



Yara Kanan

The Design of Refugee Camps in The Middle East

Good Design for Bad World

Work carried out under the guidance of
**Prof. PhD Lígia Paula Simões Esteves Nunes
Pereira da Silva.**



www.ulp.pt

The Design of Refugee Camps in The Middle East

Yara Kanan

ULP | 2020

Outubro 2021



UNIVERSIDADE
LUSÓFONA
DO PORTO

Yara Kanan

The Design of Refugee Camps in The Middle East

“Good Design for Bad World”¹

Integrated Master's Dissertation in Architecture

Dissertation defended in Public Evidence at
Universidade Lusófona do Porto, on January 13, 2021.
before the following jury:

President: Prof. Doctor Pedro Francisco Fernandes
da Silva Maia

Arguente: Prof. Doctor Vitor Manuel Araujo de Oliveira

Advisor: Prof. PhD Lígia Paula Simões Esteves Nunes
Pereira da Silva.

October 2020

¹ Highlights of Dezeen's talk on refugees for Good Design for a Bad, 21 February 2018, five talks held by Dezeen and Dutch Design Week in Eindhoven from 21 and 22 October 2017.

The full reproduction of this thesis / dissertation is authorized only for the purposes of investigation, by means of a written declaration from the interested party, who agrees to it.

DEDICATION

This thesis is dedicated to the millions of Syrian refugees forced to leave their houses, lands, and all their memories, hoping to find safety and a better life.

Secondly, to my great parents, Salah and Suha who always surround me with love and encourage me to be the better version of myself and support me in all ways to reach my goals.

Furthermore, my siblings, Jebraiel, and Rasha were always by my side and supported me from the first day of the master, which enabled me to complete my master thesis successfully.

To all my relatives especially my dearest friend, my uncle Nouman Shadaydeh who has always been by my side.

Moreover, I owe my deepest gratitude to my fiancé Roudy Salloum, for his unparalleled love, affection, encouragement, understanding, and patience.

Last but not least, to all my friends around the world.

YARA KANAN

ACKNOWLEDGEMENT

I would like to thank my supervisor Professor Ligia Nunes, who has given me all the support, encouragement, and help.

Furthermore, I am deeply thankful to my professors in the Integrated Master of Architecture course for their dedication.

My sincere thanks go also to Dr. Helena Barroco for her continuous encouragement and support for me and my colleagues, and to the entire Global Platform for Syrian Students, for providing this opportunity to complete my studies.

Also, note my sense of gratitude to all who directly or indirectly have lent their hand in this venture.

YARA KANAN

RESUMO

A cada minuto em todo o mundo, 24 pessoas são forçadas a abandonar as suas casas: 34.000 por dia deixam tudo para trás, na esperança de encontrar segurança (UNHCR, 18 de Junho de 2015).

Esta dissertação foca-se na importância do papel da arquitetura no desenvolvimento e na melhoria dos campos de refugiados no sentido de obter melhores condições de vida e reconsiderar o desenho de abrigos e planeamento urbano dos campos uma vez que estes deixaram de ser temporários e passaram a ser residências de longa duração.

Como exemplo desta situação, o estudo é dedicado aos refugiados sírios no Medio Oriente, usando como caso de estudo, o campo de Zaatari na Jordânia, o segundo maior campo de refugiados do mundo, onde a maioria da população é proveniente da Síria.

Este trabalho pretende também chamar a atenção para como um abrigo pode afetar o comportamento dos seus habitantes e a necessidade de refletir sobre o ambiente em que vivem estas comunidades para considerar como o seu planeamento deve ser pensado para que se tornem sustentáveis a longo prazo.

PALAVRAS-CHAVE: Guerra, Acampamento, Refugiados, Síria, Arquitetura.

ABSTRACT

Every minute, 24 people worldwide are forced to flee their homes; 34,000 people a day leave everything behind, hoping to find safety (UNHCR, 18 June 2015).

This research focuses on the important role of architecture in developing and improving refugee camps to obtain a better environment to live in and reconsider the shelter design and urban planning of the camps when it has turned up from temporary to a long-term accommodation.

As an example of that refugee situation, the focus within this research is upon Syrian refugees in the Middle East, taking as case-study, the Zaatari camp in Jordan, the second-largest refugee camp globally, where Syrian refugees are the main population.

Furthermore, this study aims to shed light on how much the shelter can affect the displaced people's behavior and the importance of studying the refugee's old environment and consider it to design sustainable long-term camps.

Keywords: Wars, Camps, Refugees, Syria, Architecture.

Contents

DEDICATION	iv
ACKNOWLEDGEMENT	vi
RESUMO	viii
ABSTRACT	x
LIST OF FIGURES	xiv
LIST OF TABLES	xvi
LIST OF ABBREVIATIONS	xvi
CHAPTER I – INTRODUCTION	1
1.1 Justification and frame	1
1.2 State of The Art	2
1.3 Objectives	2
1.4 Methodological Considerations	3
1.5 Structure of Contents	3
CHAPTER II – LITERATURE REVIEW	4
2.1 Background	4
2.2 Refugee definition	4
2.3 Refugee camp definition	4
2.4 The Syrian refugee crisis	5
2.5.1 Syrian refugees after the war	6
2.5.2 Hosting countries in Middle East	8
2.5.3 Turkey	9
2.5.4 Lebanon	10
2.5.5 Jordan	11
CHAPTER III – SYRIAN REFUGEE CAMPS IN THE MIDDLE EAST	12
Zaatari refugee camp, Jordan	12
3.1 History and evolution	12
3.2 Growth of the Zataari camp	12
3.3 Analysis of Zaatari refugee camp	16
3.3.1 Planning and Development	16
3.3.1.1 Layout and the built environment	17
3.3.1.2 Building Codes	18
3.3.1.2.1 Normal aluminum shipping caravan.	18
3.3.1.2.2 Centre Pole tent for cold climates.	19
3.3.3 Services and facilities	20

3.3.3.1 Education	20
3.3.3.2 Health	21
3.3.3.3 Sanitation	21
3.3.3.4 Electric service	22
3.3.3.5 Safety	22
3.3.3.6 Water	24
CHAPTER IV – Background review of Syrians dwelling and Middle East culture	25
4.1 The Urban House with Courtyard	26
4.2 Culture and traditions in the Arab, Syrian environment	28
4.3 Syrians in refugee camp shelter	29
4.4 The interrelationship between shelters and people’s behavior	38
4.5 Philosophical Perspective	38
4.5 Lesson learned	39
CHAPTER V – BEYOND THE TENT	41
5.1 Scoop of the problem with refugee camp planning and design today	41
5.2 General findings and recommendations for better refugee camp	42
5.2.1 Suggestions on the urban planning level	43
5.2.1.1 On general level	43
5.2.1.2 On Zaatari in specific	44
5.2.2 Suggestions on the sustainable architecture level	45
5.2.2.1 Sustainable urbanism	45
5.2.2.2 Reference examples for sustainable shelter	47
5.2.2.2 Solar PV systems for refugee camps	51
5.2.3 Suggestions for improving the general and personal economic level	53
5.2.4 Suggestions on the environmental level	54
5.2.4.1 Agriculture in refugee camps	54
CHAPTER VI – CONCLUSION	57
REFERENCES:	59

LIST OF FIGURES

Figure 1. International displacement situations by country of origin UNHCR, end-2019	5
Figure 2. Latest figure shows where Syrian refugees are after the war up to February (UNHCR,2019)	6
Figure 3. The Syrian refugee crisis explained in one map. European Commissions, Reuters, BBC, 2015	7
Figure 4. The Largest population of Syrian refugees in the hosting countries (UNHCR,2017)	8
Figure 5. The number of Syrian refugees in turkey (UNHCR,2016)	9
Figure 6. Largest population of Syrian refugees in Turkey (UNHCR,2016)	9
Figure 7. Syrian refugees by location in Lebanon (UNHCR,2015)	10
Figure 8. Syrian refugee in Jordan, by locality (UNHCR,2020)	11
Figure 9. Zaatari camp in Jordan (UNHCR, 2014)	12
Figure 10. Growth of Zaatari camp, UNHCR, September 2012	13
Figure 11. Growth of Zaatari camp, UNHCR, November 2012	13
Figure 12. Growth of Zaatari camp, UNHCR, January 2013	14
Figure 13. Growth of Zaatari camp, UNHCR, February 2013	14
Figure 14. Growth of Zaatari camp, UNHCR, March 2013	15
Figure 15. Zaatari camp, UNHCR, April 2013	15
Figure 16. Analysis of Zaatari refugee camp, (UNHCR, 2014)	16
Figure 17. Winter in refugee's camp, poor drainage, Lebanon (UNHCR,2017)	17
Figure 18. Standard shelter in Zaatari camp provided by UNHCR, 2011	18
Figure 19. Standard tent shelter in Zaatari camp provided by UNHCR, 2011	19
Figure 20. Children going to school in Zaatari refugee camp (UNHCR, 2017)	20
Figure 21. Health care in Zaatari (UNHCR, 2014).	21
Figure 22. Sanitation areas in Zaatari camp, Jordan UNHCR, 2014	23
Figure 23. A boy retrieves water from one of the WASH areas (UNHCR, 2017)	24
Figure 24. Syria old house with courtyard. (CNN, Syrian traditions,2015).	25
Figure 25. A courtyard house, Syrian traditions. (CNN, 2015).	26
Figure 26. The section shows the parts of in traditional Syrian house with a courtyard, (CNN, 2015).	27
Figure 27. Plan for traditional Syrian house with courtyard, (CNN, 2015).	27
Figure 28. Current lifestyles at refugee camps, (CNN, Syrian traditions,2015).	29
Figure 29. Syrian's previous lifestyles (CNN, Syrian traditions,2015).	29
Figure 30. What refugees added to their containers, creating privacy and entrances with pieces of fabric, Zaatari camp, Jordan,2013	30
Figure 31. An interior view from containers, Zaatari (BBC,2012).	31
Figure 32. An inside view of a tent in the Syrian refugee camp, Zaatari (BBC, 2012).	31

Figure 33. A Syrian child sitting in front of their container, (REUTERS,2016)	32
Figure 34. Plants are symbols of heaven in Islamic culture (CNN, Syrian traditions,2015).	32
Figure 35. Children in refugee camp missing playground, (REUTERS,2016)	33
Figure 36. Syrian children playing in house courtyard, (CNN, Syrian traditions,2015).	33
Figure 37. Refugees missing private zones, (REUTERS,2016)	34
Figure 38. Iwan in courtyard houses, (CNN, Syrian traditions,2015).	34
Figure 39. Refugee camp in Lebanon (UNHCR, 2013)	35
Figure 40. Refugee camp in Jordan, (UNHCR, 2014)	35
Figure 41. A house with a courtyard building system, (REUTERS,2016)	36
Figure 42. A standard caravan shelter before adaption, (UNHCR, 2011)	36
Figure 43. analysis of the standard caravan shelter after adaption in Zaatari (UNHCR, 2017)	37
Figure 44. Analysis of the standard tent shelter after adaption in Zaatari (UNHCR, 2017)	37
Figure 45. Maslow pyramid (BBC, 2013)	38
Figure 46. Sketch for inner private space, the author 2020	40
Figure 47. Suricatta unit (Suricatta systems, 2016)	47
Figure 48. Design flexibility (Suricatta systems, 2016)	48
Figure 48. SURI natural lighting and solar panels (Suricatta systems, 2016)	49
Figure 49. A recyclable and sustainable system (Suricatta systems, 2016)	50
Figure 50. Solar streetlights, Zaatari (UNHCR,2019)	51
Figure 51. Solar panels, Jordan (UNHCR,2019)	52
Figure 52. Green Shoots of Hope, residents have started planting their gardens in Zaatari (UNHCR,2019)	54
Figure 53. Future imagination of private gardens in Zaatari. The author, 2020	55
Figure 54. Future imagination of markets with refugees own product in Zaatari. The author, 2020	55
Figure 55. Future imagination of the housing units in Zaatari. The author, 2020	56
Figure 56. Future imagination of Zaatari city. The author, 2020	56
Figure 57. Sustainable development goals, SDG 2020	56

LIST OF TABLES

Table 1 The growth of Zaatari camp, UNHCR, 2012 to 2013	12
Table 2 UNHCR Handbook for Emergencies, (Section V. Appendices). UNHCR. 2002	43
Table 3 List of the principles of sustainable urbanism, (Kasioumi, 2011)	45

LIST OF ABBREVIATIONS

ESC	Emergency Shelter Cluster
NGO	Non- Governmental Organization
UN	United Nations
UN/OCHA	UN Office for the Coordination of Humanitarian Affairs
UN-Habitat	UN Human Settlements Program
UNHIC	UN Humanitarian Information Center
UNICEF	United Nations Children's Fund
UNHCR	United Nations High Commissioner for Refugees
WFP	World Food Program

CHAPTER I – INTRODUCTION

1.1 Justification and frame

Conflicts and disasters—whether made or natural—often result in the wide-scale displacement of people. This may result from the loss of homes and background, religious or political oppression, or simply an economic necessity. Some remain displaced within their own country's borders, if not their own region or homeland. Others will cross international borders as refugees (NCBI, 9 July 2005).

More than 70 million people have displaced worldwide, the highest number on record since the UN Refugee Agency (UNHCR) began collecting statistics. At least 15 conflicts have exploded or reignited throughout the world since 2010, according to this crisis.

Half of the world's refugees have come from only three war-torn countries: Syria, Afghanistan, and Somalia (UNHCR, 19 June 2019).

The emergence of organizations such as The United Nations (UN), UNHCR World Health Organization (WHO), and the great increase in the number of temporary and permanent shelters, from organized camps to self-settled camps, explain the need for studies on displaced people and their demands.

Displacement of people's settlements is a part of the human experience. Fleeing, disaster or violence is among the least desirable aspects of the human condition and remains among the world's most difficult challenges. Every minute, 24 people worldwide are forced to flee their homes; 34,000 people a day leave everything behind, hoping to find safety (UNHCR, 18 June 2015).

As an example of that refugee condition, this study focuses on the refugee camp standard found in Jordan, Zaatari camp. It is now the second-largest refugee camp globally, and the main population in it are Syrian refugees.

What are the main features that refugees need in the camp, and what are they suffering? How can that affect their life and behavior?

The important role of architecture in improving camps.

1.2 State of The Art

The study is based on secondary sources. A broad range of literature review was undertaken to establish a conceptual basis and background, covering a wide range of theoretical approaches to environmental psychology and shelters after a disaster. The main sources included papers, articles, and works from humanitarian organizations like UNHCR and Red Cross.

Relying on the United Nations High Commissioner for Refugees (UNHCR), also known as the United Nations High Commissioner for Refugees, to collect all the information and manuscripts about the Syrian conflict, refugees, or hosting countries that have been viewed.

The most useful recommended resources that this research was relied on, the ones that refer to refugees, urban planning, shelter design, conflicts, displaced people, Zaatari camp, and Syrian architecture, are: Zaatari: The Instant City, Rethinking the design models of refugee camps, Impromptu cities, the interrelationship between built environments and displaced peoples' behavior, Urban Systems of the Refugee Camp, Traditional Syrian Architecture, Therapeutic community: for refugees, The refugee experience individual survival to community engagement.

1.3 Objectives

This research focuses on the important role of architecture in developing and improving refugee camps to obtain a better environment to live in and reconsider the shelter design and urban planning of the camps when it has turned up from temporary to long term accommodation.

As an example of that refugee situation, the focus within this research is upon Syrian refugees in the Middle East, taking as case-study the Zaatari camp in Jordan, the second-largest refugee camp globally, where Syrian refugees are the main population.

Furthermore, this study also aims to

- raise awareness on how much the shelter can affect the displaced people's behavior and the importance of studying the refugee's old environment and consider it to design sustainable long-term camps.
- overview the Syrian refugee's situation in the Middle East hosting countries to examine the main problems that Syrian refugees suffered in the camps.
- understand how refugee camps, evolve.
- study what factors might guide the camps' design for refugee camp planning?

1.4 Methodological Considerations

The research methodology of the project is based on the following research approaches.

1. General information: Through examining and understanding the global refugee crises, based on the 1951 Refugee Convention's agreement.

An overview of the refugee relationship with the surrounding environment.

Syrians after the conflict in the hosting countries.

2. Analytical approach: a full study about Zaatari camp, analysis of (weaknesses - strengths - possibilities).

Describe the current situation of Syrian refugees in the study.

3. The comparative approach: highlight influential features of Middle East culture and study old traditional Syrian architecture.

Furthermore, how does transitional shelter match this environment?

4. The applied approach: an overview of guidelines for camp planning and sustainable urbanism what is wrong with these guidelines considering the Mediterranean environment.

5. Trying to propose upgrading to the camp setting and enhance the quality of life for refugees.

1.5 Structure of Contents

The present work is organized into six chapters.

- The first chapter includes the introduction and the thesis clauses' adopted strategy.
- The second chapter provides a better understanding of the global refugee crisis. It focuses on Syrian refugees, how they are escaping the conflict and the countries with the highest population of Syrian refugees in the Middle East.
- The third chapter presents a full study of the Zaatari camp as an example of the camps in the Middle East and its evolution over time since the Syrian war began.
- Analyze the problems of (urban, water, safety, hygiene, and shelters provided in this camp).
- The fourth chapter presents an overview of the old Syrian culture, housing, and environment.
- The fifth chapter compares whether camp plans relate to the refugees' cultural living patterns and how people are trying to adapt to their new environment in the camp.
- The sixth chapter discusses the important role of architecture in building a better environment and an overview of the guidelines for refugee camp planning defined by UNHCR and Sphere guidelines for better camp planning.
- The seventh chapter presents the conclusion.

CHAPTER II – LITERATURE REVIEW

2.1 Background

A refugee camp is supposed to be a temporary arrangement built to accept people who no longer feel secure because their lives are threatened in the country of their citizenship. Whether planned or improvised, it is required to satisfy basic human needs for a short period of time. (UNHCR, 5 September 2020).

The medium time a refugee may spend in a camp is 8 years, so while these camps are supposed to be temporary solutions they convert to permanent camps over time. These settlements are usually organized and run by a government, the United Nations, or international organizations, such as the UNHCR (United Nations High Commissioner for Refugees) partnered with other NGOs.

The number of people escaping war, persecution, and conflict passed 70 million in 2018. This is the highest level UNHCR, the UN Refugee Agency, has seen in its almost 70 years; half of the world's refugees have come from only three war-torn countries: Syria, Afghanistan, and Somalia (UNHCR, 19 June 2019).

As an example of the Syrian refugee situation, this research's focus is upon the refugee camp model found in Jordan, the Zaatari camp. It is now the second-largest refugee camp globally, and the main population in it are Syrian refugees.

2.2 Refugee definition

A refugee is a person that has been obliged to leave their country owing to a well-founded fear of being killed for purposes of race, belief, nationality, membership of a special social group, or political opinion is outside the country of his origin and is ineffective or owing to such fear, is unwilling to avail himself of that country; also a refugee is a person who not holding a nationality and being outside the country of his earlier set residence is inefficient or, owing to such fear, unwilling to return to his country (UNHCR, 1951).

2.3 Refugee camp definition

Refugee camps are temporary facilities built to offer quick protection and support to people who have been forced to flee due to conflict, violence, or persecution. While camps are not designed to provide permanent, sustainable solutions, they grant refugees a haven to receive medical treatment, food, shelter, and other primary services during emergencies (UNHCR, 2020).

2.4 The Syrian refugee crisis

The world is currently in the middle of a refugee crisis; unlike anything we have witnessed in the post–World War II age. A range of conflicts throughout the world, most notably but not only the Syrian civil war, has left more than 60 million people without homes or a safe place to return to.

The crisis is swamping authorities worldwide with enormous numbers of refugees they are either unwilling or unable to take in. With a population of just over 6 million people, Jordan is now home to more than 600,000 Syrian refugees, which its government says it cannot manage to maintain regularly. With 76 million populations, Turkey has taken in 2.5 million (UNHCR, 2019).

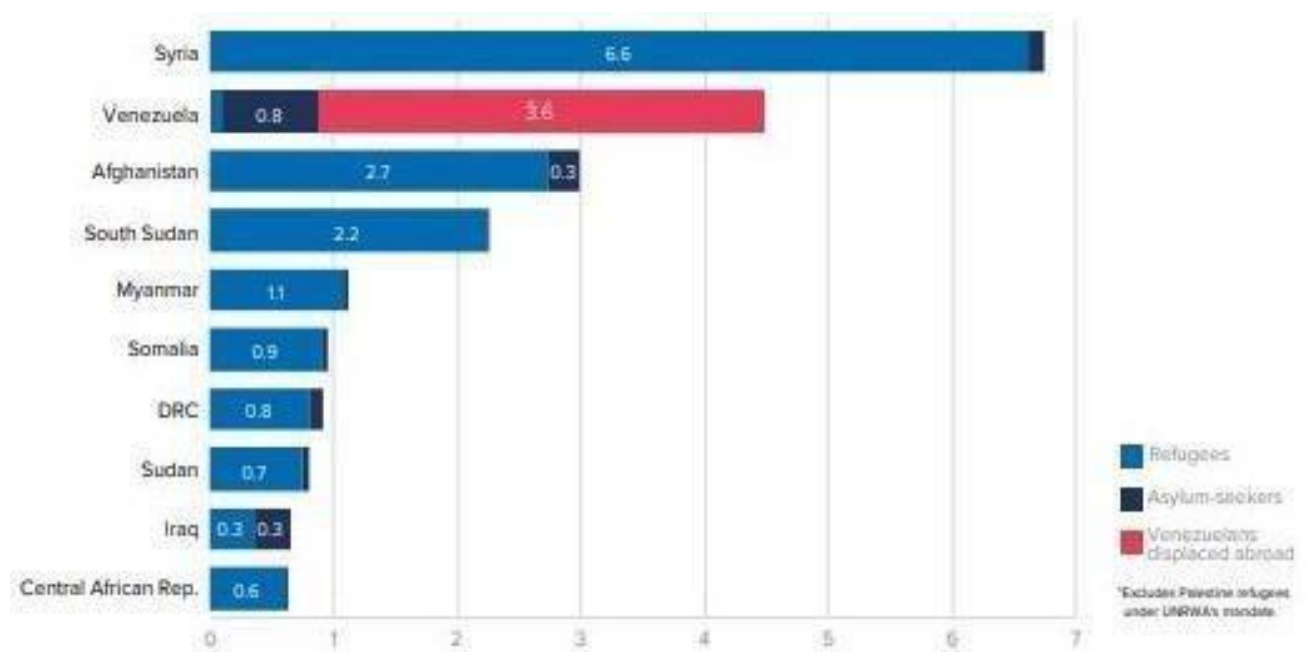


Figure 1. International displacement situations by country of origin | UNHCR, end-2019

Syria is the single largest driver of the refugee crisis, but many other problems are contributing. Generally, we think of the refugee crisis as a Syrian refugee crisis. Furthermore, indeed, Syria's civil war is the single largest source of refugees worldwide.

Over the last eight years, intense fighting in Syria has forcibly displaced more than any other country. At least 13 million, more than half the country's population, remain displaced, in our outside Syria, missing, or in need of assistance, over half of whom are children.

Millions of refugees live in overcrowded camps, Turkey, Lebanon, Iran, Jordan, Egypt, Pakistan, and Ethiopia. Millions of others have fled to Europe and other countries worldwide (VOX, 2017).

2.5.1 Syrian refugees after the war

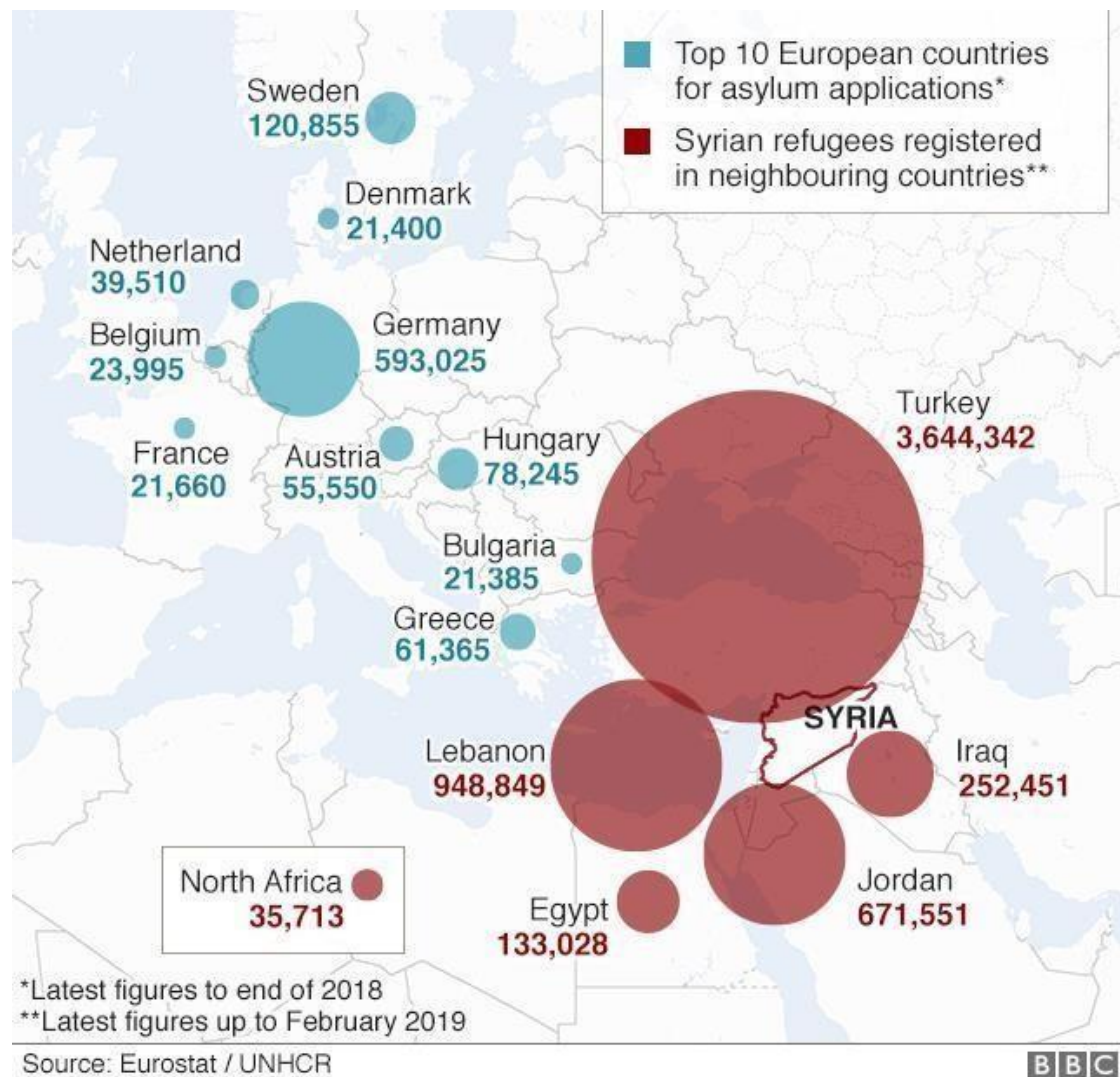


Figure 2. Latest figure shows where Syrian refugees are after the war up to February (UNHCR,2019).

One of the first things you will notice on this map is that the largest Syrian refugee population is not in Europe. It is in the Middle East in Syria's neighboring countries, often in vast and underfunded UN-run refugee camps. That is the major reason why so many refugees are moving to Europe. Many see little hope of returning home to Syria anytime soon and see little future for themselves and their families in the camps in Turkey, Lebanon, and Jordan.

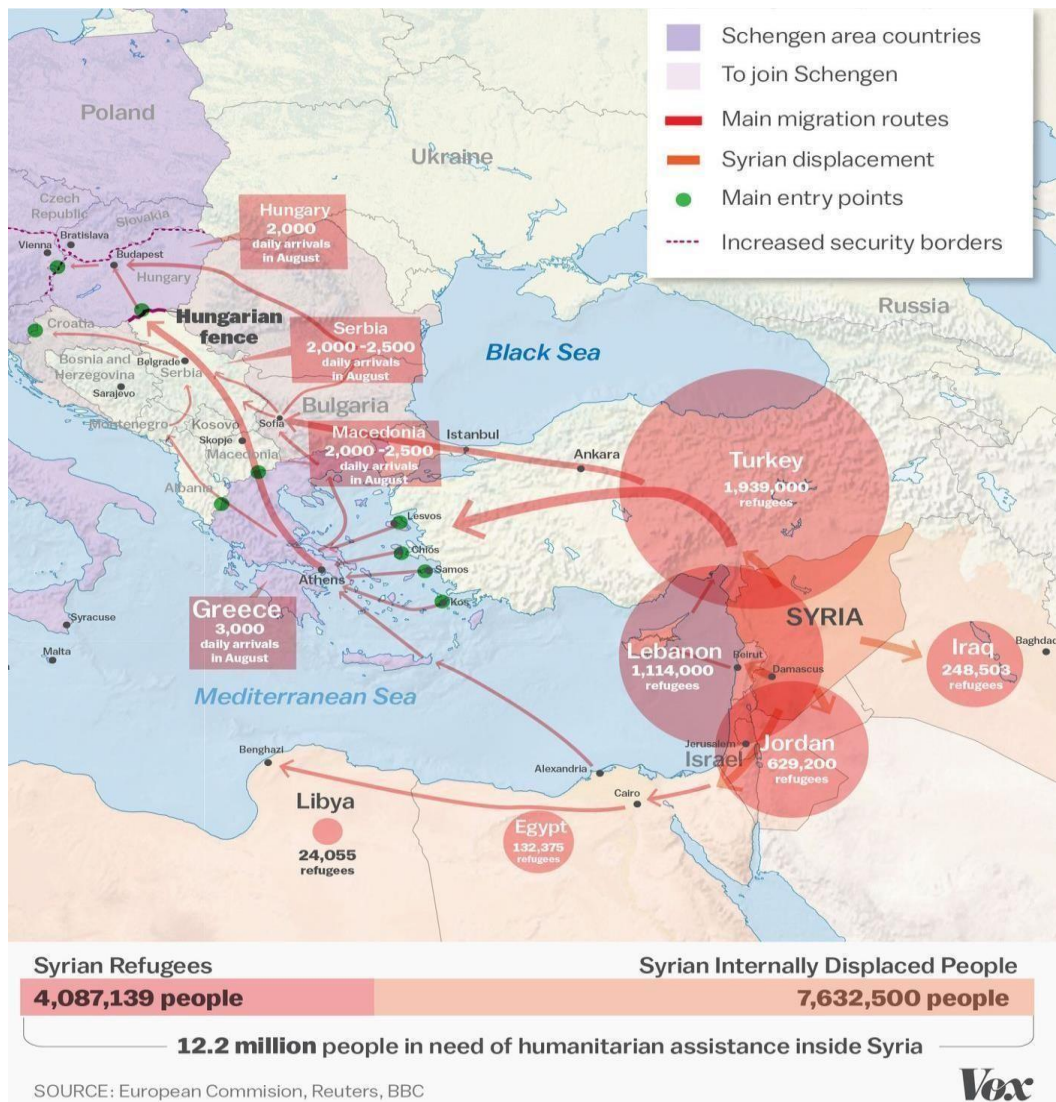


Figure 3. The Syrian refugee crisis explained in one map. European Commissions, Reuters, BBC, 2015.

Routes into the European Union, particularly toward the more northern EU states that are often more likely to accept refugees.

Syrian refugees in Turkey or Lebanon usually go across the eastern Mediterranean to Greece from Turkey, but others also travel to Egypt and take the trans-Mediterranean way there. Some go beyond land entirely, passing from Turkey into Bulgaria.

These routes are dangerous. Refugees crossing the Mediterranean usually travel in badly assembled dinghies that make even Turkey's short trip to Greece dangerous. About 2,700 people (that is a total, not just Syrians) have died so far seeking to cross the Mediterranean, and even when you reach land, you are not safe. 71 migrants crammed into a truck choked to death in a truck in Austria, so those arrows on the map, big and small, by no means show secure travel routes; rather, they guide to roads and seaways born out of concern.

Once on the European continent, Syrian refugees often go to the Balkans to enter the EU in Hungary or Croatia. Nevertheless, even once in the EU, refugees must confront many European countries to keep them out or keep them from moving freely across Europe.

For instance, the border controls among Hungary and its neighbors, or between Austria and Germany, are a major and, at times, a dangerous impediment to refugees.

Such border controls are. Moreover, several arguments against the EU's vision, among which the Schengen Area countries (marked in purple) are supposed to allow free movement across one another's borders. As you can see on the map, Hungary has built a fence on its border to keep refugees out.

Greece, now swaying from its financial crisis, has been unable to treat the thousands of migrants forcing refugees in places like lebos to set up impromptu tent cities near the port (VOX, 2017).

2.5.2 Hosting countries in the Middle East

Currently, Syrian refugees have got asylum in 125 countries worldwide, with the majority being received by Turkey (3,424,200).

At the end of 2017, large populations of refugees from Syria were also remaining in Lebanon (992,100), Jordan (653,000), Germany (496,700), Iraq (247,100), Egypt (126,700), Sweden (103,600), Austria (43,900), and the Netherlands (30,900). (Clingendael Spectator, 2018).

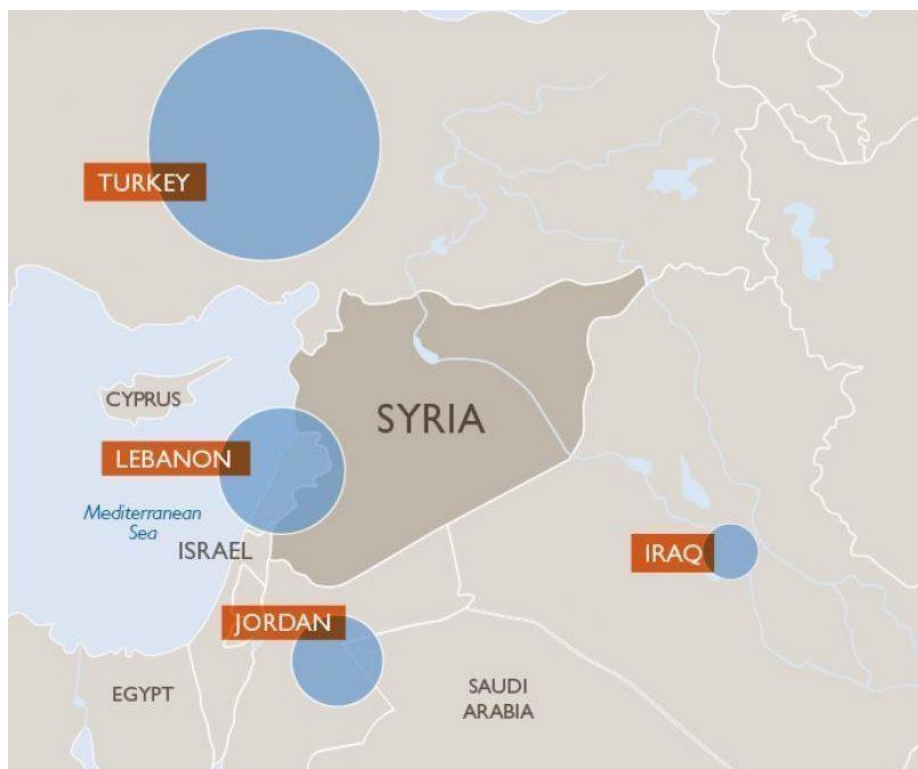


Figure 4 largest population of Syrian refugees in the hosting countries (UNHCR,2017).

2.5.3 Turkey

Turkey presents a central position in the Syrian crisis. It hosts at least 54% and 64.8% when considering only the neighboring countries, of the more than 6.6 million Syrian refugees. Since 2014, Turkey has become a country that hosts the highest number of refugees in the world. Notably, in 2011 before the Syrian Crisis outbreak, the number of foreigners under international protection in Turkey was 8,000. (Gaziantep Metropolitan Municipality, 2016).

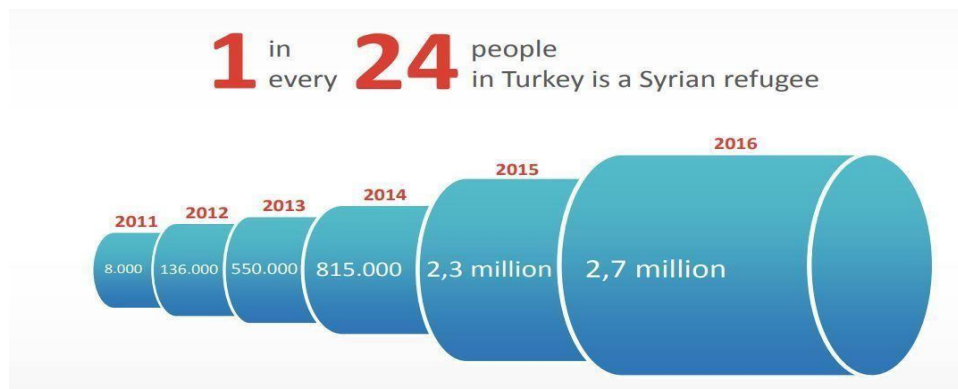


Figure 5. The number of Syrian refugees in turkey (UNHCR,2016).

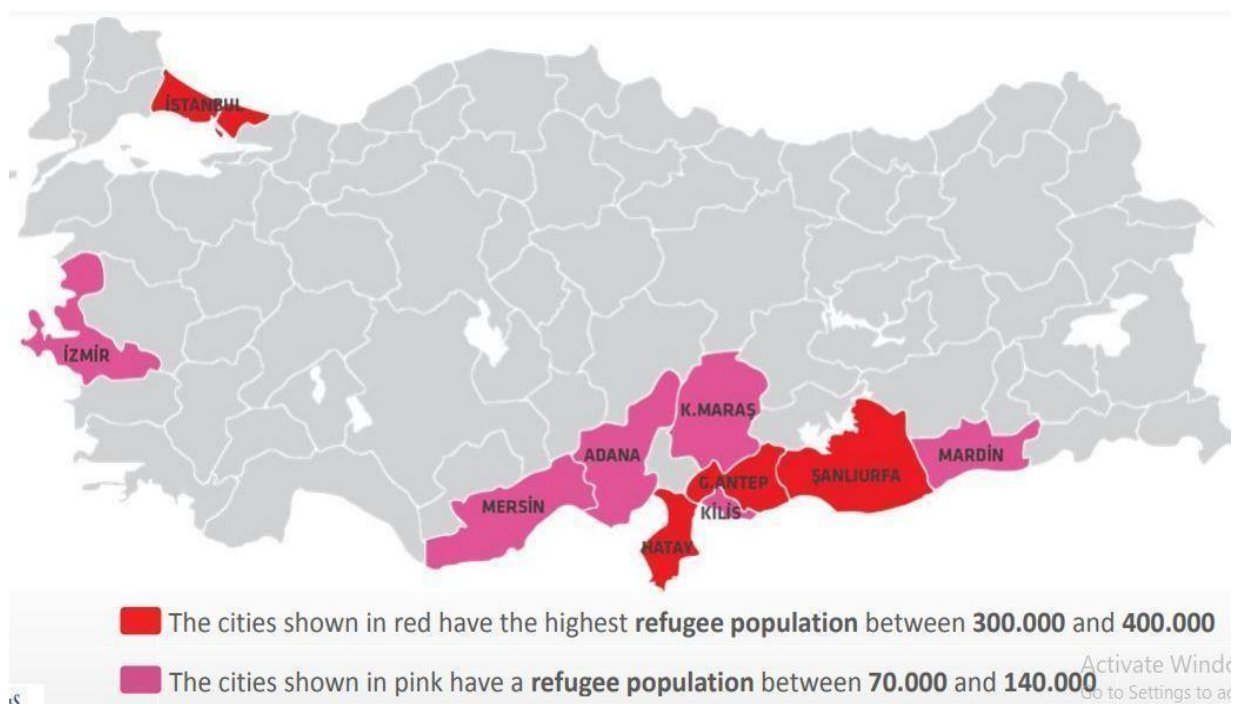


Figure 6. The largest population of Syrian refugees in Turkey (UNHCR,2016).

2.5.4 Lebanon

Lebanon hosts about 944,000 Syrian refugees, about a third of whom live in the Bekaa region, while the remaining refugees are scattered in the North Lebanon Governorate, Beirut, and the South. According to the United Nations High Commissioner's records for Refugees from July 2018 until now, the number of refugees in Lebanon has decreased by 31,000.

In recent years, Syrian refugees in Lebanon have suffered from the worst asylum experiences than all other host countries, whether neighboring or not.

Most of the Syrian refugees live within Lebanese communities across the country. However, they are mainly concentrated in the poorer areas in the north, the Bekaa Valley, and Beirut's capital. Even before the Syrian crisis, some areas of Lebanon (especially in the North and the Bekaa) were the poorest and most underserved. Social services, infrastructure, and livelihood opportunities were limited and often inadequate (BPB, 2016).

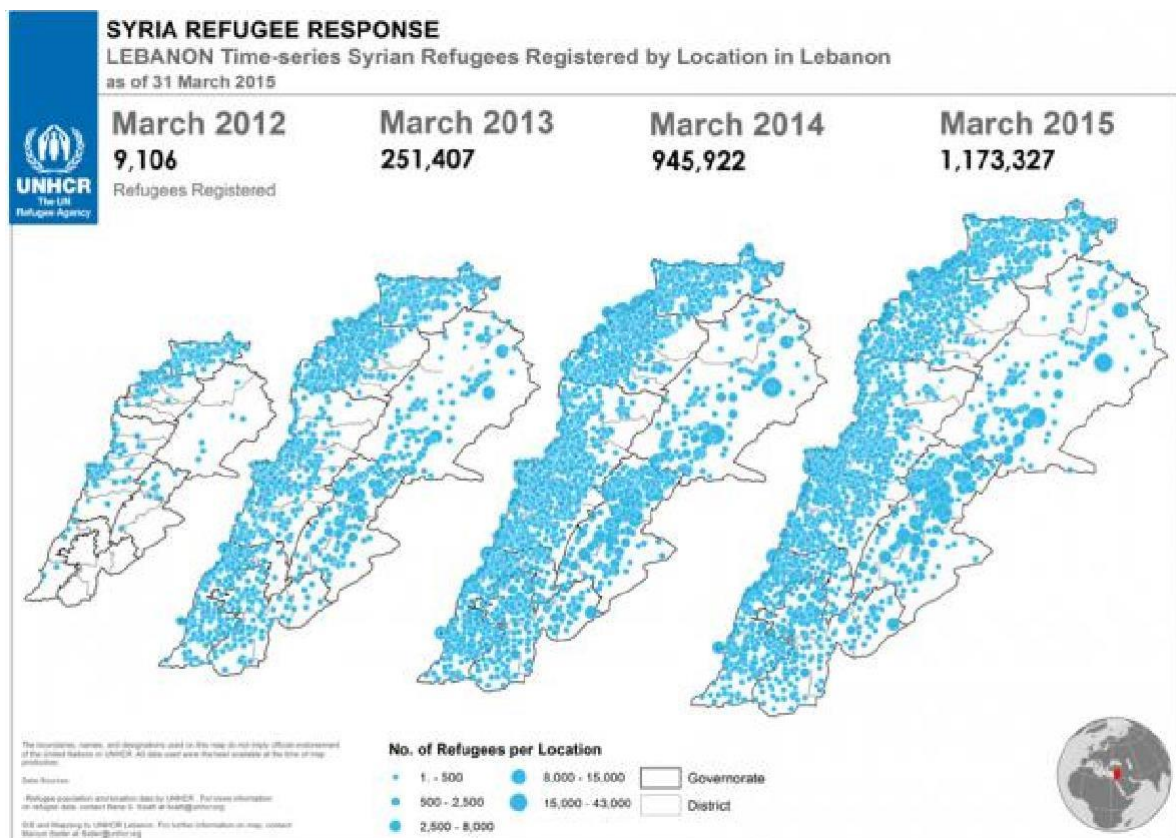


Figure 7. Syrian refugees by location in Lebanon (UNHCR,2015).

2.5.5 Jordan

Considering the start of the conflict in Syria in 2011, Jordan pushed the impact of a large influx of Syrian refugees. Today, the Syrian refugee rate for more than 10% of Jordan's population, putting enormous pressure on the country's overextended support in one of the most difficult economic periods in its history. More than 670,000 Syrians joined UNHCR in Jordan (the U.N. High Commissioner for Refugees).

Most of these refugees—81 percent—live in cities and towns instead of camps. This implies they must find a way to pay for things like rent and transportation. However, only a limited number of refugees have a work permit, so most of these families have generous assistance to meet their most basic needs. Since July 2016, the Jordanian government has granted more than 100,000 work permits to Syrian refugees, allowing them to work legally and earn for their families.

About 40,000 Syrians are stranded at the northeastern border between Jordan and Syria in an informal agreement called Rukban. The U.N. World Food Program, along with other U.N. agencies and NGOs, has been giving food support to this population. Despite this, humanitarian access remains difficult due to security risks and border closures (WFP, 2019).

Syrian Refugees in Jordan - by Locality

Syrian Refugees in Jordan (Urban Only) by end of May 2020

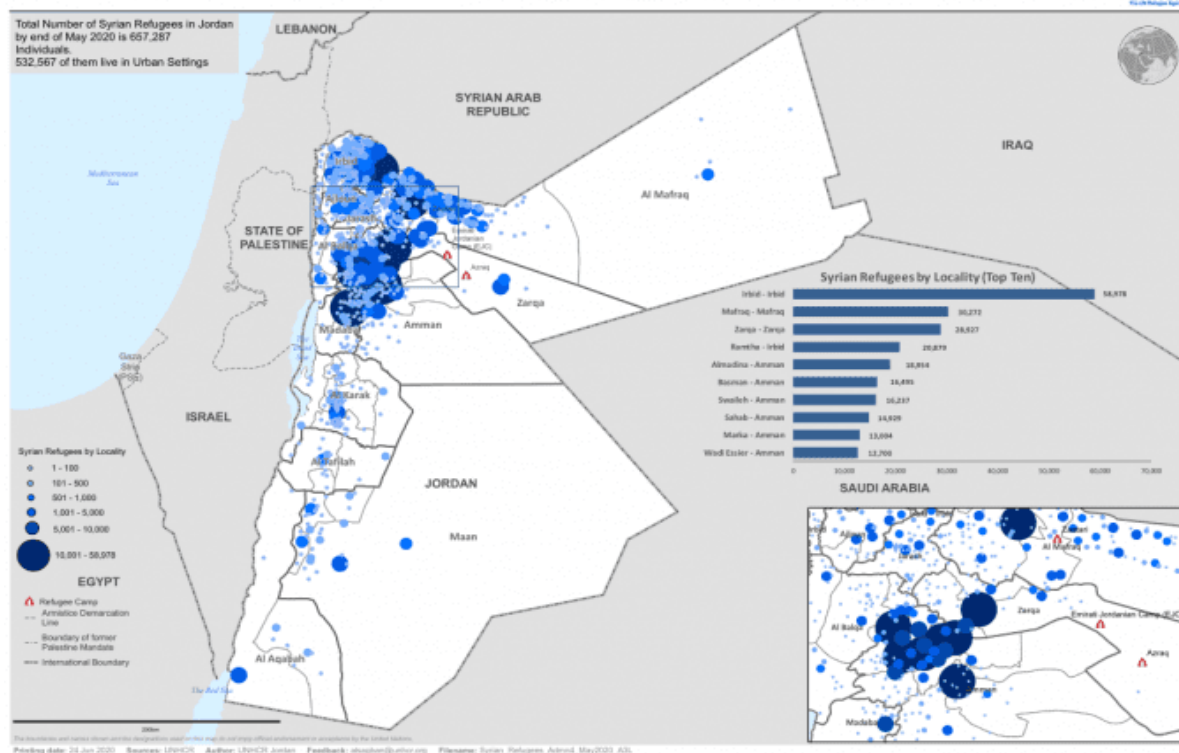


Figure 8. Syrian refugees in Jordan, by locality (UNHCR,2020).

CHAPTER III – SYRIAN REFUGEE CAMPS IN THE MIDDLE EAST

Zaatari refugee camp, Jordan.

3.1 History and evolution

Al Zaatari Refugee Camp opened on July 28, 2012, in the Mafraq Governorate of Jordan. Since July 2012, Zaatari has developed from an empty stretch of desert into the home of a population of around 80,000 refugees today (UNHCR, 2014). It is the second-largest refugee camp, right after the world's largest Dadaab refugee camp located in Kenya, and the fourth largest "city" in Jordan. It costs the U.S. \$500,000 per day in operation (The guardian, 2013); this is paid by the United Nations, partner organizations, and Jordan's government.



Figure 9 Zaatari camp in Jordan (UNHCR, 2014).

3.2 Growth of the Zaatari camp

In April 2014, the Jordanian government closed the unofficial border crossings in Daraa. The camp's growth rate, measured by number of dwellings, experienced the following increases over time:

Date	Dwellings	By Percent
September 2012	2,400 dwellings	----
October 2012	No data	----
November 2012	5,163 dwellings	215%
December 2012	No data	----
January 2013	11,966 dwellings	232%
February 2013	18,169 dwellings	152%
March 2013	26,242 dwellings	144%
April 2013	25,378 dwellings	101%

Table 1. The growth of Zaatari camp, UNHCR, from 2012 to 2013.



Figure 10. The growth of Zaatari camp, UNHCR, September 2012.



Figure 11. The growth of Zaatari camp, UNHCR, November 2012.



Figure 12. The growth of Zaatari camp, UNHCR, January 2013.



Figure 13. The growth of Zaatari camp, UNHCR, February 2013.



Figure 14. The growth of Zaatari camp, UNHCR, March 2013.



Figure 15. The Zaatari camp, UNHCR, April 2013.

3.3 Analysis of Zaatari refugee camp

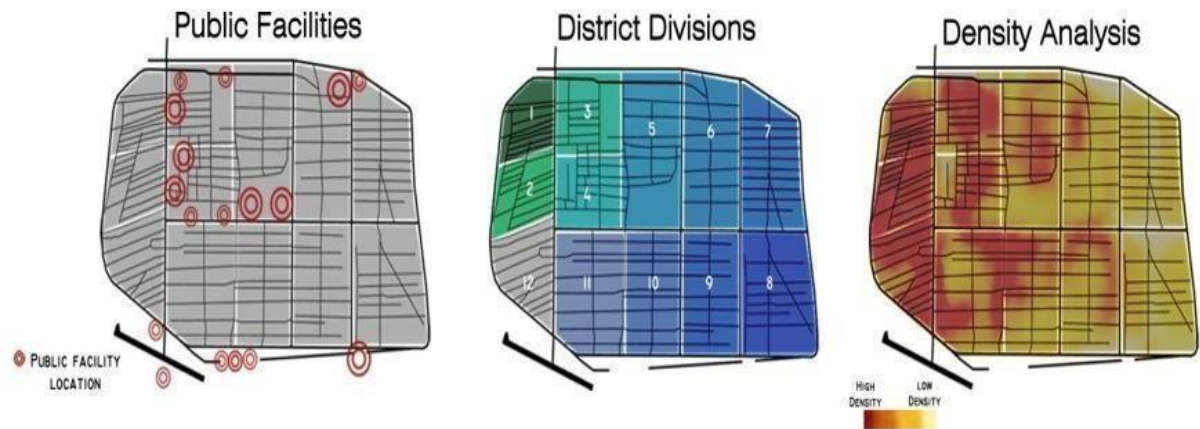


Figure 16. Analysis of Zaatari refugee camp, (UNHCR, 2014).

3.3.1 Planning and Development

The land Zaatari sets upon was provided by the Jordanian government owned by the Jordanian armed forces and the camp (JHCO, 2014). The camp has an area of 220 square meters; it is surrounded by a ring road measuring 8.3 kilometers. The camp started expanding from its west side towards the east, the west side is now known as "the old camp" or the "downtown" of Zaatari (UNHCR, 2013), and it has a significantly higher density than the newer parts of the camp. The Jordanian government erupted some tension during the camp's planning, with concerns that it will become a permanent city. It had a vested interest in the Syrian refugees leaving at the end of the conflict (Ledwith, 2014).

Zaatari camp has no proper infrastructures, streets, facilities to the main heath, or other local services. "it is a more random area growing up continually without previous planning "(Alison Ledwith, 2014). Back streets are often in poor condition, with water filling numerous craters left by residents seeking sand for construction. Flooding, especially in the winter of 2012-2013, makes the streets further impossible.



Figure 17. The winter in refugee's camp, poor drainage, Jordan (UNHCR,2017).

3.3.1.1 Layout and the built environment

UNHCR and the Jordan Hashemite Charity Organization-JHCO jointly planned and developed the camp. In the beginning, and as the camp was established in a matter of 2 weeks as an emergency response, it lacked a formal layout, and the original urban fabric was in rows of tent infrastructure, with close spacing in between, which can still be seen in the old camp. Later on, however, a formal layout as a grid system with caravans set in rows was introduced as recommended by the UNHCR camp design guidelines; the spacing between caravans is designed.

To accommodate vehicles, guard against fire, and promote hygiene. Little caravans started replacing the old camp; however, the close spacing required that more caravans than advisable are placed in a given area (UNHCR, 2013).

Though the original arrangement of the camp, divided into 12 districts, was marked by housing placed in rows to allow for access, fire prevention, and sanitation management, the informal layout of the camp arose after the residents received the caravans; they rearranged the housing units whether tents or caravans, to create U-shaped and courtyard housing complexes that function as compounds for extended families. Other rearrangements of the camp allow refugees to move closer to people from their villages; eventually, these unauthorized adaptations altered Zaatari's layout into a maze-like map (Ledwith, 2014).

Limitations on the permanence of infrastructure are reported; particularly, no trees may be planted, and no roads or surfaces may be paved (Sullivan and Tobin, 2014).

The two main building typologies are tents and caravans, a prefabricated modular dwelling. Many shops are constructed out of the same modules used for housing. While both modules reach the camp fully constructed, residents frequently carry out construction and upgrading initiatives on their shelters, nonetheless. Scrap wood and aluminum siding can be bought from the local market. Damage to communal infrastructure is common, for refugees steal toilets, water tanks, fence posts, and building materials for their private use (UNHCR, 2013). Refugees often also dig in paved streets to purchase sand for construction, which results in the back streets are often in poor condition (Al-Makhadhi, 2013). Projects for communal facilities are the responsibility of the sponsoring government or NGO.

Open space:

The main type of public open space is the football fields and game areas. Volunteers from the Jordan women's national team, as well as donors from the United Kingdom and South Korea, have helped bring community-building football resources to the camp (Wilson and Würger, 2013).

3.3.1.2 Building Codes

In July 2012, almost the entire population lived in tents. Caravans were brought later when the displacement lasted longer than expected, and more stable housing solutions were required. The tents are made of canvas, while the caravans are prefabricated units. Caravans are far superior due to their protection against weather and vermin, increased privacy, and overall structural stability and tenure (Al-Makhadhi, Rudoren, Doucet, Gavlak, 2013).

3.3.1.2.1 Normal aluminum shipping caravan.

Description: Many agencies use this caravan as an emergency relief standard. Initially developed by UNCHR over several years.

Climate: come in both warm climate and cold climate versions.

Material Involved: Mainly steel structure.

Approx. Weight: 350 Kg

Dimensions: Generally, 5m X 3m comes like units



Figure 18. The standard shelter in Zaatari camp provided by UNHCR, 2011

Caravan distribution

UNHCR leaders expected to distribute a caravan to everyone who lived in a tent during the winter of 2013 - about 40% of camp residents - by the end of January 2014. A February 2014 report indicated that only five percent of the residents lived in tents - all-new Arrivals. Donors, mainly Saudi Arabia, spent \$ 75 million to build 24,000 caravan units at about \$ 3,125 per unit (UNHCR, 2014).

While all sources agree that the official distribution of caravans is uniform, there are several discrepancies in the amount of space allocated per person between UNHCR documentaries and reports. UNHCR reports that each family receives a caravan, and larger families also receive a tent.

3.3.1.2.2 Centre Pole tent for cold climates.

Description: this significant design feature of this tent is its high walls, providing ample headroom.

Climate: originally developed by UNCHR over several years for cold climates with thick cotton canvas and covered openings.

Material Involved: cotton or poly cotton canvas, Centre pole galvanized steel, painted steel.

Side poles bamboo & cables.

Approx. Weight: 120 Kg

Dimensions: generally, 4m X 4m. A double-poled version of 6m X 4m is also used.

Larger versions are possible and form a traditional military marquee (shelter project, 2014).



Figure 19. The standard tent shelter in Zaatari camp provided by UNHCR, 2011

Although the basic housing modules are only two caravans or tents, one can still observe more complex dwelling arrangements made by refugees around the camp. A diverse array of U-shaped or courtyard compounds exists made by combining caravans and tents with other privately purchased materials in some cases. Those are created to live along with extended family and create a sense of privacy and individuality in their shelter (UNHCR, 2013).

As stated earlier, later improvements to the caravans and their arrangements are widespread around the camp. Residents often steal components from communal properties to enhance their shelter. The outcome of this is highly unequal housing.

In refugee camps, they always provide these shelters as temporary solutions while seeing them is not. Camps are going bigger and bigger, and people have been living there for decades.

Shelters in most refugee camps are not well isolated and not designed to face the heat or the cold in the different seasons of the year (shelter project, 2014).

3.3.3 Services and facilities

3.3.3.1 Education

There are three schools in Zaatari; The Jordanian Ministry of Education promotes quality by certifying schools; only schools taught by Jordanian teachers can be certified, though Syrian teachers may work as assistants. Eleven NGOs work together to provide education aiming at children 5-17 years old, separated by sex, and provided gratis. Each school has a capacity of almost 5,000 students; double shifts are used to afford more access to education. Girls attend in the morning and boys in the afternoon, with 60 boys enrolled for every 40 girls (Malkawi, UNICEF, 2014).

Even though the majority desire to attend school, the attendance rate of 40 percent is quite low and leads to fears of an illiterate “lost generation” following the crisis (Chulov, 2013).



Figure 20. Children going to school in Zaatari refugee camp (UNHCR, 2017)

3.3.3.2 Health

Since Zaatari houses war refugees, some of the most pressing health concerns are the conflict's physical and psychological impacts.

Other concerns are the current health and sanitation problems typical consequences when living in a refugee camp. Zaatari medical system and hospitals provide in-patient treatment for a diversity of conditions; however, when facilities are insufficient, outside referrals to Jordanian hospitals are due (Chulov, 2013) and (Palo, 2014) and (UNHCR, 2013).

There are three main hospitals in Zaatari and over 100 Syrian medical volunteers referred to as "Syrians healing Syrians" the conditions treated include war injuries, malnutrition, and maternal health. Mental health conditions resulting from war trauma are common, and children are especially vulnerable. An added risk to children is the risk of early or forced marriage to girls and child labor (UNHCR, 2013).

The following are all the medical facilities: the IMC Clinic, the JHAS Clinic, the Jordan Italian Field Hospital, the MDM Clinics 1 and 2, the Moroccan Field Hospital, and the Saudi Clinic. Hospitals operated for some time in tents until the summer of 2013; caravans replaced the tents to increase the critical infrastructure's security and stability (UNHCR, 2014).



Figure 21. Health care in Zaatari (UNHCR, 2014).

3.3.3.3 Sanitation

According to one street leader, poor sanitation is one of the most common complaints of camp residents. Poor coordination among camp officials and NGOs causes difficulties, as well.

For instance, an NGO removed WASH facilities in poor condition, only for them to remain un-replaced three months later.

This has led some residents to construct alternatives; in-home pit latrines could be found in 60 to 70 percent of homes by the end of 2013.

While one news source indicates that in-home toilets with sewage pits can be emptied by truck, aid organizations report that these facilities cannot contain sewage, resulting in standing grey and black water in the camp.

The underground aquifer, containing a substantial percentage of Jordan's water reserves, limits the ability to construct a full sewer system and raises groundwater contamination concerns from these makeshift Facilities (Relief web, 2015).

3.3.3.4 Electric service

The United Nations funds installed it to service critical buildings, such as hospitals and schools. A grid of streetlights in the camps, but streetlights are scarce in the newer sections. However, nearly three-quarters (73%) of households have electricity connections, although all personal electrical connections are illegally wired (UNHCR, 2014). The spaghetti-like existence of illegal connections makes maintenance of the electrical grid difficult for engineers and creates a safety hazard. In response, camp officials worked with the 350 electricians responsible for the illegal connections to install pylons and more powerful transformers to provide more reliable service and flood protection (Al- Makhadhi, 2013) and (UNHCR, 2013).

3.3.3.5 Safety

Sexual and gender violence is an important issue in Syrian refugee camps in Jordan.

"In 2013, reports revealed an increasing prevalence of forced and early marriages in IDP communities, where families have resorted to it as a negative coping mechanism due to general insecurity and lack of conflict or in collective shelters are among those who have been largely affected. In the present circumstances, families believe that early marriage is necessary for their daughters in the current situation.

Most of the Syrian refugee camps are children and women because men are fighting in Syria. All refugees have to struggle for their daily lives, and women struggle due to their sex. They spend most of their time protecting themselves from different kinds of abuses. Most of them feel unsafe to leave their homes; they even do not feel safe inside their places due to domestic violence (Naseem Baradaranfallahkhair, 2014).

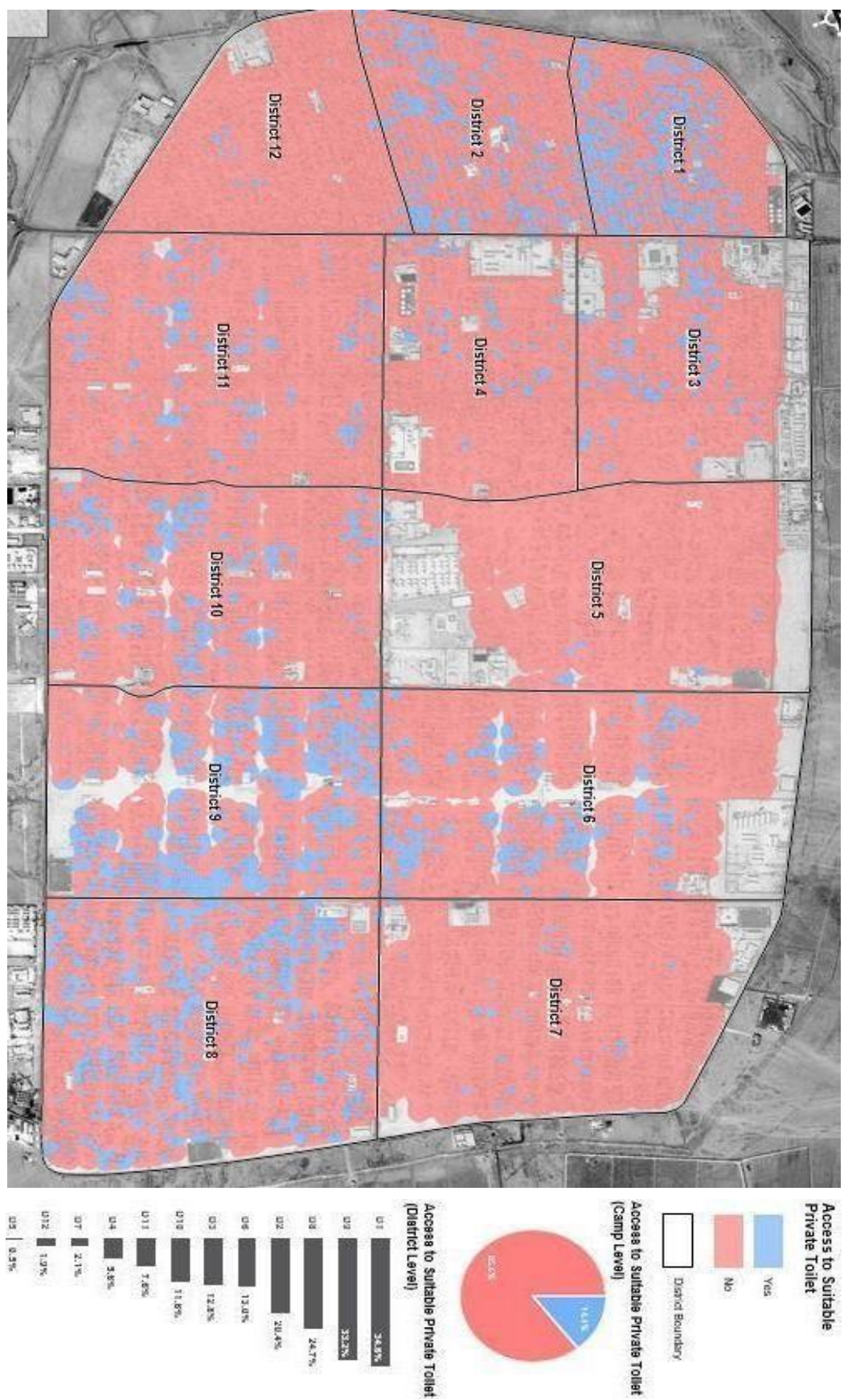


Figure 22. Sanitation areas in Zaatari camp, Jordan UNHCR, 2014

3.3.3.6 Water

A human being can survive a week without food but cannot live more than three days without water. While the abundance of water in our daily lives means that most of us don't worry, the reality is that millions worldwide suffer from a lack of access to water, many of whom are refugees. Refugee camps often do not have enough water to supply all the refugees who reside in them.

Most refugee camps worldwide cannot provide the recommended minimum water of 20 liters of water per person per day. Also, many countries with refugees have water shortages. For example, Jordan is one of the top 10 countries with water scarcity globally and has more than 1.4 million refugees (mainly from Syria). In the Zaatari camp, residents used to obtain water from community taps powered by boreholes or water tanks.



Figure 23. A boy retrieves water from one of the WASH areas (UNHCR, 2017)

This has caused tremendous strain on the country's meager water resources, making it extremely difficult to supply sufficient water for refugees. However, the biggest reason behind the lack of water at refugee camps across the globe is the lack of water infrastructure.

The lack of water infrastructure makes it very difficult to transport sufficient water and provide proper sanitation to all refugee camp residents. A recent study by the Jordanian Ministry of Water and Irrigation showed that the country's sewerage network is being overflowed and is subsequently leaking due to the increase in the number of refugees.

Studies have shown that water-borne diseases are more persistently present when the minimum water requirement (20 liters per person) is not met simply because there is less water for sanitation and cleaning purposes. That is why governments must ensure that the recommended daily water minimum is provided to all refugees (Amir Dakkak, 2020).

CHAPTER IV – Background review of Syrians dwelling and the Middle East culture

“Dwelling is more than the materials from which it is made, the labor that has gone into its construction, or the time and money that may have been expended on it; the dwelling is the theatre of our lives, where the major drama of birth and death, of procreation and recreation, of labor and of being in labor is played out and in which a succession of scenes of daily lives is perpetually enacted” (Oliver, *Dwellings: The house across the world*, Oxford Press, 1987).



Figure 24. Syria old house with courtyard. (CNN, Syrian traditions,2015).

Social behavior is one of the important cultural factors in Middle Eastern dwelling and Syria. A house is representative of a society and its culture.

Traditional Middle Eastern housing consists of a “courtyard-house.” Courtyard- houses consist of private spaces (bedroom) and public spaces (guest room), a kitchen, and a courtyard in the middle.

4.1 The Urban House with Courtyard

One of the most common building typologies in Syria is the traditional courtyard house. It can be found in all Syrian cities, just as it can be found in all Mediterranean countries.

This building typology is characterized by a small number of relatively small openings in the external façade and many openings open onto the inner courtyard.

Traditional houses vary in size and luxury, and inner spaces vary in number and size from house to house. However, they all have one common feature: the open courtyard gives the occupant a feeling of privacy and privileges the family's individuals' relations. The latter develops a strong attachment to the house.

The inner courtyard is a garden and the center of household activities: all the rooms are set around it and open onto this gathering place.

In large and medium-sized houses, a fountain is placed in the center of the courtyard and freshens the air; trees are also grown in many traditional courtyards, adding shade and life to this exclusive area.



Figure 25. A courtyard house, Syrian traditions. (CNN, 2015).

The height of the traditional house is limited, usually no more than 10m for two stories. Generally, the living rooms and service rooms are on the ground floor whilst the bedrooms are on the upper floor. In large houses with over one courtyard, spaces are separated into an area for the house owners, another for guests, and a third for servants.

Nevertheless, not all large houses are luxurious or rich in architectural features, though they can have more than one courtyard (CORPUS Levant, MEDA program, 2004).



Figure 26. The section shows the parts of in traditional Syrian house with a courtyard, (CNN, 2015).

In the traditional building, a corridor is accessed by a corridor staring at the house's front door, a design that ensures privacy and security.

Moreover, most of the doors and windows open onto the inner courtyard. The openings on the external façade are limited to a few long windows and high windows. Traditional Arabic houses are known to be welcoming environments and friendly in their design and structure.

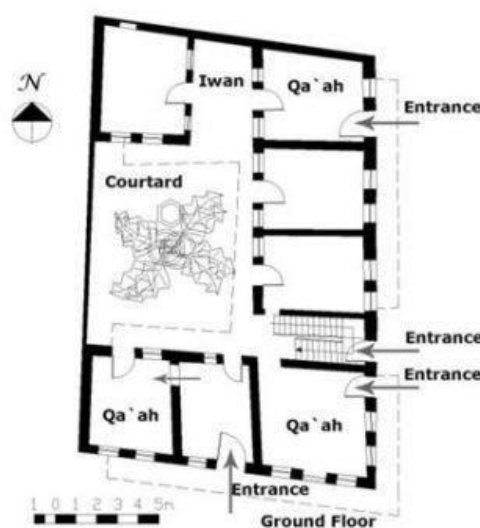


Figure 27. A plan for traditional Syrian house with courtyard, (CNN, 2015).

For example, courtyards are equipped with many elements that help humidify the air (trees and fountains); they also use the Iwan as an open summer sitting room facing north. The thick walls and roofs are good insulators and help stabilize room temperature, while the variable roof heights and protruding elements in the façade provide shade.

Covered streets protect external walls from direct sunlight. Traditional houses in urban areas also contain many architectural elements to ensure a natural airflow through all the spaces. Wind catchers, as well as openings opposite each other, are used. Many ceiling heights are used, and the house's main spaces are conceived to be ventilated by soothing winds (CORPUS Levant, MEDA program, 2004).

4.2 Culture and traditions in the Arab, Syrian environment

Since courtyard houses' morphology is one of the best ways to look at Middle Eastern everyday life pattern and their social, individual cultural norms.

- It is laid out is appropriate for hot climates, with maximizing shading.
- Main entrances are designed to not see private spaces in the house at the front door.
- Plants and water features help cool the environment, and also they are symbols of heaven in Islamic culture.
- In Syrian culture, family and women gatherings have an important role in their family ties. They usually have family gatherings on Thursday nights in their courtyards and women's gatherings in their private part of the house.
- The Rawaq is an important part of Middle Eastern houses. It is a covered space like a gallery that connects a series of aligned rooms; This is one aspect that one could see clearly in Syrian refugee camps; they created some covered galleries in front of their shelters to create privacy for their families.
- The Iwan is an important covered open space. It is located on a platform; at the north façade, so it gets a summer breeze. Iwan is a place in courtyard houses for evening events and family gatherings.
- In courtyard houses, windows face inside the courtyard rather than the street to create more privacy.

4.3 Syrians in refugee camp shelter

Visual analysis and studies based on images of refugee camps' current conditions shed light on people's cultural and behavioral adaptation to the new place.

These investigations show that both private and public spaces are needed. After exploring the current refugee camps' current situations, I concluded that the residents have to adjust their physical and behavioral activities to maintain their previous lifestyles. This is the Procrustean fit of their lives to their ready-made shelters.

The following images show and compare the Syrian's previous and current lifestyles at refugee camps. Looking at current conditions of camps and will find out how they inhabit their transitional shelters and then put an analogous condition of the same activity in their previous lifestyle (Naseem Baradaranfallahkhair,2014)



Figure 28. Current lifestyles at refugee camps, (CNN, Syrian traditions,2015).



Figure 29. Syrian's previous lifestyles (CNN, Syrian traditions,2015).

These containers are Syrian homes, which although they are superior to tents in some aspects; they do not show their occupants' silhouettes at night, they have better insulation for cold and warm weather, and keeping them clean is easier compared to tents- but they are single units that do not consider shaping communities and shared spaces for social activities.

They are prefabricated units, and occupants do not have any role in constructing them to decrease their sense of ownership and attachment to their new places.

They do not reflect the refugees' culture. As you look at additions, refugees added to their containers, creating privacy and entrances with fabric pieces they have available (figure 30) or using the back of the containers as their covered backyards, so residents have made adaptation.



Figure 30. What refugees added to their containers: creating privacy and entrances with pieces of fabric, Zaatari camp, Jordan, 2013



Figure 31. An interior view from containers, Zaatari (BBC,2012).



Figure 32. An inside view of a tent at a Syrian refugee camp, Zaatari (BBC, 2012).

The next figure from a Syrian refugee camp in Jordan; the shelter residents tried to bring in objects like a tree and a birdcage to make it look like home. Objects like a tree and a small birdcage make a place feel more like home. There are simple features that can provide for people to make a place homey for them.



Figure 33. A Syrian child sitting in front of their container, (REUTERS,2016)



Figure 34. Plants are symbols of heaven in Islamic culture (CNN, Syrian traditions,2015).



Figure 35. Children in refugee camp missing playground, (REUTERS,2016)



Figure 36. Syrian children playing in house courtyard, (CNN, Syrian traditions,2015).

Syrians are trying to adapt the shelters to their culture and their previous daily life pattern; they are trying to separate private from public space. They are trying to create spaces for their simple needs and the values they want to inhabit there.



Figure 37. Refugees missing private zones, (REUTERS,2016)



Figure 38. Iwan in courtyard houses, (CNN, Syrian traditions,2015).

When people inhabit a place, they need to socialize with their neighbors. In sadness and happiness, people want to know their neighbors and share experiences and feelings with them.

Refugees do not make them or install them, and designers and manufacturers of these shelters did not look at them as places that are shaping communities, as places people are going to inhabit. One could not find mutual values and features of the hierarchy Maslow talks about, or cultural and background considerations in these shelters. One cannot find aspects that create a feeling of place attachment for the occupants of these units.



Figure 39. Refugee camp in Lebanon (UNHCR, 2013).



Figure 40. Refugee camp in Jordan, (UNHCR, 2014).

The responsibility of refugee camp planners and/or designers is to pay attention to the psychological aspect of the refugee camp design and the physical aspect.

For example, bringing architectural elements or features familiar to refugees helps them find a small part of home away from home, raising their spirits and ensuring a certain level of comfort during their stay in refugee camps.

Therefore, in situations where a protracted refugee situation is expected, planners need to take a long-term perspective in planning the refugee camp to ensure their well-being and provide them with decent life options and opportunities (Kennedy, Towards rationalization of the construction of refugee camps, 2004).

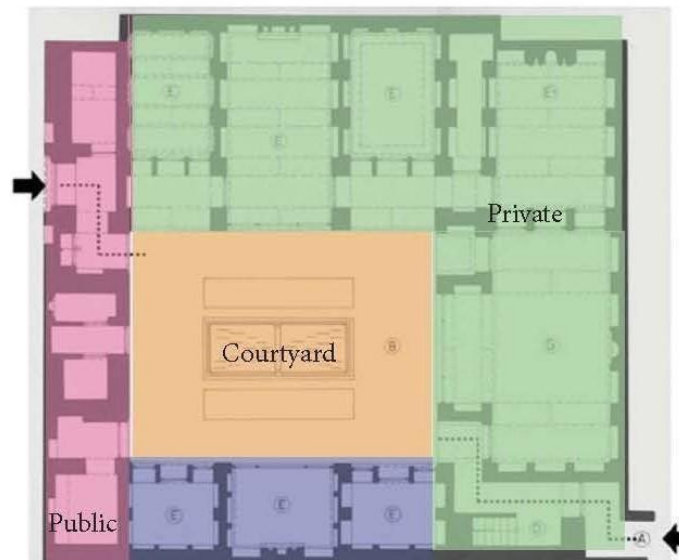


Figure 41. A house with a courtyard building system, (REUTERS,2016)

Syrian courtyard houses have an inward design, everything happens around an interior courtyard, there is an entrance and public places in front of the house which separates outside from inside. But how about transitional shelters, do they match this public-private and veiled layout?



Figure 42. A standard caravan shelter before adaption, (UNHCR, 2011).



Figure 43. Analysis of the standard caravan shelter after adaption in Zaatari (UNHCR, 2017).



Figure 44. Analysis of the standard tent shelter after adaption in Zaatari (UNHCR, 2017).

4.4 The interrelationship between shelters and people's behavior

There is a need for a place where the people had attached characteristics of their identity, relationships, and memories, consequently giving them a collective identity of undesirables when they travel to their new environment. When a refugee decides to flee their home. The interrelationship within shelters and people's reactions and the psychic well-being of displaced communities hold environmental psychologists' consideration. Many architects have made efforts to design shelters in these environments, most concentrated on building these shelters, not people's and communities' behaviors in these built environments.

Most architects and designers consider these shelters as single units, but they fail to consider people and their physical and behavioral operations. (Naseem Baradaranfallahkhair,2014).

4.5 Philosophical Perspective

To design for displaced people, due to all the changes and catastrophes they went through, they need to inhabit their new environment; they need a place that can provide their needs.

Abraham Maslow, an American Psychologist, defines a hierarchy of human needs.

He describes humans' instinctive needs by priority. The original hierarchy he characterizes is:



Figure 45. Maslow pyramid (BBC, 2013)

- Basic physiological needs such as food, shelter, and sleep.
- Safety needs such as security, stability, and order.
- Social needs such as love, belonging, and friendship.
- Esteem needs include acceptance by others, a sense of achievement, and independence.
- Cognitive needs such as intellectual fulfillment and knowledge.
- Aesthetic needs include harmony, balance, and beauty.
- Self-actualization is the goal of human development and occurs when a person meets his or her full potential. Self-actualized people are joyful, empathetic, giving, and fulfilled.

Maslow defines his hierarchy to have a value system for psychologically healthy people.

He believes certain needs and desires are the same among people.

All humans need to eat, sleep, feel safe, and have a higher hierarchy, all people like beauty and self-actualization. Maslow's approach's unique aspect is that he believes there are mutual values and needs among different human species. Maslow's theory is biologically based, but also the concept of common and generic species values should integrate with variations in human needs. (Saul McLeod, March 20, 2020).

4.5 Lessons learned

People always seek environments that fit to their culture, activities, and behavior. By looking into refugee camps, you notice that these camps do not fit the users. Refugees stretched to fit these shelters. Shelters do not match their prior behaviors, people's usage of their space and dwelling.

Syrian refugee camps show that refugees struggle to express their identity in their shelters, so changing these shelters to home is slow, but they are still trying to dwell and inhabit their new places.

People need to experience the environment as offering a pattern or a system of meaningful relationships, and to achieve this, and they use their previous experiences and time.

When we look at the refugee camps, we see people trying to create a space that looks like their previous homes. They want to make their daily patterns like what they had and experienced before; if they could recreate their previous patterns of life and identity, they could feel more attached to these shelters.

By inspiring from the development of the traditional house to match the religious and climate needs, and while Zaatari is already in the Middle East and its first population people will be from there where unfortunately it is almost always in conflicts throughout history and also considering the same climate, the suggestion is to create similar zones of the courtyard considering it from the design of the shelter this will aim to respect the people old lifestyle in having some privacy, leading to making them feel more attached to this place. And also, these zones will help with contributing to the temperature of the shelter.

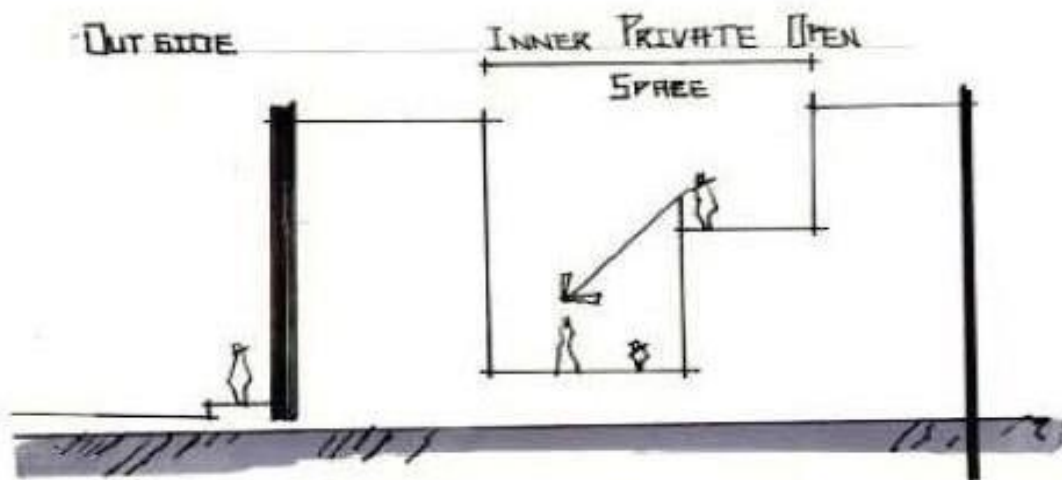


Figure 46. Sketch for inner private space, the author 202

CHAPTER V – BEYOND THE TENT

5.1 The scoop of the problem with refugee camp planning and design today

With the current universal guidelines used, a small image of an idealized city starts to emerge, that in its belief in the structured organization and clear separation of functions and uses is reminiscent of the urban planning of the modern era from the 1920s (Herz, 2008).

This modernistic planning approach finds its application all over the world. And we end up with several hundred refugee camps in every part of the world and every kind of climate zone. Still, with the same plans used to build the camps, no account is taken of the location's specific setting, neither for cultural or ethnic aspects, such as living in an extended family (DW, 2012).

Instead, the four-square design is based on the type of an ideal European city. And soon enough, the pretty order, systematically based on western European planning ideals, starts to seem like a naïve fool's planning in the dusty heat of the African desert, for instance, or in malaria and cholera infested tropical rainforests or in direct proximity to violent combat or war-like conditions.

Manuel Herz has constantly criticized this "one size fits all" approach, explaining how the same naive model of an idealized city is used to design a camp city of European understanding in regions that could not be more different and continues to clarify how this credulity becomes threatened in the context of violence and catastrophes. Its neutrality makes this planning approach so vulnerable to exploitation and politicization (Herz, 2013).

In addition to the one-size-fits-all assumption behind the refugee camp planning guidelines used today, a key problem almost always arises: current camp guidelines do not realistically address camp life and population growth (Kennedy, 2005).

Since the life of a camp can never be predicted accurately, planners should have a long-term perspective. Both sets of guidelines suggest an annual population growth rate in refugee camps of 3-4%. They fail to act on the consequences. Jim Kennedy, in an article entitled "Challenging camp design guidelines," published in the forced migration review magazine, issue 23, reflects this problem mathematically and presents the following verification:

"UNHCR guidelines stipulate an area of 900,000 m² for a camp for 20,000 people. This gives 45m² recommended per person, which includes land for a vegetable garden. However, once the space stipulated as necessary for firebreaks, non-residential buildings, and buffer zones between shelters are taken into account, the 45m² begins to disappear quickly. Neither Sphere nor UNHCR provides any numerical guidance on the amount of area occupied by all non-residential buildings - schools, clinics,

warehouses, administrative offices, and community centers. (The UNHCR manual provides a general guideline, but there are no actual square meters.)

If a camp of 20,000 refugees grows 4% a year, it will take nine years (just two years longer than the average life span of all camps) for the theoretical family average to grow from five to seven members and the total population 29,605. If in the first year, the average area of land per person in the camp follows the UNHCR guideline of 45m², by the end of the ninth year, that area of land per person will have been reduced to less than 32m².

The area within a family shelter per person will have been reduced from a minimum of UNHCR from 4.5m² to 3.2m². If only one square meter of that space is occupied by tools or material storage for a domestic company, the shelter area is reduced almost to the point where the refugee or IDP does not have enough space to lie down and sleep. "²

Moreover, to create a camp that provides shelter with dignity to all its residents and will continue after many years to meet the minimum standards set out in the guidelines, the numeric formulae that are used need substantial modification (Kennedy, 2005).

This later problematic concern brings on further complications and harms, the overcrowding increases the risk of outbreaks of communicable diseases, degrading of the surrounding environment, security problems within the camp and leaves the little possibility of realizing economic enterprises for the camp's residents whether on the shape of farming initiatives or any profitable ventures, eventually leading to full dependence on external aid and lack of autonomy and eventually proving as a nondurable solution.

5.2 General findings and recommendations for a better refugee camp

A refugee camp is a combination of the individual's needs and a complex urban network's demands. Like any other city, but despite all the efforts introduced to make the camps function and operate as a city, supermarkets, community centers, and schools, permanent infrastructure, such changes only responded superficially to this problem.

By no means does the following depiction present an absolute solution to the refugee problem; however, it nonetheless tries to respond to the crisis on a deeper level suggesting an act approach on multiple levels and aspects.

² Jim Kennedy, in an article entitled "Challenging camp design guidelines,"

5.2.1 Suggestions on the urban planning level

5.2.1.1 On general level

This section discusses a summary of refugee camp planning guidelines discussed in both the UNHCR handbook for emergencies and Sphere project humanitarian charter and minimum standards in disaster response. They considered the main references for refugee camp design guidelines.

Before getting to table 2, which lists the main guidelines for camp planning, it is important to define what UNHCR and Sphere guidelines consider to be a camp community, a camp block, a camp sector, and a camp module.

According to the guidelines, each family that consists of 6-10 persons is entitled to one tent. Every 16 tents comprise a camp community.

There are 16 camp communities per camp block and 4 camp blocks in a camp sector. 1 ideal camp consists of 4 camp sectors and hosts 20000 persons.

The responsibility of refugee camp planners and/or designers is to pay attention to the refugee camp design's psychological aspect and physical aspect. For example, bringing architectural elements or features familiar to refugees helps them find a small part of home away from home, raising their spirits and ensuring a certain comfort level during their stay in refugee camps.

Therefore, in situations where a protracted refugee situation is expected, planners need to take a long-term perspective in planning the refugee camp to ensure the refugees' well-being and provide them with decent life options and opportunities.

This should not necessarily require overwhelming funding. In contrast, by using the existing resources and including the experiences and the workforce available within the refugees themselves, the resources get multiplied, and the chance to transform these potentials into a productive community becomes more possible.

One idea to make that happen is to shift towards applying sustainable urbanism principles and practices in refugee camps' design. (Kennedy, 2004).

Site Planning:		
Shelter		3.5 m2 per person
Land		30-45m2 per person
Fire breaks		Min 1-1.5m between ropes of tents on all sides. A clear area of 50m2 for every 300m2 of built-up area.
Roads + walkways		20-25% of the site
Infrastructure:		
1 Latrine	Per	1 family (6-10 persons)
1 Water tap	Per	1 community (80 – 100 persons)
1 Health center	Per	1 camp module (20,000 persons)
1 Hospital	Per	Up to 200,000 persons
1 School	Per	Sector (5000 persons)
4 Distribution points	Per	1 camp module (20,000 persons)
1 Market	Per	1 camp module (20,000 persons)
2 Refuse drum	Per	1 community (80 – 100 persons)

Table 2 UNHCR Handbook for Emergencies, (Section V. Appendices). UNHCR. 2002.

5.2.1.2 On Zaatari in specific

- In Zaatari, two main needs are to be addressed: the necessity to balance density across the camp by reorganizing and reallocating refugees, moving them from the "old camp" and denser areas towards the far eastern end of the camp that is less populated. This, of course, is no easy task, as you cannot force refugees out of their shelter when they have settled and established their lives there for two or three years now. However, it can still be done using several strategies, for example, providing some attraction points in the less populated areas of the camps, shops, and public facilities.
- Dealing with is the upgrading of the current utility hookup networks currently existing in the camps; in Zaatari, there is an urgent need to legalize electricity hookups and provide more WASH facilities evenly across the camp,

- Moreover, the refugees continuously complained about the landscape and the camp's environmental context that is severely arid, scorched, and dry. A major greening-up initiative needs to be implemented, especially in open spaces and along the main streets; this will remarkably boost the camp's ambiance and atmosphere.
- Provide public facilities and services for each district separately.
- Dedicate private and public spaces in each community.

5.2.2 Suggestions on the sustainable architecture level

Architecture is a strong tool for improving long-term solutions when rebuilding in post-disaster situations. However, it is the review of the literature that it is not possible to find the social role of architecture reflected in it.

Given the architects' urban planning experience, they are in a position to think about a qualified, long-lasting difference. The “temporary” settlement project is not so old-fashioned that it requires a new way of thinking - it simply requires the aggregation of established knowledge.

The consideration of mobility in design proposals, for example, could provide a solution to the “impermanent permanence” of refugee camps. Since hosts cannot accommodate refugees indefinitely, a camp that can be moved in and out of an area with relative ease can be attractive to all parties involved. (Katherine Allen, 2013).

5.2.2.1 Sustainable urbanism

It is important after examining the list provided to decide on the applicable points that can be utilized to relate sustainability principles to refugee camp planning to be realistic in the design and provide what is necessary for refugees in the case of a protracted refugee situation, without compromising their humanitarian needs, yet not overdesigning the refugee camp.

Many of the table's points help design goals and strategies that could be implemented during the design process of the section in concern in a refugee camp.

Such strategies are to provide a good micro-climate, to design safe and attractive public spaces, to incorporate mixed-use, to implement efficient public transit, to provide reliable walkways and paths for biking, to use renewable energy resources, to reuse and recycle available materials, to use passive architecture techniques, to create job opportunities and encourage commercial activities, to provide common facilities, and to encourage community relations (Kasioumi, 2011)

SUSTAINABLE URBANISM		
Contain urban expansion	impose urban growth boundary	land use and urban design
	protect sensitive areas	
	reuse existing land and infrastructure	
Create healthy, green environments	integrate natural systems in urban environments	
	eliminate pollution in the air, soil, and water	
	provide good micro-climate and protection from noise	
	design attractive and safe public spaces	
Develop compactly	build densely	
	incorporate mixed uses	
Encourage green forms of mobility	implement efficient public transit	
	discourage car use	
	provide infrastructure for walking, biking, car-sharing	
Support renewable systems and circular metabolism	use renewable energy sources	Technology
	reuse system outputs as inputs	
	conserve resources on-site	
	reuse and recycle materials	
Design buildings that consume minimal resources	use energy and water conservation measures	
	employ low-impact materials	
	use passive architecture	
Establish economic activity	create job opportunities	community & economic development
	encourage commercial activity	
Create equitable, livable places	provide affordable housing	
	provide common facilities	
	encourage community relations	

Table 3, lists the principles of sustainable urbanism, (Kasioumi, 2011)

5.2.2.2 Reference examples for sustainable shelter

SURICATTA SYSTEMS

SURI is a transitional shelter for emergency shelter. It is a project developed by the R&D department at Urbana de Exteriores. A company with important expertise repairing and renovating damaged buildings in Spain.

It is designed to enable its transformation over time, refillable, breathable, versatile, flexible, and easily removed, allowing reuse or processing of local materials throughout its 10 years of life.



Figure 46. Suricatta unit (Suricatta systems, 2016)

SURI (Shelter Unit for Rapid Installation) Designed for global solutions with immediate results.

Price: competitive price offering many advantages.

lightweight, resistant, easy to transport, and assemble.

FLEXIBLE: each unit can be joined from both directions, allowing clusters to be formed, providing shelters of different dimensions to create buildings in camps.

IMPROVED LIVING / WORKING CONDITIONS: improves hydrothermal comfort. Facades are breathable, waterproof, and thermally and acoustically insulated. SURI offers solutions for extreme climates.

RE-FILLABLE: to reduce transport costs and difficulties,

SURI was designed to be re-fillable once in its destination to reinforce its stability and protection.

Local materials such as earth, debris, sand, etc.

NATURAL LIGHTING & SOLAR PANELS:

The design considers natural light-regulated for optimum temperature and light in taking within the shelter and providing sufficient energy for light and electricity.

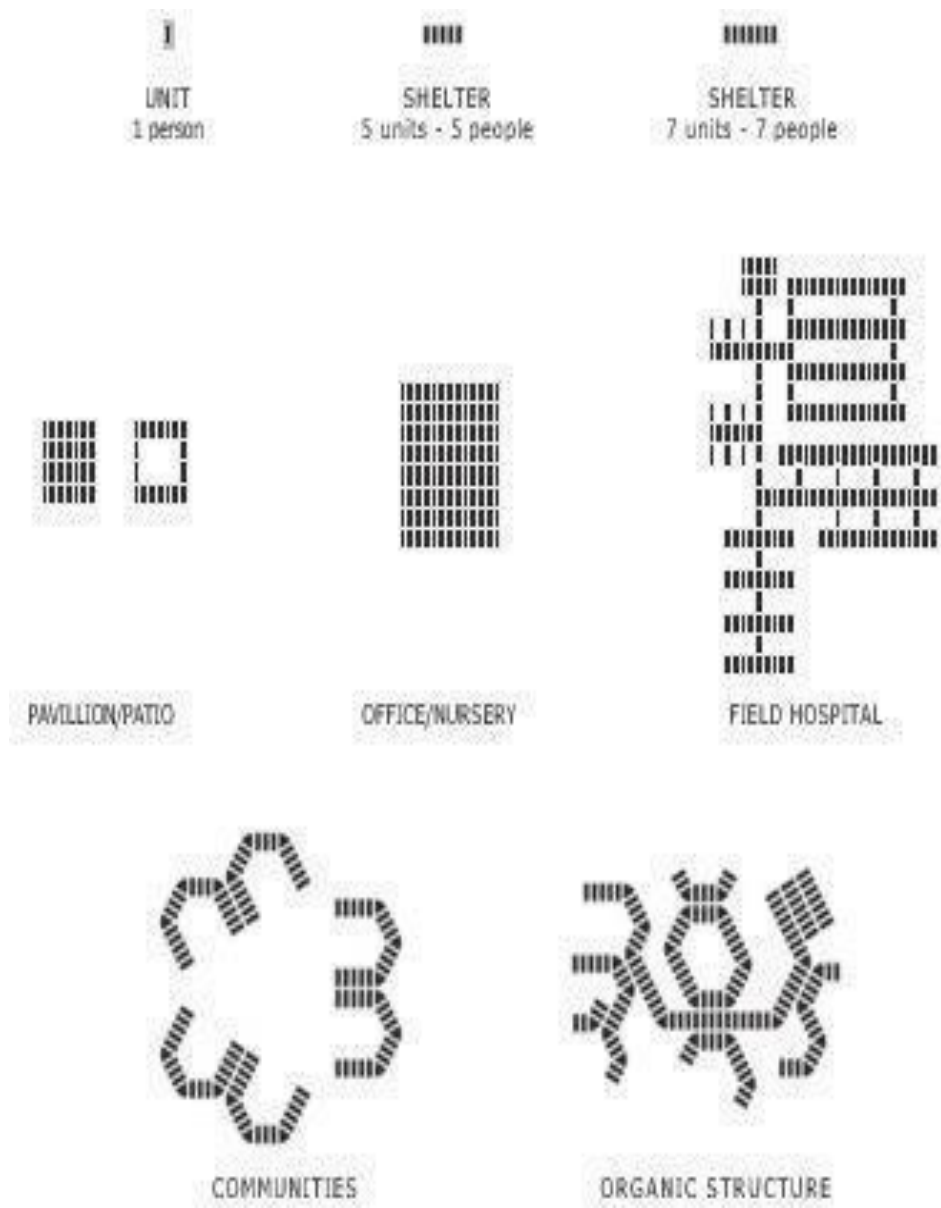


Figure 47. Design flexibility (Suricatta Systems, 2016)

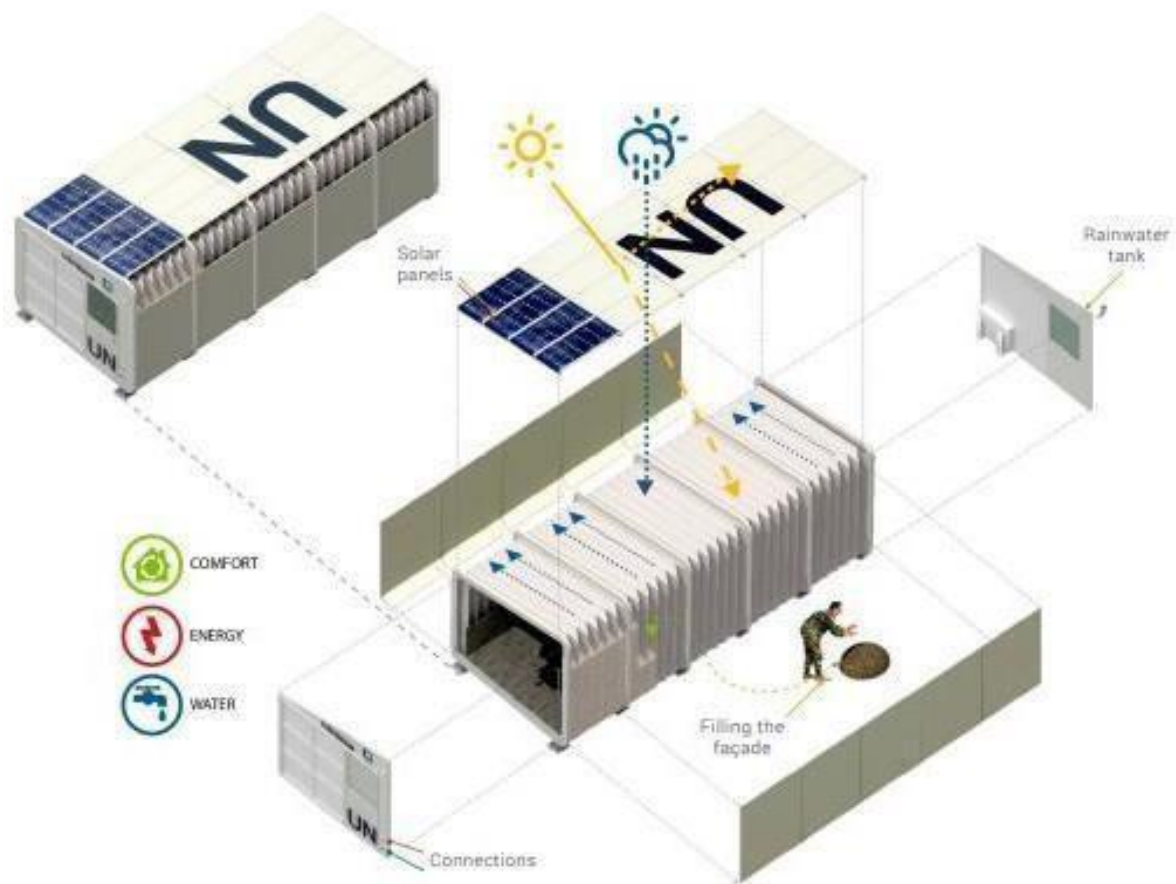


Figure 48. SURI natural lighting and solar panels (Suricatta systems, 2016)

RAINWATER COLLECTION: a water collection system has been designed to take the rainwater to a tank. After passing through a filter, it is converted into drinking water.

100% RECYCLABLE AND SUSTAINABLE: the entire unit is made of a variety of recyclable plastic, and some of the parts have been made from recycled materials, helping to be environmentally friendly.

URBANISATION: the unit integrates into the landscape and promotes social activities.

ANTI-MOSQUITO: the walls are treated with a brand-new product that is harmless to humans and protects mosquitoes and other insects. This is essential to prevent serious diseases in the camps.

LIFE EXPECTANCY: 10 years, 100% UV protected

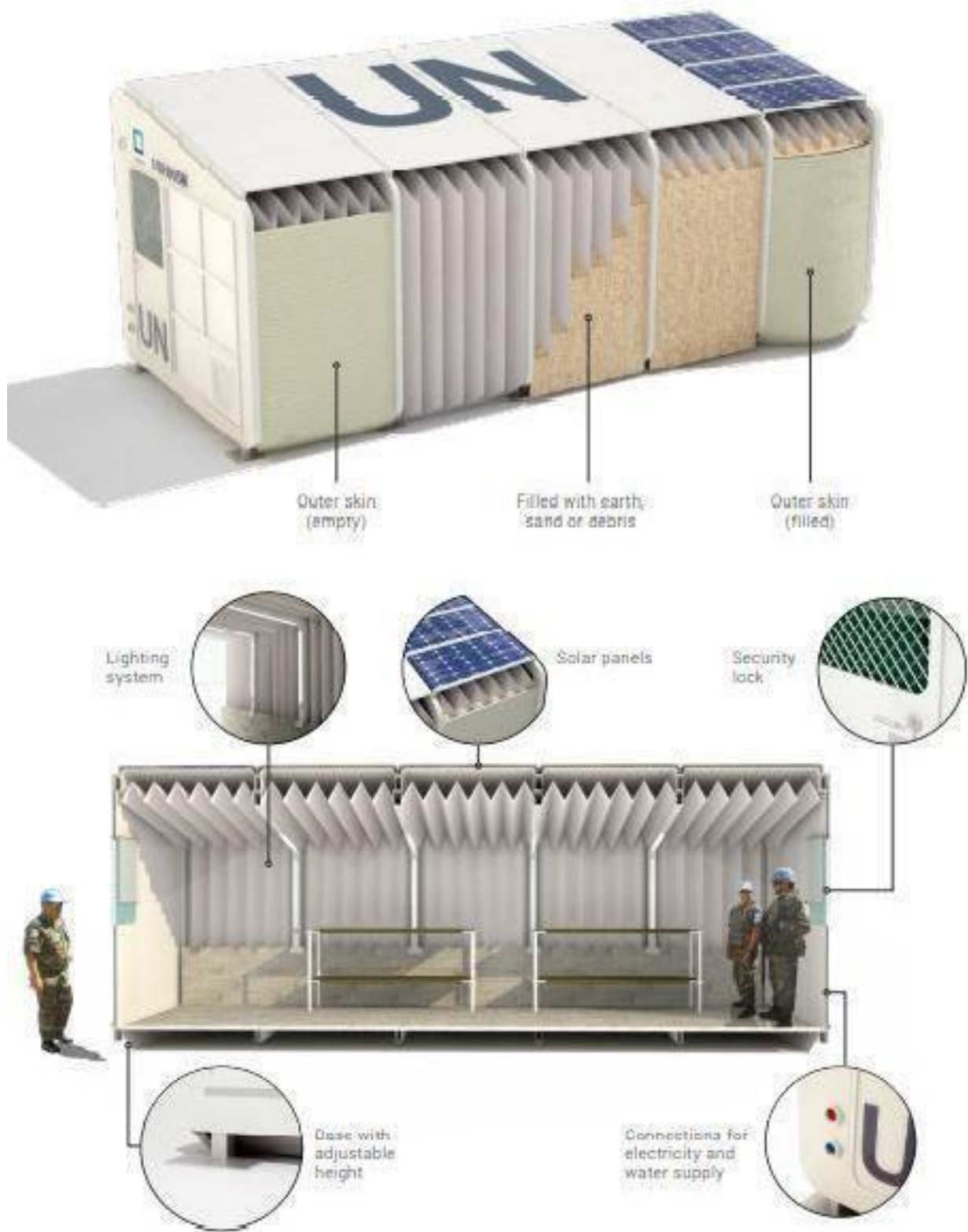


Figure 49. Recyclable and sustainable system (Suricatta systems, 2016)

5.2.2.2 Solar PV systems for refugee camps

In recent years, the role of the UN refugee agency UNHCR and other humanitarian agencies have changed significantly. Originally, these institutions focused on providing short-term, temporary emergency relief and operated under the premise that forcibly displaced people may eventually return home. However, statistics show that forcibly displaced people who find refuge in a camp remain there for an average of 17 years, which means that managing the corresponding settlement is a medium to the long-term obligation that requires dedicated strategy and novel operational competencies (Jeffries, 2017) and (Lahn, 2015).

Several organizations started to bring clean energy technologies—such as solar photovoltaic (PV)—to the field and position the humanitarian sector as a Launchpad for sustainable development.

According to the special classification, the solar PV systems provides the energy service demands (ESD) for a refugee camp, which can be aggregated into two main categories:

1 General lighting of the camp

Like Street lighting, schools, shelters, medical centers, public services, administrative facilities.

For example, solar lanterns allow camp inhabitants to light their shelters or charge mobile phones or install solar street lights that increase camp security and allow for communal activities after nightfall.



Figure 50. Solar streetlights, Zaatari (UNHCR,2019)

2 Water pumping.

According to UNHCR, 80% of the boreholes in refugee camps under their management are not motorized today. In turn, to tap water, refugees use hand or foot pumps.

While all of the camps have been identified as suitable for installing a solar PV system by an expert in the research team the following a purposeful sampling approach, three particular refugee settlements were selected managed by UNHCR as a basis for our empirical analysis:

Dadaab camps in rural Kenya, one of the largest and oldest refugee settlements in the world.

Harran-Kokenli in Turkey's Sanliurfa province, which represents one of the most modern camps and is connected to the public grid.

Mafrq Zaatari in Jordan,

The largest solar plant ever built in a refugee camp providing clean and much-needed additional power to 80,000 Syrian refugees living in Jordan's Zaatari camp. Funded by The Government of Germany.



Figure 51 solar plant, Jordan (UNHCR,2019)

- The plant will reduce annual carbon dioxide emissions from the camp by 13,000 metric tons per year, equivalent to 30,000 barrels of oil. It will also deliver annual savings of around US\$5.5 million, which UNHCR – the UN Refugee Agency – will reinvest in vital humanitarian assistance.
- The new solar plant will provide families with between 12 and 14 hours of electricity each day. Residents say the extra power will vastly improve their lives, allowing them to complete their daily chores earlier and prevent children from having to play outside on the dusty streets after dark.

5.2.3 Suggestions for improving the general and personal economic level

- Proposing the establishment of workshops and training courses for refugees to gain the skills to do all kinds of jobs to produce camp needed items, carpentry, welding, sewing to jewelry-making, anything that can be used within the camp and can be constructed in a workshop will be produced, from shelter to furniture and any everyday use objects will be produced and then sold in a special main market and secondary booths within the villages.
- One of the most important issues is employment within the camp; there is a deep need to increase the employment opportunities for refugees need to make use of their time whether to gain income and move to self-reliance or to gain new skills and knowledge, especially the new generation that is facing the risk of being "lost."
- Income-generating and increased job opportunities will give the refugees a sense of dignity and self-worth. They will keep them busy for an extended period of time, altogether bringing down the crime rate and responding to social complexities currently existing in the camp (Bradley & Galt, 2013).

For example, The Women and Girls Oasis is a job-training program that teaches women sewing or hairdressing to earn a living. For example, as of November 2013, 700 women have profited from a training program run by The Women and Girls Oasis that coaches' women sewing or hairdressing, so they employ it as revenue (Altuwaijri, 2013).

Moreover, in general, many of the Syrian people are widely known to be crafty. They have skills to work with their hands, produce their dairy and food products, or produce artifacts and everyday use items. This is one of the crucial elements that allowed Zaatari to progress from emergency mode to development mode, keeping in mind that humanitarian work's long-term goals take in helping refugees become more independent by moving off aid and integrating into the host community. One more practice that helped with this move towards Zaatari's self-reliance happened thanks to business relations between the Syrian refugees living at the camp and Jordanian citizens from close by cities.

5.2.4 Suggestions on the environmental level

5.2.4.1 Agricultural in refugee camps

One of these very positive practices can be seen in Zaatar; green shoots of hope are growing. After 3 years at the camp, residents began to plant their own gardens to recreate the houses they left behind in Syria. One by one, gardens began to appear across the refugee camp; so far, there are almost 150 gardens and private courts that offer families and friends not only a source of comfort in the bustling city but also a vital means of livelihood, in addition to the basic grains provided by the United Nations World Food Program - WFP (Huffington Post, 2013).

“Gardening allowed them to do something with their hands and gave them a sense of accomplishment. We saw an incredible change in them,” said Mohammad Abu Farah, an employee of the Save the Children partner, who now conducts gardening workshops for children at the camp. The vast majority of refugees in these camps come from Daraa, in southern Syria, a rural city where most people work in agriculture or at least have a large private garden.



Figure 52 Green Shoots of Hope, residents have started planting their own gardens in Zaatar (UNHCR,2019)

Some benefits and opportunities agriculture can provide to refugees and the environment.

- contributes to climate change adaptation by cooling and improving air quality through the uptake of pollutant gases and particulates responsible for respiratory infections. Moreover, it will act as a good example of 'Green Infrastructure.'
- Creating safe places and enhancing the camp's over-all physical space, another value worth mentioning is that this network provides resources for relaxation and recreation.
- Ideally, this assists in emotional healing (therapeutic) and physical relaxation to meet the war-traumatized refugees' social and psychological needs (Johnson, 2005).
- After receiving the proper training, everyone can contribute and work in the gardens; to grow, produce, and sell. This will serve as viable employment and catalysts for

entrepreneurial endeavors. Income-generating and increased job opportunities will give refugees a sense of dignity and self-worth.

- They will keep them busy for an extended period of time, altogether bringing down the crime rate and responding to social complexities currently existing in the camp (Bradley & Galt, 2013).
- From private gardens that shall produce food for family consumption to community gardens and bigger institutional gardens that shall produce food for market production.
- The main commercial space will become the market selling the locally produced food, acting as the most dynamic and main public space within the camp.



Figure 53. Future imagination of private gardens in Zaatari. The author, 2020



Figure 54. Future imagination of markets with refugees' products in Zaatari. The author, 2020

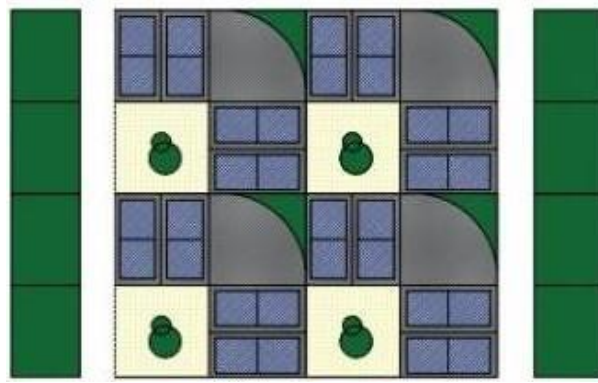


Figure 55. Future imagination of the housing units in Zaatari. The author, 2020

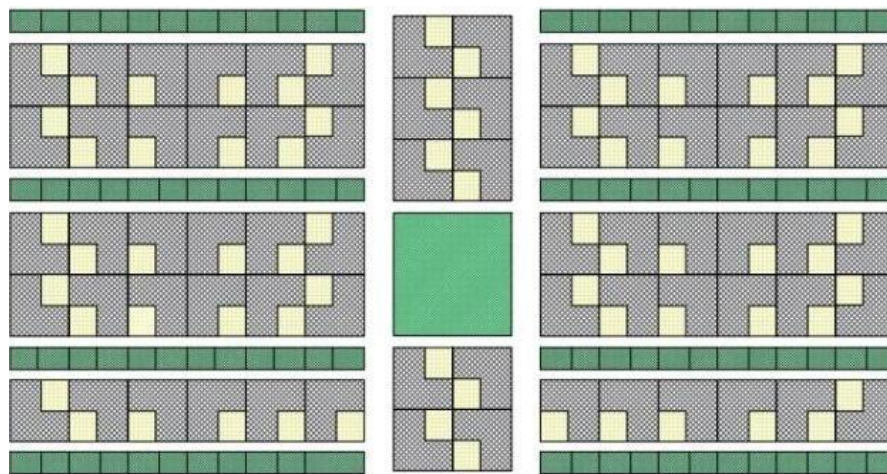


Figure 56. Future imagination of Zaatari city. The author, 2020



Figure 57. Sustainable development goals, SDG 2020

With applying all the suggestions and strategies mentioned above, Figure 56 shows the future image for the proposal, and by looking at the spatial, social, economic, environmental, and health impacts of urban agriculture and the clean energy strategy and considering SDG, it's enough to justify moving forward for sustainable self-sufficiency city.

CHAPTER VI – CONCLUSION

"In the Middle East, we were building camps: storage facilities for people. But the refugees were building a city, these are the cities of tomorrow" ³

There has been much debate on whether camps can be viewed as true "cities". Refugee camps are starting to be a new form of emerging urban environments; various forward-thinking aid workers and other professionals of the built environment are viewing refugee camps as potential "urban incubators," places that can grow and develop and even benefit the host communities rather than become a burden on those nations.

Now more than ever, there is an urgency for urban planning and design experts to reimagine how and where refugee camps around the world should or should not be designed, planned, and built. The work discussed the Syrian conflict taking the lives of more than 150,000 people and displacing a third of the country's residents, which if considering the 3 million refugees who escaped to neighboring countries, means that almost half the country's population was forcefully displaced, making the Syrian displacement crisis the largest worldwide.

Most refugee camps are set up quickly, in a haphazard fashion, to respond to a disaster.

The refugee problem in Jordan is a complex, multifaceted dilemma spanning decades; it is the outcome of various interdependent factors and elements at play at the international, regional, and local levels. The problem is the outcome of decades of receiving refugees in the absence of a local legal framework for the protection and refugee law instruments that leaves their status always ambiguous and indefinite. Furthermore, turning the temporary settlements into permanent ones, the state lacks the resources to deal with it efficiently.

As an example of the refugee situation in the Middle East, I have examined one of the main camps in northern Jordan, Zaatari.

The Zaatari camp model reveals some facts worth considering when examining camp planning and the approach that is best to be adopted. Moreover, many questions come to the surface; the most significant is how to plan for temporality while maintaining a certain degree of stability?

Among other matters is how inclusive the planning process is and how degree refugees' involvement is possible throughout and after the official planning process. Contrasting the top -

³ Highlights of Dezeen's talk on refugees for Good Design for a Bad, 21 February 2018, five talks held by Dezeen and Dutch Design Week in Eindhoven from 21 and 22 October 2017.

down implemented master plan next to the informal ground-up urbanism influenced outcome reveals quite an number of disparities that come very handy when trying to upgrade the camp setting and enhance the quality of life for refugees for all camps alike. All camp models in the Middle East can still have some lessons to be learned, and some mistakes to be avoided.

As results, I tried to outline some recommended interventions that shall improve the way the camp functions and operates eventually, leading to enhancing the everyday lives of the thousands of refugees that now call these places home.

I hope my research has lit a small candle in a world covered in the darkness whose people live with all kinds of oppression, displacement, injustice, and deprivation. Hoping for better days to come.

REFERENCES:

- Abouzeid, Rania. A Wedding Dress in Za'atari. The New Yorker, October 29. 2013.
<https://www.newyorker.com/news/news-desk/a-wedding-dress-in-zaatari>
- Adrienne Millbank. The Problem with the 1951 Refugee Convention. Social Policy Group. 5 September 2000
https://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp0001/01RP05
- Alison Ledwith. Zaatari: The Instant City. Harvard Graduate School of Design. 2014
<https://scholar.harvard.edu/aledwith/publications/zaatari-temporary-city>
- Altman & Gauvain & Fahim. Place Attachment in a foreign Settlement. Journal of Environmental Psychology. January 2009. Ceren Bogac, P. 269.
<https://urdc.emu.edu.tr/Documents/journal-articles/Environmental%20Psychology.pdf>
- Altuwaijri, Nada. "U.N. Program Eases Hardship for Syrian Refugee Women." Al Arabiya News, November 2013.
<http://english.alarabiya.net/en/perspective/features/2013/10/31/U-Nprogram-eases-brunt-for-Syrian-refugee-women-.html>.
- Alessandro Petti. Architecture of Exile. Campus in Camps. January 2013.
<http://www.campusincamps.ps/architecture-exile/>
- Amir Dakkak. Water Crisis in Refugee Camps, Middle East. Echoing Sustainability in MENA. 4 July, 2020.
<https://www.ecomena.org/water-crisis-in-refugee-camps/>
- Anna Schmidt. FMO Thematic Guide: Camps versus settlements. ALNAP. September 1, 2003.
<https://www.alnap.org/help-library/fmo-thematic-guide-camps-versus-settlements>
- Anne Stevenson and Rebecca Sutton. There's No Place Like a Refugee Camp? Urban Planning and Participation in the Camp Context. Refuge.Journals. January 2011.
<https://refuge.journals.yorku.ca/index.php/refuge/article/view/36097>
- CARE. FACTSHEET Azraq Refugee Camp, Jordan Syria Crisis. CARE International. April 2015.
https://www.care.org/wp-content/uploads/2020/05/CARE_Factsheet_Syria_azraq_camp_April_2015.pdf
- Christina Ruta, mll. Refugee camps are not designed for refugees. Deutch Welle. DW. 09.10.2012.
<https://www.dw.com/en/refugee-camps-not-designed-for-refugees/a-16293384>
- Corpus Levant. Traditional Syrian Architecture. Yumpu. 2004.
<https://www.yumpu.com/en/document/read/25686696/traditional-syrian-architecture-corpus-euromed-heritage>
- Emma Cunliffe. DAMAGE TO THE SOUL: DAMAGE TO THE SOUL: SYRIA'S CULTURAL HERITAGE IN CONFLICT. Durham University. 16 MAY 2012.
https://ghn.globalheritagefund.com/uploads/documents/document_2107.pdf

Eirini Kasloumi. Sustainable Urbanism: Vision and Planning Process Through an Examination of Two Model Neighborhood Developments. ResearchGate. January 2011.
https://www.researchgate.net/publication/282302394_Sustainable_Urbanism_Vision_and_Planning_Process_Through_an_Examination_of_Two_Model_Neighborhood_Developments

Fatma Sahin. Gaziantep Metropolitan Municipality. Synergos. November 2016.
<https://www.synergos.org/sites/default/files/media/documents/fatma-sahin-presentation.pdf>

Giovanna Caia, Fabrizio Ventimiglia, Anne Maas. Container vs. dacha: The psychological effects of temporary housing characteristics on earthquake survivors. Journal of Environmental Psychology. 2010.
<https://www.sciencedirect.com/science/article/abs/pii/S0272494409000619?via%3Dihub>

Hannes Cools. EU migration trends. Clingendael Spectator. 2018.
<https://spectator.clingendael.org/pub/2018/4/eu-migration-trends/>

IDMC. Syria: Internal displacement in brief. Syria: Internal displacement in brief. December 2013.
<https://www.internal-displacement.org/countries/syria>

Géraldine Chatelard. Jordan as a transit country: semi-protectionist immigration policies and their effects on Iraqi forced migrants. Robert Schuman Centre for Advanced Studies European University Institute Florence, Italy. UNHCR. August 2002.
<https://www.unhcr.org/research/working/3d57aa757/jordan-transit-country-semi-protectionist-immigration-policies-and-effects.html>

James Kennedy. Towards A Rationalisation of the Construction of Refugee Camps. Katholieke Universiteit Leuven. ShelterProjects. 2004.
<http://shelterprojects.org/other/siteplanning/site-planning-references/Kennedy%202004%20Towards%20A%20Rationalisation%20of%20the%20Construction%20of%20Refugee%20camps.pdf>

Jeff Crisp and Karen Jacobsen. Refugee camps were reconsidered. Forced Migration Review December 1998.
<https://www.fmreview.org/fmr-3/crisp-jacobsen>

Jim Kennedy. Challenging camp design guidelines. Forced migration review. May 2005.
<https://www.fmreview.org/europe/kennedy>

Katherine Allen. Beyond the Tent: Why Refugee Camps Need Architects (Now More than Ever). Archdaily, October 14, 2013.
<https://www.archdaily.com/435492/beyond-the-tent-why-refugee-camps-need-architects-now-more-than-ever>

Khandaji, Hanan, and Mohammad Makawi. "54,000 Syrians Bribe Their Way to Escape Zaatari Camp." Arab Reporters for Investigative Journalism, December 4, 2013.
<http://arij.net/en/54000-syrians-bribe-their-way-escape-Zaatari-camp>

Kristin Kosa. Reconstruction of historical buildings in the old city of Aleppo. Damascus University. Academia. 2015.

https://www.academia.edu/40844684/Kristin_kosa

Laub, Karin, and Mohammed Daraghmeh. Zaatari, Syrian Refugee Camp in Jordan, Slowly Becomes City. Huffington Post. November 2013.

http://www.huffingtonpost.com/2013/01/zaatari-syrian-refugee-jordan_n_4189950.html.

Luck, Taylor. Syrian refugee influx sparks camp construction boom. The Jordan Times, February 2013.

<http://www.jordantimes.com/syrian-refugee-influx-sparks-camp-construction-boom>.

Lucy Rodgers, David Gritten, James Offer and Patrick Asare. Syria: The story of the conflict. BBC News. 2014.

<https://www.bbc.com/news/world-middle-east-26116868>

MAHA TAKI. Films for Syrian refugees: Do it Yourself, Do it Together. BBC Media Action. August 2012.

<https://www.bbc.co.uk/blogs/bbcmmediaaction/entries/96a149f8-0e26-4ba9-be2f-ba2132cbab17>

Malkawi, Khetam. Schools to Open at Zaatari Camp for Syrian Children. The Jordan Times, September 11 2012.

<http://jordantimes.com/schools-to-open-at-zaatari-camp-for-syrianchildren>.

Michel Agier. Between war and city, Towards an urban anthropology of refugee camps. JSTOR. September 2002.

<https://www.jstor.org/stable/24048113?seq=1>

Mohamed Y. Olwan. The Legal Framework of Forced Migration and Refugee Movements in Jordan. The Forced Migration & Refugee Studies Program. The American University in Cairo, Egypt. October 23-25, 2007.

<https://documents.aucegypt.edu/Docs/GAPP/MohamedOlwan.pdf>

Naseem Baradaranfallahkhair. The Interrelationship Between Built Environments And Displaced Peoples' Behavior. OhioLINK. 2014.

https://etd.ohiolink.edu/apexprod/rws_olink/r/1501/10?clear=10&p10_accession_num=kent1416863916

Pia Vogler. New Issues in Refugee Research. Research Paper No. 137. In The Absence of the Humanitarian Gaze. UNHCR. December 2006.

<https://www.unhcr.org/afr/457ff97b2.pdf>

REACH. Evaluating the Effect of the Syrian Refugee Crisis on Stability and Resilience in Jordanian Host Communities: Preliminary Impact Assessment. January 2014.

<https://reliefweb.int/report/jordan/evaluating-effect-syrian-refugee-crisis-stability-and-resilience-jordanian-host>

Rebecca Napier-Moore. Entrenched Relations and The Permanence of Long-Term Refugee Camp Situations. ResearchGate.

https://www.researchgate.net/publication/253291694_Entrenched_relations_and_the_permanence_of_long-term_refugee_camp_situations

Kate Jastram and Marilyn. Refugee Protection: A Guide to International Refugee Law. UNHCR. Geneva: Inter-Parliamentary Union, 2001.

http://archive.ipu.org/pdf/publications/refugee_en.pdf

Schmidt, Caroline. Education In The Second Largest Refugee Camp In The World. Global Partnership For Education. June 2013.

<http://www.globalpartnership.org/blog/education-secondlargest-refugee-camp-world>

Sullivan, Denis, And Sarah Tobin. Security and Resilience Among Syrian Refugees in Zaatari Refugee Camp, Jordan. Middle East Initiative. Lecture Conducted from Harvard University, Cambridge. March 2014.

<https://merip.org/2014/10/security-and-resilience-among-syrian-refugees-in-jordan/>

The Lancet. Do Refugees Belong in Camps? Experiences from Goma And Guinea. Pubmed. August 5, 1995.

<https://pubmed.ncbi.nlm.nih.gov/7623537/>

The Sphere Project. Humanitarian Charter and Minimum Standards in Humanitarian Response. UNHCR. 2011.

<https://www.unhcr.org/50b491b09.pdf>

The Syrian catastrophe: Socioeconomic Monitoring Report First Quarterly Report. Prepared by The Syrian Centre for Policy Research for The United Nations Relief and Works Agency (UNRWA). June 2013.

<https://www.unrwa.org/userfiles/2013071244355.pdf>

Tina Rosenberg. Beyond Refugee Camps, a Better Way. Opinionator. September 6, 2011.

<https://opinionator.blogs.nytimes.com/2011/09/06/beyond-refugee-camps-a-better-way/>

Tran, Mark. Jordan Zaatari Refugee Camp Mushrooms as Syrian Set Up Shop. The Guardian, November 18, 2013.

<http://www.theguardian.com/global-development/2013/nov/18/jordan-zaatari-refugee-camp-syria-shops>

UN High Commissioner for Refugees (UNHCR). Handbook for Emergencies. Refworld. February 2007.

<https://www.refworld.org/docid/46a9e29a2.html>

Zack Beauchamp. 9 maps and charts that explain the global refugee crisis. VOX. January 30, 2017.

<https://www.vox.com/world/2017/1/30/14432500/refugee-crisis-trump-muslim-ban-maps-charts>

