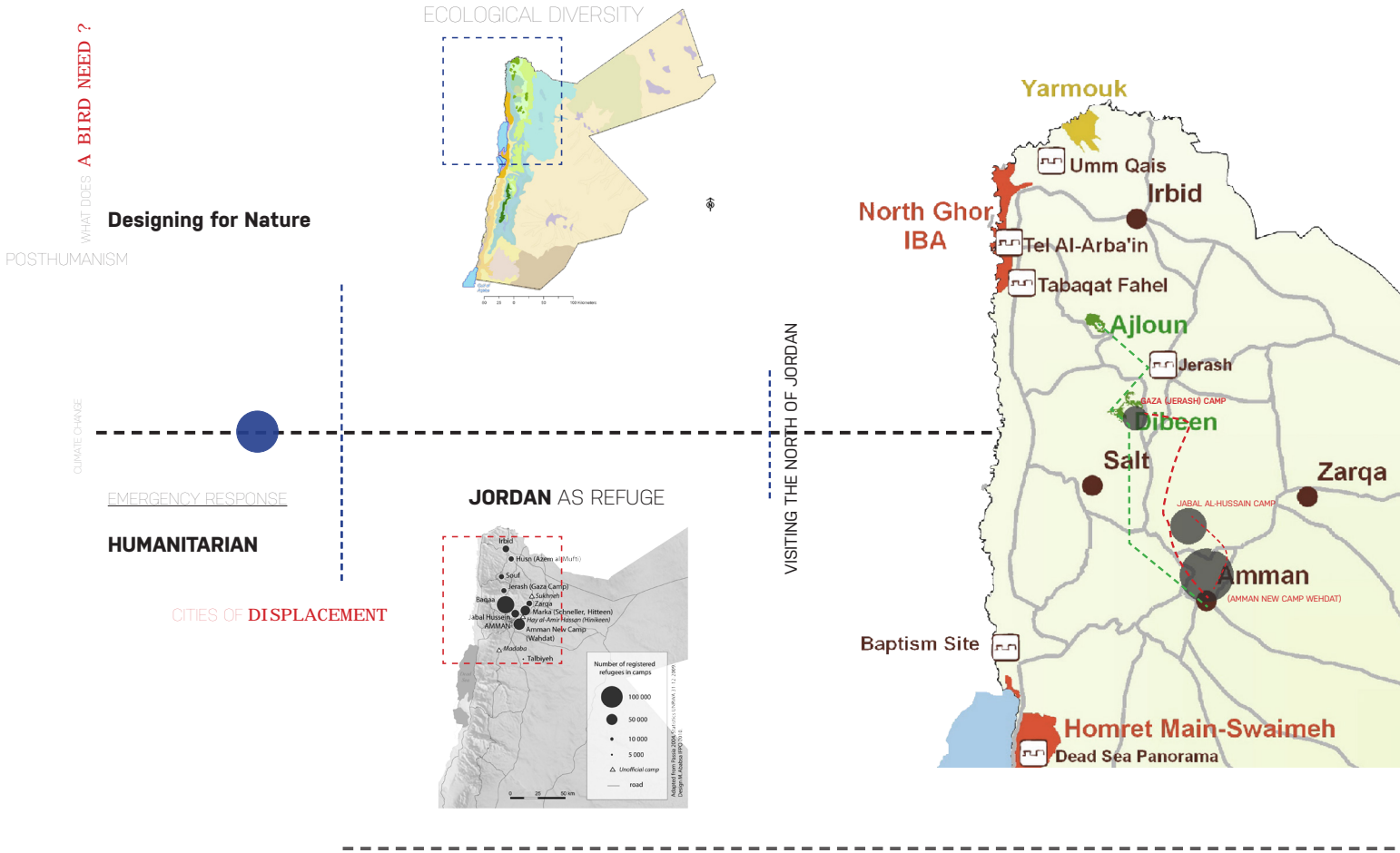
transitional period between phases in energy zone



THEORETICAL BACKGROUND

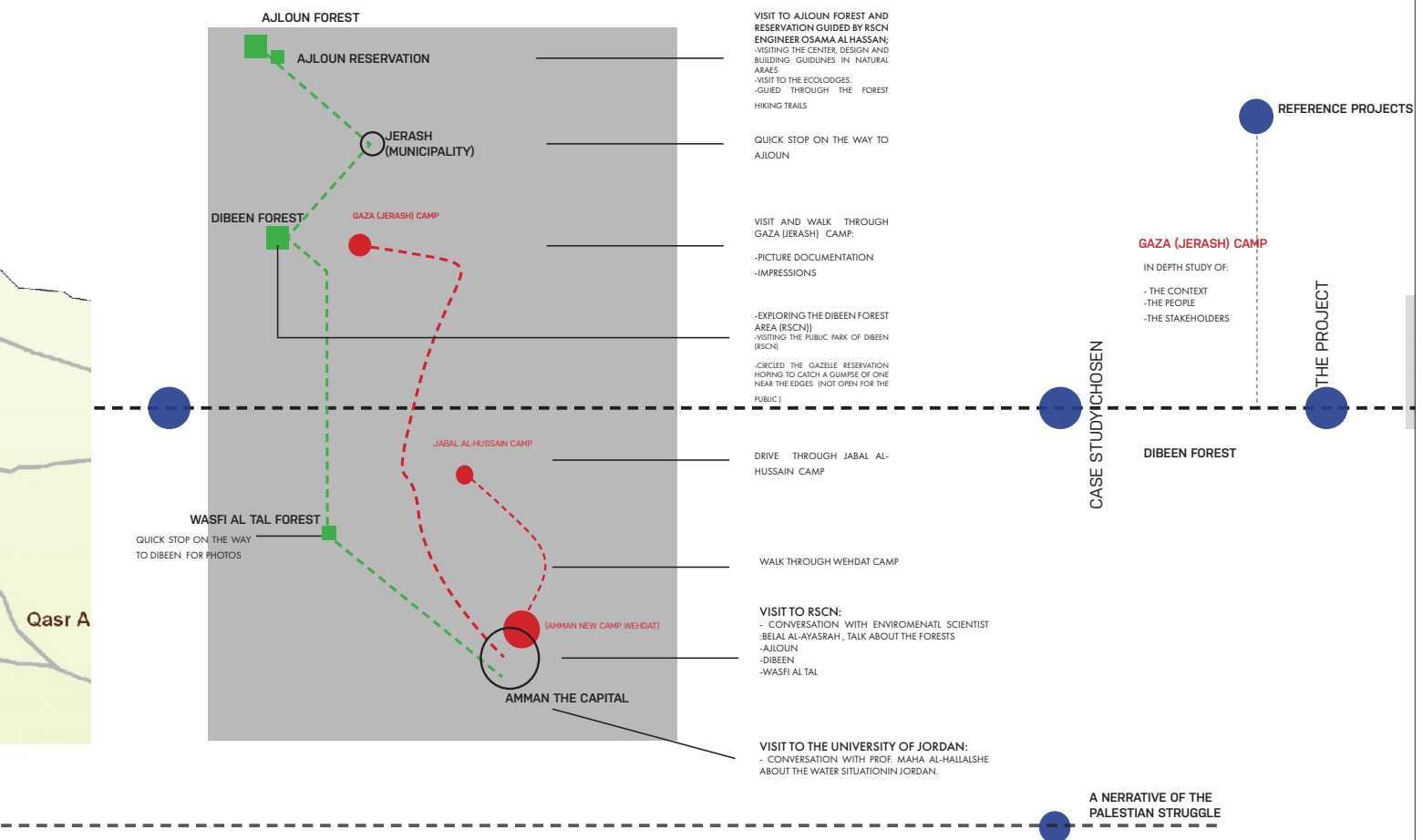
CONTEXTUAL BACKGROUND

it started with the idea of finding a connection between designing for nature and designing for human. finding the most radical, and yet most demanding of a shift in perspective, situation to test the outcomes of this connection in a humanitarian aid context



METHODS

DESIGN STRATEGY AND DESIGN



research diagram close up

Legacy of the Displaced

By Salam AbuAli ©