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Emergency Architecture in Lebanon: the Gateway to what is required from us for the Future of Emergency Architecture

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Abstract: Throughout the years, tents have dominated the scene when it comes to emergency architecture, what is the reason behind it? Many architects and engineers have tried to put forward alternatives, and even though many ideas were brilliant they have failed to overcome the dominance of tents. This fact question whether we should really try to give alternatives or whether all our efforts should be focused elsewhere? The following entangles this argument through a series of researches and site visits performed in Lebanon.

Keywords: Emergency architecture, Phase II, refugee camps, refugee settlements, Lebanon, Syria, Palestine.

I. INTRODUCTION

With the passing of the years, the domain of emergency architecture has evolved on so many levels, and continuously involves more and more people, research and development. Yet we still adopt the same technology when faced with an emergency situation. Many well studied, well-structured and even incredibly effective alternatives were presented, and yet have failed to break the dominance of the most primitive and simple solution: the tent, which remains the undisputed first choice. This puts up a series of questions on top of which we find the following: Do we actually need to give an alternative or should our efforts be put to better use?

In order to better understand the matter, an extended research, of the emergency response system that is in place nowadays, was conducted. What follows is a thorough study and analysis of the actual refugees' situation in Lebanon in an attempt to explore the current status of the camps nowadays. With the help of the responsible parties present on site, this study was able to alternate between a subjective and objective study depending on the argument treated, which gives this article a much-desired point of view that was lacking regarding the situations in refugee camps and/or settlements.

II. WHY LEBANON?

Lebanon's weather, which includes all four seasons, makes it a perfect location to see how the camps react with the different climate chances. It has high heat waves in the summer and low temperatures, heavy rains and storms in the winter and even in some areas snow. And of course, the presence of the four seasons, and in particular Autumn and Spring, which are the most balanced, makes the latter ideal for the organizers to work and to adapt the settlements in anticipation to the upcoming climate changes.

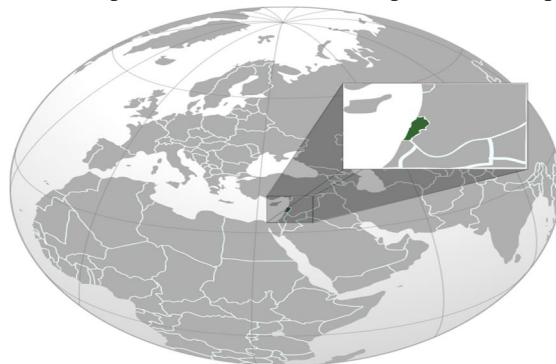


Figure 1 Map showing location of Lebanon¹

¹ Eli+ 00:28, 15 January 2012 (UTC), *English: Orthographic Projection of Lebanon (green), Turkey (orthographic projection).svg*, <https://commons.wikimedia.org/w/index.php?curid=18048261>

Through various interviews performed during all 4 seasons with the refugees themselves, it was highlighted what is lacking and what is needed and how to organize future projects and what to prioritize for each climate. The information gathered is of utmost importance for the architects and the engineers, because most flaws in a project are due to incapability of anticipating the lifestyle or the climate change in an area, and how the project would adapt accordingly. Gathering this information and sharing it will allow us to avoid many problems faced by past or/and even present projects, since it is not possible for everyone to go on site and discuss the problems whether it is for security reasons, or economical, or even communication problems. In this case, the knowledge of the Arabic language was essential to communicate with refugees of all ages, especially considering that most of the older or younger generation are not all bilingual.



Figure 2 Picture of formal Syrian refugee settlement in the town of Aarsal in the Lebanese Beqaa valley during winter²

From this point on, the background of Lebanon shall be explained through a series of facts that justifies making it the most opportune place to be used as a reference or more commonly known as “Ground 0”, for not only this research but hopefully for all future researches to be conducted on emergency architecture.

Lebanon is a country that was subject to both a significant immigration and emigration process. This is mainly due to the country’s dark history of wars both internally and externally. The country’s multiethnic and multicultural background was the basis of an internal conflict, and its geographical location; being in the middle of one of the most conflictual areas in modern history, was the basis of the external conflicts with the neighboring countries.

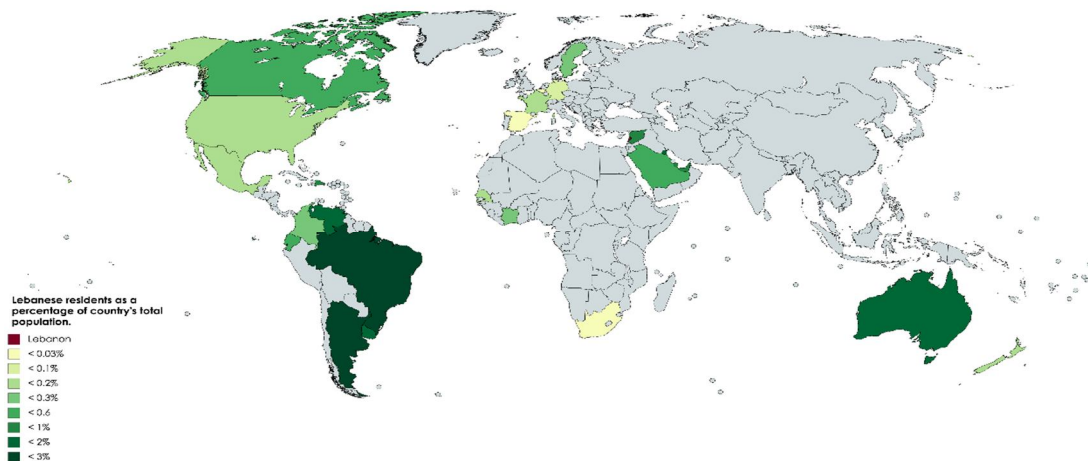


Figure 3 Lebanese residents as a percentage of country's total population³

² AFP/Getty Images

<https://foreignpolicy.com/2015/10/28/winter-is-coming-and-the-eus-refugee-crisis-isnt-ready/>

³ Mapchart.net,

https://upload.wikimedia.org/wikipedia/commons/f/f7/Lebanese_residents_as_a_percentage_of_country%27s_total_population.png

The Lebanese are very familiar with the emigration process since one of the biggest surprising facts about the population in present days is that there are currently around 16 million Lebanese residing outside the country compared to the mere 6 million residing in it!⁴. The Lebanese diaspora is present almost everywhere and has built a reputation for itself for being able to quickly settle, blend in and adapt to the hosting country's culture. Some say that they have inherited this capacity from the Phoenicians, other say it is due to the strong educational system that in place in Lebanon. Regardless of the reason behind it, this was and still is the biggest factor that has helped into fortifying the country's multicultural and multiethnic society, making it one of the most desirable country in the middle east for tourists to visit. At the same time, this also makes it easier for any immigrant to adapt to the Lebanese culture, hence rendering the country a very hospitable environment. All those factors, and many more have made it so that, as it stands, Lebanon has one of the biggest refugees to population ratio in the entire world⁵, with almost one third of its actual population being refugees.⁶ As anyone can imagine, this has had a huge impact on the social life in the country, more negative than positive. To be noted that the social impact will not be treated in this article.

III. WHO ARE THE IMMIGRANTS IN LEBANON?

The immigrants in Lebanon can be categorized in two main groups: the Palestinians and the Syrians.

The Palestinians first immigrated to Lebanon during the 1948 Palestine war⁷, and have been refugees ever since. The camps lasted more than half a decade and are still ongoing as a result of the Palestinian-Israeli conflict. The Palestinian refugees being in the range of 300.000 to 500.000 persons⁸, already constitute almost a quarter of the Lebanese population⁹.

According to UNRWA¹⁰, across Lebanon there are:

- 1) 12 refugee camps
- 2) 65 schools, with 36,960 students, including 5,254 Palestinian refugees from Syria
- 3) One Vocational and Technical Training Centre with about 900 students on two campuses
- 4) 27 health centers¹¹



Figure 4 Southern Lebanon's Mieh-Mieh Palestinian refugee camp¹²

⁴ "Lebanese across the globe: How the country's international community came to be", accessed March 8, 2020, https://www.chicagomanualofstyle.org/tools_citationguide/citation-guide-1.html#cg-website

⁵ UNHCR Lebanon Factsheet, January 2019, United Nations Office for the Coordination of Humanitarian Affairs (OCHA), <https://reliefweb.int/report/lebanon/unhcr-lebanon-factsheet-january-2019>

⁶ Sylvia Westall, Syria refugees set to exceed a third of Lebanon's population, REUTERS, 2014, <https://www.reuters.com/article/us-syria-crisis-lebanon/syria-refugees-set-to-exceed-a-third-of-lebanons-population-idUSKBN0F818T20140703>

⁷ Françoise De Bel-Air, Migration Profile: Lebanon, European University Institute, 2017, Issue 2017/12 May 2017,

https://cadmus.eui.eu/bitstream/handle/1814/46504/RSCAS_PB_2017_12_MPC.pdf?sequence=1

⁸ Ibid.

⁹ Ibid.

¹⁰ The United Nations Relief and Works Agency for Palestine Refugees in the Near East, <https://www.unrwa.org/who-we-are>

¹¹ Where we work: Lebanon, UNRWA, January 2019, <https://www.unrwa.org/where-we-work/lebanon>

¹² File photo, 26.10.2018,

<https://www.aa.com.tr/en/middle-east/hamas-chief-lebanon-leader-discuss-refugee-camp-unrest/1294233>

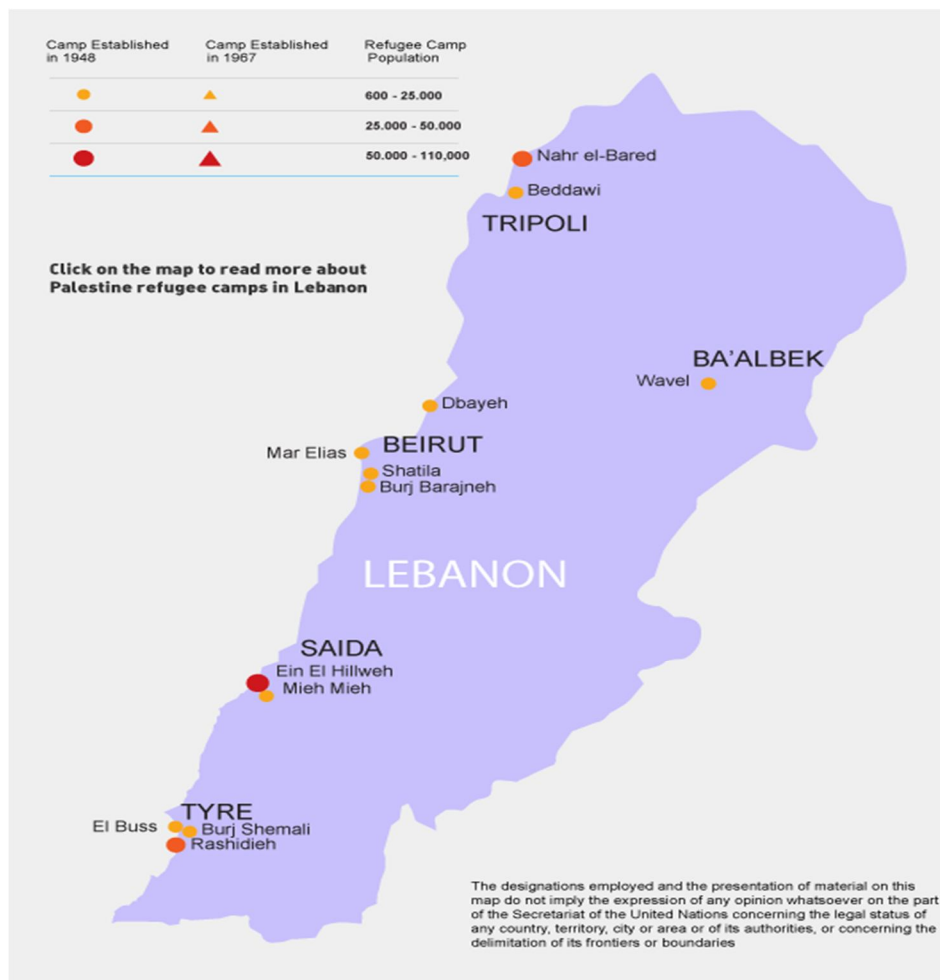


Figure 5 Map showing the Palestinians refugee camps¹³

The number of these refugees alone are considered to be more than enough for any country to handle, and especially for over 50 years. These camps make Lebanon the host to one of the oldest and longest ongoing refugee camps in the history of emergency architecture. The study of these camps gives us an important view upon how refugee camps evolve, and what is the impact that these camps have on a country, especially when they last for so long past their expected duration. And this was useful the most when comparing the results with the findings of the analysis of the Syrian settlements.

The situation with the Syrian refugees is a totally different and unique case from the Palestinians. To begin with, considering the big number of refugees already present on the territory, one must ask the reason behind the Lebanese government accepting to open its borders once more. The answer to that is both humanitarian and at the same time a simple matter of repaying a debt. During the Lebanese-Israeli war in 2006, Syria had opened its borders and hosted several thousand Lebanese¹⁴, hence one might understand why the Lebanese government had no choice but to open their borders when the situation presented itself again, this time in Syria. Unfortunately though, by doing so, the government had also introduced the country to many serious problems, on top of which we find the unexpected duration of the crisis of 9 years for the ongoing Syrian civil war, which makes it much worse when considering in comparison that the war in Lebanon lasted 30 days only.

¹³ *Where we work: Lebanon*, UNRWA, January 2019, <https://www.unrwa.org/where-we-work/lebanon>

¹⁴ *Lebanese refugees in Syria return update - 17 Aug 2006*, United Nations Office for the Coordination of Humanitarian Affairs (OCHA), <https://reliefweb.int/report/lebanon/lebanese-refugees-syria-return-update-17-aug-2006>

Although the biggest and most dangerous problem of them all remains the presence of terrorist cells that hid themselves amongst the refugees in order to infiltrate the country. It took the Lebanese army almost 2 years to stop them from sending car bombs at the cost of hundreds of civilian and military casualties, and in some parts of the border a few terrorist cells still reside and are in constant conflict with the Lebanese army. The cost for saving many lives had, sadly, also led to the cost of many more. And so, without going further into details at this stage, and faced with these facts, a series of questions arise with no apparent answer: did the Lebanese government do well by opening the borders or not? But more importantly, how can someone wager the hosting country's national security with the humanitarian duty that one has when faced with such a cruel situation?

To summarize, the recent events in Syria have made Lebanon the host for the most recent refugee camps which, combined with the camps present before, allowed us to see the evolution of the interventions, and once again the effects that these camps have had on the hosting country.

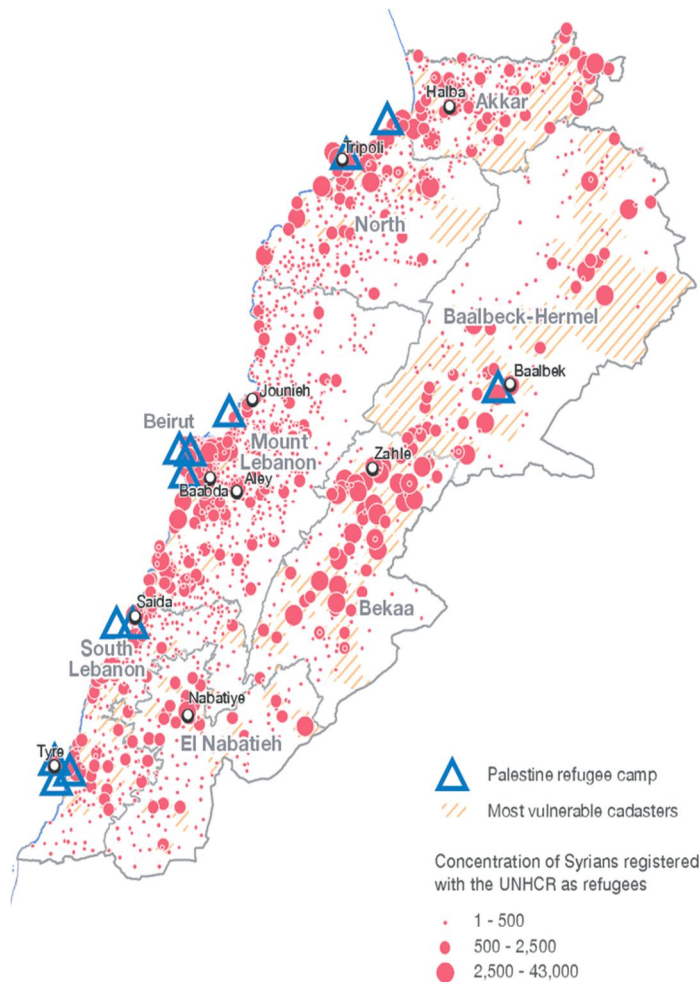


Figure 4 Map showing concentration of Syrian and Palestinian refugees throughout the Lebanese territory¹⁵

Due to the extremely big amount of refugees that the country had to take in, the United Nations were unable to handle the camps, and even with the help of the Lebanese government there was still a deficit, and so, in some areas, the locals organized informal settlements, while in others, some NGO's rose to the occasion and intervened, and in some locations the refugees themselves chose to create the camps from the local material and sometimes with the assistance of people from nearby villages.

¹⁵ Filippo Dionigi, *The Syrian Refugee Crisis in Lebanon: State Fragility and Social Resilience*, LSE Middle East Centre Paper Series, February 2016, https://www.researchgate.net/figure/Map-of-Most-Vulnerable-Cadasters-of-Lebanon-and-Syrian-Refugee-Presence-Source-3RP_fig1_296702476

By taking a look at various refugee camps and comparing them, many important conclusions, on how can the first response camps be improved in order to avoid the creation of so many different camps, were brought to light.

The presence of numerous and very active NGO's, the latest studies estimate them to be around several hundreds, as well as architecture offices active in the area, provided another confirmation to the refugee's point of view, which was important since they bring some objectivity to the conclusions drawn.

One of the biggest helping factors in this study was definitely the presence of a strong UN base in the area which, considering the history of Lebanon, seems logical. As always, the UN showed support to the studies and gave support during the various interview processes with not only the refugees but even some of the staff who had worked with refugees.

Initially the UNHCR¹⁶ began helping out indirectly by aiding the various local municipalities as they were initially vetoed by the Lebanese government to help the refugees. The government wanted to avoid another long-term crisis, such as the situation of Palestinian camps currently in Lebanon and opted initially for something more temporary. However, this situation changed with the passing of the time after the government became aware of the huge number of refugees who entered the Lebanese territory and, therefore, allowed the various NGOs and UNHCR to help out directly on the field. Nevertheless, there were still some constraints by the government like, for instance, the UN and the NGOs were asked to use the term "informal settlements" instead of camps in order to clarify and insist once more that this situation is only temporary. Moreover, it has prevented the use of concrete in construction as in the case of Palestinian camps that now look more like a city with a bad or even absent urban organization. With the passing of time, these minor constraints have proven to be effective and the difference with the Palestinian camps was instantly noted.

Thanks to the assistance of a high ranked UN official¹⁷, a subdivision of the current distribution of the refugees' allocations can now be presented.

Refugees are distributed as follows:

- 1) 18% present in informal settlements.
 - These receive the SHELTER KIT every month.
 - THE SHELTER KIT is a package designed to cover the primary needs of refugees.
 - Sometimes, depending on the budget, these settlements receive maintenance work.
 - Mainly in WASH healthcare systems.
 - 2) 24% in SSB's¹⁸, buildings qualified by them as SUB-STANDARDS
 - Overpopulated apartments.
 - Apartments that have undergone basic rehabilitation.
 - Apartments where you do not pay rent in exchange for various forms of renovation or work, specifically handled by UN member teams.
 - Apartments with a very low rent (up to 80% reduction).
 - 3) The rest of the refugees are distributed without UN control or monitoring.
- Currently the UNHCR find themselves in a complicated situation where they do not know what to do:
- Every year the rents increase.
 - The situation does not have an apparent end.
 - They have more and more immigration requests, even though the Lebanese state has closed its border.

¹⁶ The United Nations High Commissioner for Refugees, the UN Refugee Agency, is a global organization dedicated to saving lives, protecting rights and building a better future for refugees, forcibly displaced communities and stateless people, <https://www.unhcr.org/about-us.html>

¹⁷ Their identity will remain undisclosed based on their request

¹⁸ SUB STANDARD BUILDINGS



Figure 5 UNHCR formal Syrian settlements in Lebanon¹⁹



Figure 6 Informal tent settlement in Beqaa, Lebanon²⁰

¹⁹ Shelter, UNHCR,
<https://www.unhcr.org/lb/shelter>

²⁰ Jon Warren, World Vision, 2016,

IV. WHAT ARE THE STEPS TO FOLLOW IN EMERGENCY ARCHITECTURE?

Studies of the situation in Lebanon have clearly demonstrated how complex the process of emergency architecture has become and how, even with all its complexity, the priorities have remained the same ever since the humanitarian field was brought to light: the first priority in an emergency remains to put a roof on top of the head of every person who found themselves homeless.

No matter how one looks at it, there was no better, more effective and efficient way to achieve that primary goal than through the use of the tents. There is no denying that the tents present a lot of negative aspects but none of which is of importance for the refugees. This fact remains true throughout the initial period of time, during which the refugee is in a state of shock and is just seeking shelter. However, once settled in, calmed down and no longer in a state of shock this status quickly changes. This is why one of the objectives of this article is to demonstrate that in order for the intervention to any crisis to be effective, equal development is needed to all the phases of the emergency architecture, and why concentrating the efforts on same parts over and over is not recommended.

The first phase is, without a doubt, the preemptive preparation and planning work that each country should do before such events occur. The first 48 hours after a crisis are the most critical, and by doing proper preparations, a country can act swiftly and save the most amount of lives possible. Here, we have to state an important fact that many governments overlook, and that is the “vitality of communication with the public”. It is the government’s job to gain the faith of the people and avoid giving out the sentiment of inaptness by doing trainings, drills and sharing a series of information with the public. Having plans put in place without sharing them with the population can bear negative outcomes. It is of extreme importance to have the refugees trusting in the country’s rescue teams and crisis management operation room. This would allow reducing the panic and avoiding refugees trying to act on their own. For instance, in some cases of emergency in countries, where there is a lack of trust in the leadership, or lack of trust in the capacity of the leadership to handle the magnitude of the crisis, it is believed that many people tend to build their own shelter out of the debris left through the emergency. It is essential to state that, although it might seem as a good idea for most, not all people are equipped to handle such a task and therefore it is highly not recommended. Any small mistake or weak structural design ends up costing many people their lives. Therefore, when possible, these cases should be avoided. Based on the surveys done in the camps, it was confirmed that the main reason which drives people to act this way is the lack of trust; due to the lack of adequacy of their leaders, which prompts them to take matters into their own hands.

It is common to start by identifying and studying different locations to withhold the refugees and possibly become the base for the creation of future settlements, depending on the duration and nature of the crisis. The location should be easy to reach and should allow the organizers to easily provide the basic needs and, when possible, resort to using nearby natural resources in order to avoid the delay and the costs of the transportation of such needs. It should also be a location with little to no risk of getting hit by the emergency situation either directly or through aftershocks. It should also be studied in consideration of the weather in order to avoid any future problems that might be caused by some minor climate change.

After the location, it would be advisable to have an urban planning in mind while setting the habitation units to allow a smooth transition and avoid the relocation of refugees. As for the material of the single habitation unit, it is advisable to plan construction of units from material present on site. In case of absence of such conditions, experience has taught us that, the UN and the different NGO’s can, through air, land and sea support, reach the country within a matter of hours once the green light from the council has been given. The response time of the specialized units in the UN is to be admired and studied, and recent events have proven that most delays are due to a political conflict and not due to a lack in preparations or capabilities.

It is of essential importance for the plan to be coordinated with the help of the law enforcement agencies in order for everyone to know their role in the extreme case of impossible interagency communication. In emergency situations, humanity often rises and a huge number of volunteers tend to step up, and if unguided, while having good intentions, they tend to make things worse which is why it rests upon these agencies and the specialized personnel to guide the volunteers and insure the safety of everyone and to put their skills at use in the best possible way.

The second step would occur either directly after it or it consists of the construction in the fastest possible way of the living units, in order to try to shelter as many people as possible. Here the preparations, the surroundings and the magnitude of the emergency play a major role into guiding how to proceed.

This is normally where the most efforts are put when it comes to research and development. It is most probably due to the fact that it is the most appealing aspect of the emergency architecture considering it is the most visible, and therefore any investment sees its return instantly from a mediatic and marketing coverage point of view.

We constantly see prototypes, designs and studies from many famous architects and engineers as well as rising ones and students. This level of attention has led more and more requirements and notions with the passing of years: economical, structural, transportable, appealing design, sustainable, recyclable, reusable, adaptable, etc. And to the surprise of many, the most dominant technology is one of the most ancient and primitive shelters ever to be recorded: the tents.

Tents can easily be manufactured, transported and constructed. They are mainly constructed with sustainable materials. By definition the technology is cheap and reusable. Additionally, tents have a lifespan suitable for almost all emergency cases and are suited for almost all weathers and locations, hence explaining their undisputed dominance.

We are all used to reaching this point, and for most people this is the climax of emergency architecture, but the reality is far from it. For recent history has taught us that emergencies are becoming more and more frequent and the biggest challenge is their duration, which is why the third step is of crucial importance and is the main objective of this article.

The third step consists of programming the evolution of the camps or settlements based on estimates for the duration of the crisis. Once the primary objective of putting a roof on top of the refugee's heads is secured, the work and focus need to be shifted into how to manage the camps or settlements as a whole, in an attempt to guide their progress and provide a proper and efficient evolution.

V. HOW DO THE REFUGEES PERCEIVE THESE STEPS?

In order to fully understand life in a settlement, a number of various interviews and site visits of refugee settlements in Lebanon were performed. They were conducted with refugees from different ages, backgrounds and gender, in order to try to include as many points of views as possible.

Through this experiment, it was understood that it does not take long for the refugees to pass from a state of being "grateful for whatever is given to them" into a more demanding one. That is mainly due to the difference between the minimum life needs of nowadays and what the camps have to offer. From a psychological point of view, there was a common point between all of them; when they left their homes, people were only thinking of getting to a safe place and putting a roof on top of their heads and that is specially applied to parents and heads of families, so when they are first given a tent they are all very grateful and thankful. But as time passed, the adrenaline lowered, the minds cooled down and they became aware of their situation and began to feel impotent and this was where the problems started to appear. At this point, they become aware that they are only able to enjoy the bare minimum of life standards and start focusing on the negatives of their situations rather than on the positives. This is mainly due to the human nature of always wanting more and never being satisfied with what one has. This continuous thrive for more has made it so, that today's goals become tomorrow's standards, and that mentality is what scientists believe was the source of the evolution and domination of the human race.

VI. WHAT CAN BE IMPROVED?

At this point of the chronological line of thought, here comes the time for the architects to intervene, introducing all that which they had studied from sociology to geography, from interior to exterior, into the metamorphosis of the camp or settlement from a "first response one" onto "mid to long range one", and thus introducing what shall be defined as "PHASE II".

It is believed that the best way to shift the camp in the smoothest transition would be the study of the construction of one or more "multiuse, multifunction, and sustainable structures" capable of containing all of the life in the camps or settlements into them. This would be the answer to the biggest problem refugees encountered, which is routine and the feeling of being isolated when in need of company, and in public when in need of privacy.

The main idea of Phase II is to eliminate or limit the need for refugees to use or stay at their tents except for sleeping. By doing so it would be possible to transform the settlements into one big home. The idea is using the positive outcome that students give while living throughout the university years in dorms and student residences, where the use of such well-studied structures made the life in dormitories much more desired than the life in apartments or studios. The dorms have been studied to cover all the students' activities in common areas, which liberates the owners and makes it acceptable for them to design the smallest rooms possible that are destined solely as a resting and sleeping place. The idea is to make the rooms smaller in order for them to be able to cover the basic needs of students; and therefore, a desk to study, a closet to put their stuff in, a bed to sleep on and, in some cases, a private bathroom. Whereas the kitchen, the living room, the gym and all the remainder of activities that can be done in groups were put in common areas which gave the effect that the whole dorms was just one big home and that is the effect we are looking for in our PHASE II.

By applying the dorms theory to the camps or settlements we would need to first know what the interests of the people living there are and try to gather as many as we can in one or multiple multiuse structures. The age, gender and background differences present the biggest challenge when trying to find a common ground upon which to base these structures. These structures must be able to adapt to the use of different time schedules and must be able to create different spaces. They must be able to function 24/7 in order to maximize efficiency. They must be solid structures but at the same time not too complex, and in this case the biggest challenge relies in making them temporary and preferably transportable and re-deployable.

Through the use of these structures the use of the living units will be reduced to the strict minimum and therefore this should reduce and, in some cases, eliminate almost all negative impact they must have.

Since we are considering longer crisis durations, and as most interior architects know, sometimes the smallest changes in a person's home can have a huge impact on their mood and life in general. Therefore, a study of a way to personalize the tents in a non-aggressive manner should be allowed. Additionally, social studies show that personalizing one's habitat is what makes it feel like home. In this case, heavy attention should be made to maintaining the living unit's capability to return to default and be reused and re-personalized by the future tenants.

VII. WHAT CAN WE DEDUCE?

Lebanon's location, weather and history have made it an ideal place for hosting refugee camps and the bearer of one of the oldest and longest refugee camps in history as well as the bearer of one of the most recent refugee settlements. Between the Palestinians and the Syrian refugees, Lebanon has found himself with one the highest refugees to population ratio in the entire world.

Analyzing the evolution of both situations, it can be deduced that there are three steps to follow in emergency architecture:

- 1) First and foremost, the need to do a lot of preemptive preparation and planning in order to improve efficiency and help save as many lives as possible, especially since the first 48 hours have been proven to be the most crucial.
- 2) Secondly, the need to put a roof on top of the refugee's head as fast as possible
- 3) Third, programming the evolution of the camps or settlements based on estimates for the duration of the crisis

The results of the interviews and site visits, show that, although initially grateful for having a roof above their head, the refugees rapidly move into a state of discontent when realizing the situation, they have found themselves in. And as per human nature, they start asking for more and an improvement of their situation while considering it as the bare minimum. This is proving to be more and more common especially when considering the advances that society is making and how our perception of minimum requirements changes drastically from generation to generation.

This has fueled the proposition of this paper to put more efforts into the what was defined as PHASE II. The effort of the scientific community should be placed into developing the common areas and reducing the need of the refugees to stay in their housing units aside from basic needs like sleeping or privacy. Doing so would transform the entire settlements into one big home. Through the use of big structures for common areas, it can be possible to reduce and, hopefully, eliminate the negative attitude of the refugees.

All that which was said before, brings up a series of very important questions that should be further discussed and analyzed: What is it that defines the expiry date of a refugee camp? How can we predict the length of the crisis? How should we act when the camp exceeds its planned duration? Where does a country draw the line upon accepting refugees?

Faced with the risk of death, one will always look to flee the country and no bordering country with a minimum level of common sense would close the border and let people die, but when faced with such a big mass of refugees **how must a country act?**



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