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PLACEMAKING: A DECENT NEW HOME FOR THE INTERNALLY DISPLACED SYRIANS AT BUFFER ZONE, SYRIA

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ABSTRACT

Displacement is a global phenomenon; the causes of displacement vary between violence and natural disasters. Syria remains the world's largest refugee crisis, having multi-displacement due to several effects such as armed conflict, situations of generalized violence, violations of human rights, or natural or human-made disasters, especially for the IDSP who moved to the North. This research presents a set of speculations for making a decent new home for internally displaced Syrian people forced to flee to North Syria (IDSP). Under the theme of placemaking, this study emphasizes the need to consider the limited available means to survive a decent life under the harsh weather of summer and winter. The other major problem is that the IDSP is economically handicapped. The thesis project aims to propose a prototype decent new home for the IDSP where they can self-sustain by having a proper home to work, live in, and socialize. The project aims to provide passive earth-sheltered houses with vegetable gardens, communal co-op, and seasonal shared farmland, besides having main facilities of the communal *masjid* with a rescue area and marketplace. This project highlights the suitability of replacing indecent homes with proper decent and passive homes by applying the strategy of earth-sheltered architecture and underground structure to preserve the house heat and coolness throughout the year, which can be a perfect solution for IDP worldwide.

Keywords: Internally Displaced Syrians, Multi Displacement, Self-sustain Housing, Earth-sheltered Architecture, Placemaking

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INTRODUCTION

The Guiding Principles on Internal Displacement (2020) describes internally displaced persons as: "Persons or groups of persons who have been forced or obliged to flee or to leave their homes or places of habitual residence, in particular as a result of or to avoid the effects of armed conflict, situations of generalized violence, violations of human rights or natural or human-made disasters, and who have not crossed an internationally recognized state border". Syria remains the world's largest refugee crisis. Since the start of the war in Syria 10 years ago, the lives of the Syrian people have been under threat. Back in 2011, the situation quickly shifted from localised protests to a full-scale war, leading to a devastating humanitarian situation that persists a decade later. The Syrian refugee crisis remains the world's largest refugee and displacement crisis of the time.

Since the Syrian civil war officially began on March 15, 2011, families have suffered a civil war that has caused killing hundreds of thousands of people, torn the nation apart, and set back the standard of living by decades. Internally displaced person (IDPs) are people who have been forced to leave their homes by the cause of violence (Hartman, et al., 2020). A person is considered internally displaced if he did not cross an international border to find sanctuary but has remained inside his home country. The IDPs lost their properties during the war where they are unable to sell their houses or stay in them anymore, and thus they are unable to go back. According to the Internally Displaced Monitoring Center report (2020), the Syrian government 2018 issued Law 10, the government could own areas destroyed in the war, and the lands of the displaced people who lost their documents during the war were then auctioned off.

The IDPs are exposed to multiple times of displacements due to the weather and climate conditions of the place they move to, which requires a permanent solution to stop the displacement phenomena. Syria is one of the top ten over twenty-five countries with new displacement by conflicts and violence. It is one of the highest countries of displacement with a total number of Syrian IDPs due to conflict and violence. Syria hit the largest displacement event in a decade. The total number of Syrian IDPs due to conflict and violence is 6,568,000, the new displacement is caused by violence and the harsh climate in the indecent camps. 6.2 million IDSPs have fled to the northern part of Syria, while many others could flee to Turkey. The red buffer zone in Syria is considered a safe zone under international military protection, which urges rescued IDPs to settle there. According to the IDMC organization, the percentage of displaced Syrian people according to their age group classification shows that the biggest age classification is the age group ranging from twenty-five (25) to sixty-four (64). This age group formulates forty percent of the IDSP, almost half of the IDSP density.

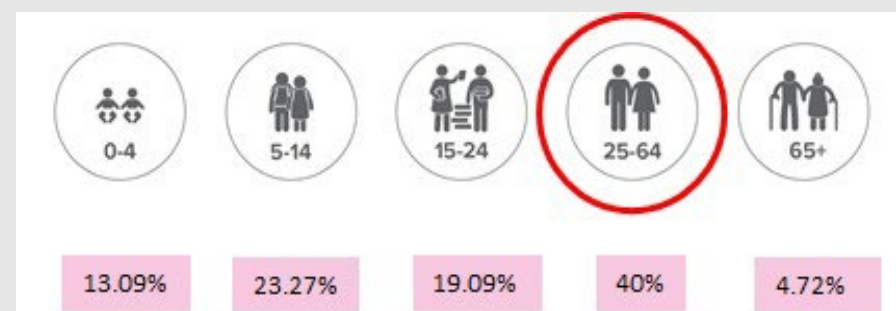


Figure 1: New displacement by 2020 Source: (IDMC, 2021)

PROJECT ISSUES AND PROBLEMS

In the absence of decent homes for the internally displaced Syrians (IDPs), the IDPs face major challenges in terms of protection, access to shelter, food, and other basic services such as health, nutrition, water, sanitation, hygiene, and education (Kaya et al., 2016) which underlines the importance of effective permanent protection mechanisms to be put in place immediately. Figure 2 shows the current indecent home at Syrian buffer zone camps.

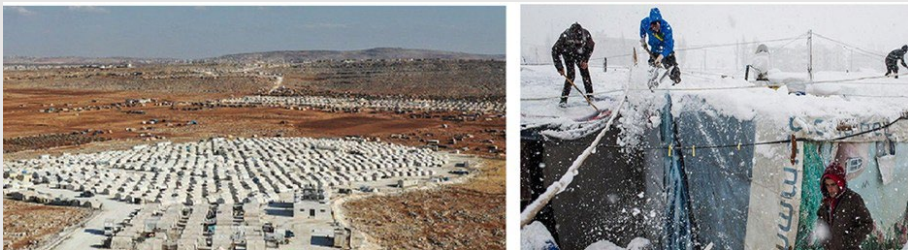


Figure 2: Winter snow destroying tents at Syrian camps Source: (wiki, 2020)

RESEARCH GAP

The solutions for displaced Syrians are local integration or resettlement. Sustainable solutions for IDPs can be to return to the place where they have taken refuge or integration into another part of the country of origin (Hartman et. al, 2020). Displaced Syrians and refugees need a permanent sense of settlement to live in peace and build their future (Kawakibi, 2013). There are several negative impacts of population density within IDP camps in Northern Syria, especially in terms of poverty levels within those camps (Sheikh, 2021). A field survey of 5,362 shelters is conducted across 3 camps in the middle east, which reveals that 80% of the shelters have been customized by their occupants without architectural intervention (Sabie et. al, 2017). In short, non of these researches provide a real solution of building permanent decent shelters for the internally displaced Syrians in the northern part of Syria as a solution to the massive problems that IDSP faces.

SIGNIFICANCE OF THE PROJECT

The significance of the project is to produce a prototype decent new home that can host 5000 internally displaced people and can be further developed.

PROJECT AIM

This thesis project aims to propose a prototype of a decent new settlement that contains all the needed components for the population of 5000 internally displaced Syrians (IDSP) who lost their homes and are unable to return forever.

OBJECTIVES

The objective of this project is to propose a prototype decent new home for the IDSP where they can self-sustain by having a proper home to work, live in, and socialize. through providing:

- Passive earth sheltered houses
- Vegetable communal gardens
- Communal co-op (shared local facilities)
- Seasonal shared farmland
- Main communal facilities such as religious, healthcare, and institutional facilities.



Figure 3: Aim and objectives of the project

THEORETICAL FRAMEWORK

Since the Syrian Civil War caused destruction and displacement, this project aims to make a placemaking of decent new homes for the IDSP with passive design strategies as a new cause to provide a decent solution of new homes for the IDSP in North Syria, which can manifest a prototype global solution for the IDP future.

METHODOLOGY

The research methodology is systemically developed, to speculate and re-imagine the future settlement of IDSP. This research implements both qualitative and quantitative approaches, the primary data of the research is based on field observation and previous literature studies. The literature review helps to gather the whole parts of the total image of IDSP and their real situation, personalities, and needs. The observation can lead to understanding the major issues on site and the site's nature.

The 5 Ws (and 1 H)

Internally displaced people, or IDPs, are the people who have been forced to leave their homes cause of violence, natural disasters, and climate change. This thesis project aims to provide internally displaced Syrians with a decent permanent home that can replace indecent tents. This home is a prototype of a new settlement that contains all the needed components for the population of 5000 internally displaced Syrians.

Decent home & placemaking theme

Placemaking inspires people to cooperatively reimagine and reinvent public spaces as the heart of every community. It facilitates creative patterns of the physical, cultural, and social identities that define a place and support its ongoing evolution. The shared values between placemaking and decent home standards are to provide Shelter, relatable neighbors, access to decent schools, and basic amenities. With community-based participation as central, the focus of this project is on the local community's assets, inspiration, and potential, and it results in the creation of quality public spaces that contribute to people's health, happiness, and well-being. The decent home criteria fulfill IDP needs and solving their issue requires energy-saving and passive design strategies.

THE GLOBAL TREND OF ENERGY SAVING AND PASSIVE DESIGNS

Developing sophisticated, yet simple means of solutions to be protected from the harsh climates and hostile environments. Cave are essentially linked to human history; have been used as dwellings and for food storage millions of years ago. Similar to caves, underground cities existed in China (Banpo), Turkey (Cappadocia), Palestine (Maresha), and Ebla kingdom in Syria three thousand years back. Earth-sheltered and underground settlement is believed to be one of the best solutions to have a passive building, having passive design leads to sustainable cities and communities which goes with the aims and objectives of SDG.

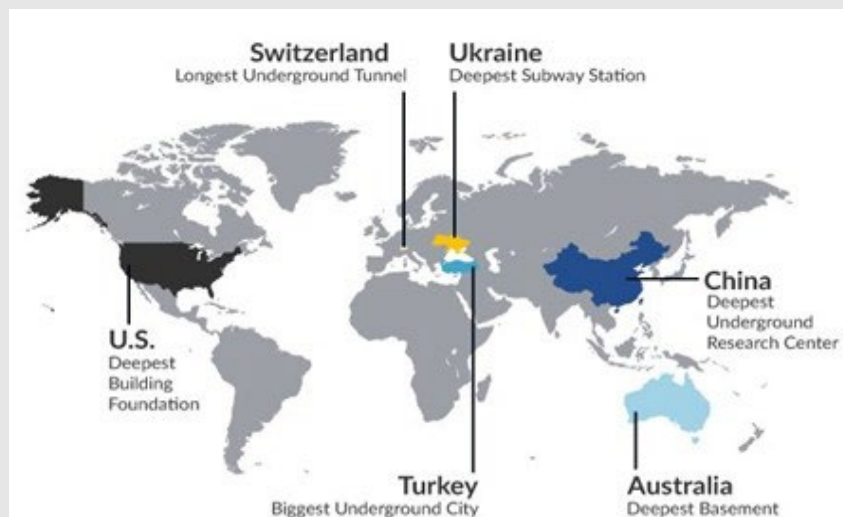


Figure 4: World's biggest underground structure
Source (Groundwork, 2022)

In Syria, civilians create a different solution to gather and socialize, where families feel safe sending their children to survive in normal living conditions. Thus, Syrians built underground kindergartens, schools, and shelters as local solutions for the limited facilities available.

The issue of society fragment

Internally displaced people are facing a danger of rejection from the community and the society where they settle. This social fragment in the Muslim society is a real issue that may cause more conflict and danger to the citizens and the IDPs themselves, which in its turn may cause more and more multi-displacement and thus result in permanent cold war in the countries between the mini groups. Having a local and central main masjid is meant to unite the displaced Syrians to gain back their sense of belonging and familiarity with their own culture and people. Providing emergency shelter for displaced people is part of Disaster Risk Reduction (DRR) strategies and in terms of proper management of resources in the community. The institution of a mosque in the perspective of Islamic theology is a place that provides social and welfare services to the community.

The proposed IDSP town emphasizes interconnecting the residential quarters of the neighborhood to one local Musallah for each residential complex which is also connected to a communal complex that is called communal co-op, thus, the communal co-op is connected to the marketplace and the main Masjid of the town on the top of the hill through a covered underground tunnel.

CONCEPT: SOCIAL COHESION

Instead of being a characteristic of distinct individuals, social cohesion characterizes the organism as a whole. A cohesive society is distinguished by dependable social interactions, a positive emotional connection of its members to the entity, and a strong emphasis on the common good. Each of these three realms unfolds in three dimensions that may be measured independently.



Figure 5: Concept components

DESIGN BRIEF FORMULATION

Speculating A New Prototype of Decent Home

- To use solar panels to generate electricity
- To store the rainwater in winter for farming and irrigation in summer
- To use local material like mud and stones to construct the building
- To use River water for sanitation

SITE SELECTION

1. Site criteria
2. Water: Source of clean Water for sanitation/ transport
3. Resources: Soil Fertility For agriculture
4. River: fishing
5. Near to mountain: Protected from Flood, rocky, defensive
6. Potential neighbors: trade
7. Hills: For the Sheep



Figure 6: The project site

SITE JUSTIFICATION

- The development axis of Syria is located along the large cities which are Aleppo, Hama, Homs, and Damascus which is the capital.
- The west side of the red zone is potential for development since it is the closest point to the development axis in Syria.
- Zone A has all the factors and criteria for the best site location that can cater to the need of the IDP in the long run.
- Zone A is located near the Euphrates river and got the potential for trade and connection to the west-developed side of Syria, which is under the Aleppo governate.

Option zone 3A is the best option based on the following extra criteria
Connected to the main road (road of Syria)(accessible).

1. Near to the bridge connecting the east and west of the Euphrates river(part of the country).
2. Near to a historical site under the Turkish ministry of tourism (the tomb of Sulayman Shah)(future development is potential).
3. Has urban facilities of a fuel station, bus stop, military airport, and cotton factory (easier for the first start).

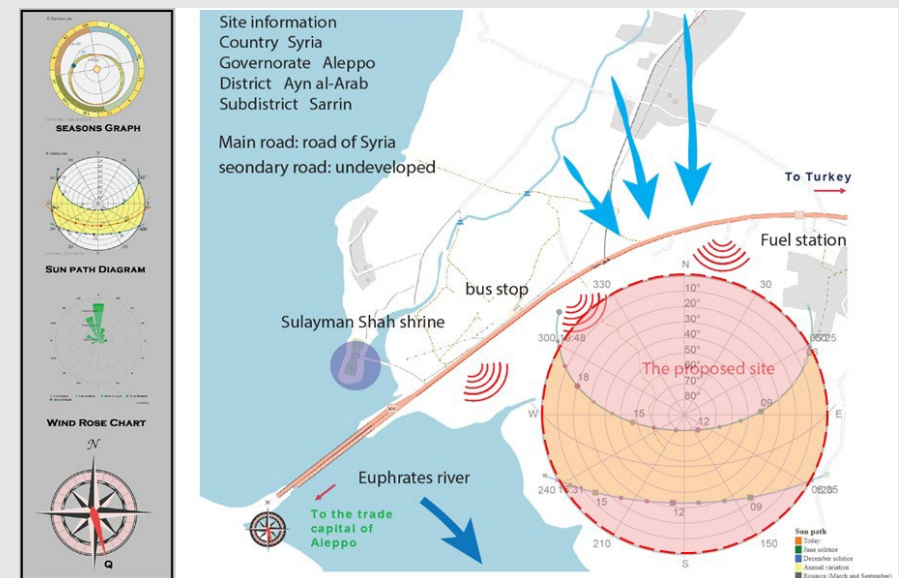


Figure 7: Location Plan

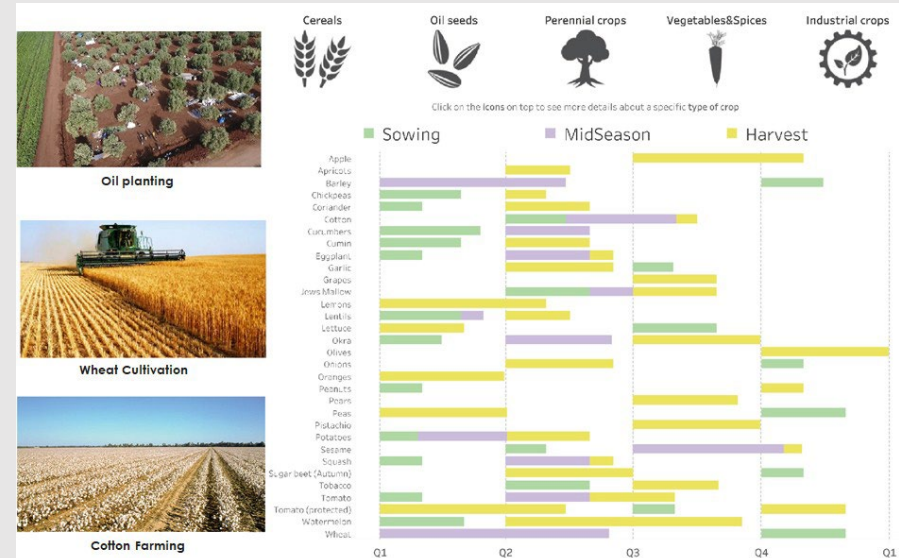
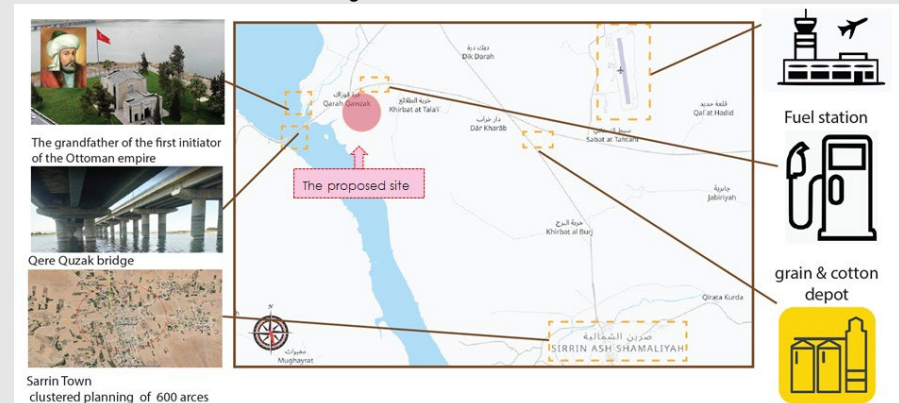


Figure 7: The site selection justifications

Proposing placemaking theme

This project proposal provides a sense of place, sense of belonging, and sense of safety and security for the IDSP. Besides the residential complexes' rescue areas, the main complex of Masjid as a rescue center is an added value to the overall settlement where the purpose of evacuation is to move people away from an actual or potential danger to a place that is safer for them. This rescue area can be used as a multipurpose area and a shelter and passage with underground tunnels to the Souq.

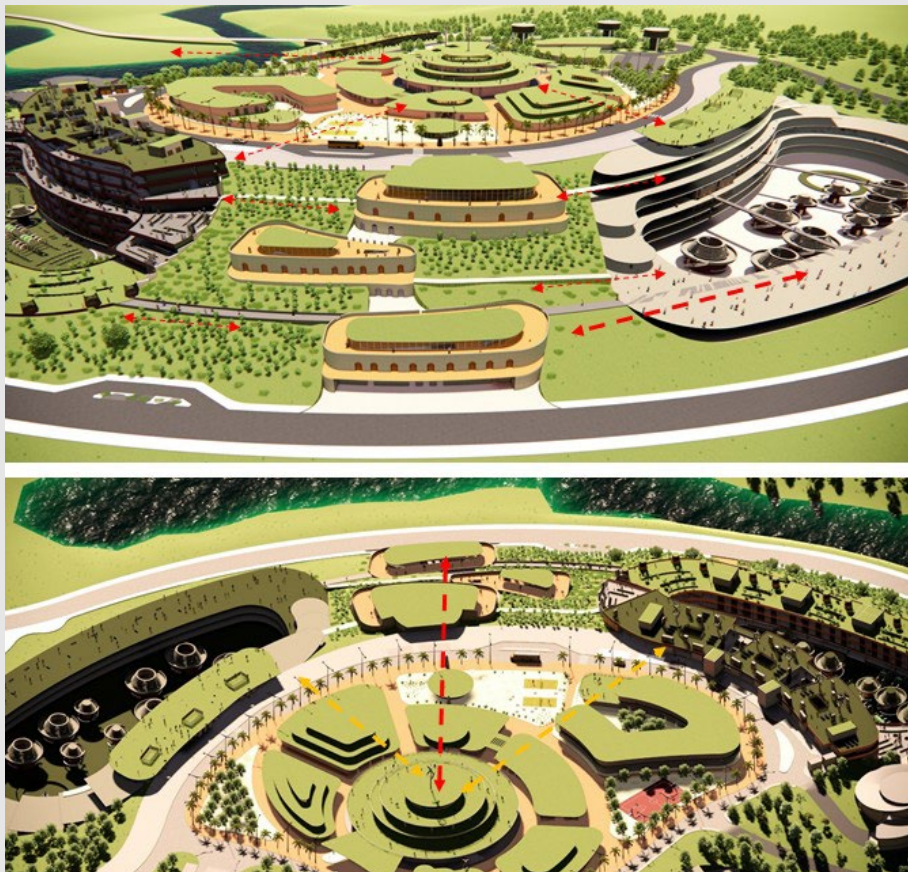


Figure 8: Placemaking proposal

SOCIAL COHESION

The design concept is derived from the need of the internally displaced Syrians who are facing a society fragment. Muslim society urge to make connectedness through the residential quarters and the main communal complex which is the main Masjid.

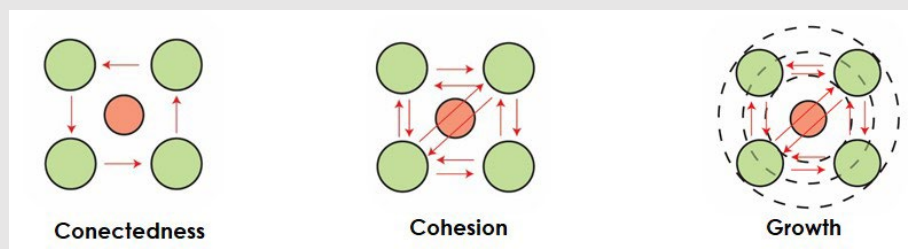


Figure 9: Placemaking themes

The original purpose of the mosque was to foster faithfulness and social cohesion. In this thesis project, masjid is the main communal center that unite the displaced Syrians to gain back their sense of belonging and familiarity to their culture and people.

Masjid as center for community participation, the focus of my thesis project is on the local community's assets, inspiration, and potential, and it results in the creation of quality public spaces that contribute to people's health, happiness, and wellbeing.

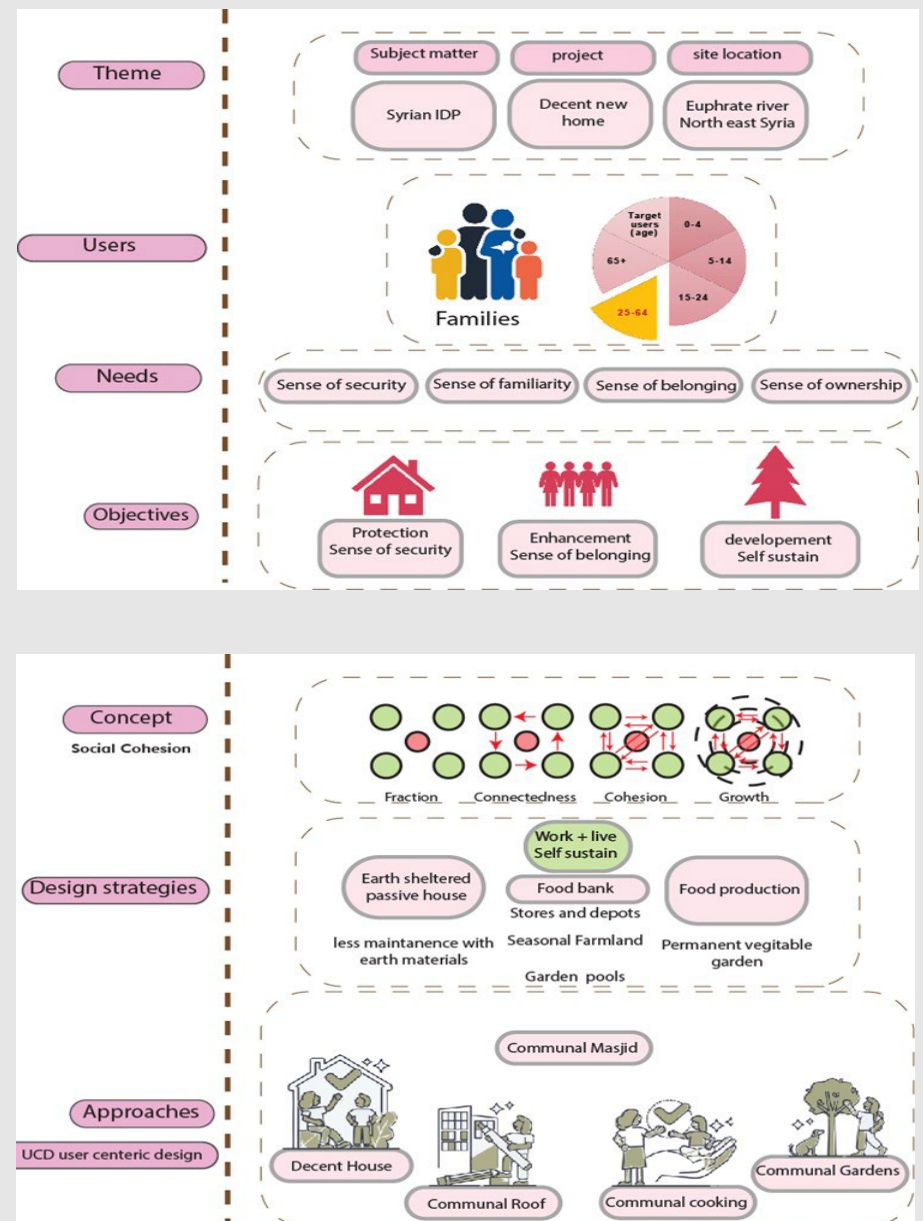


Figure 10: Design concept

SITE PLANNING

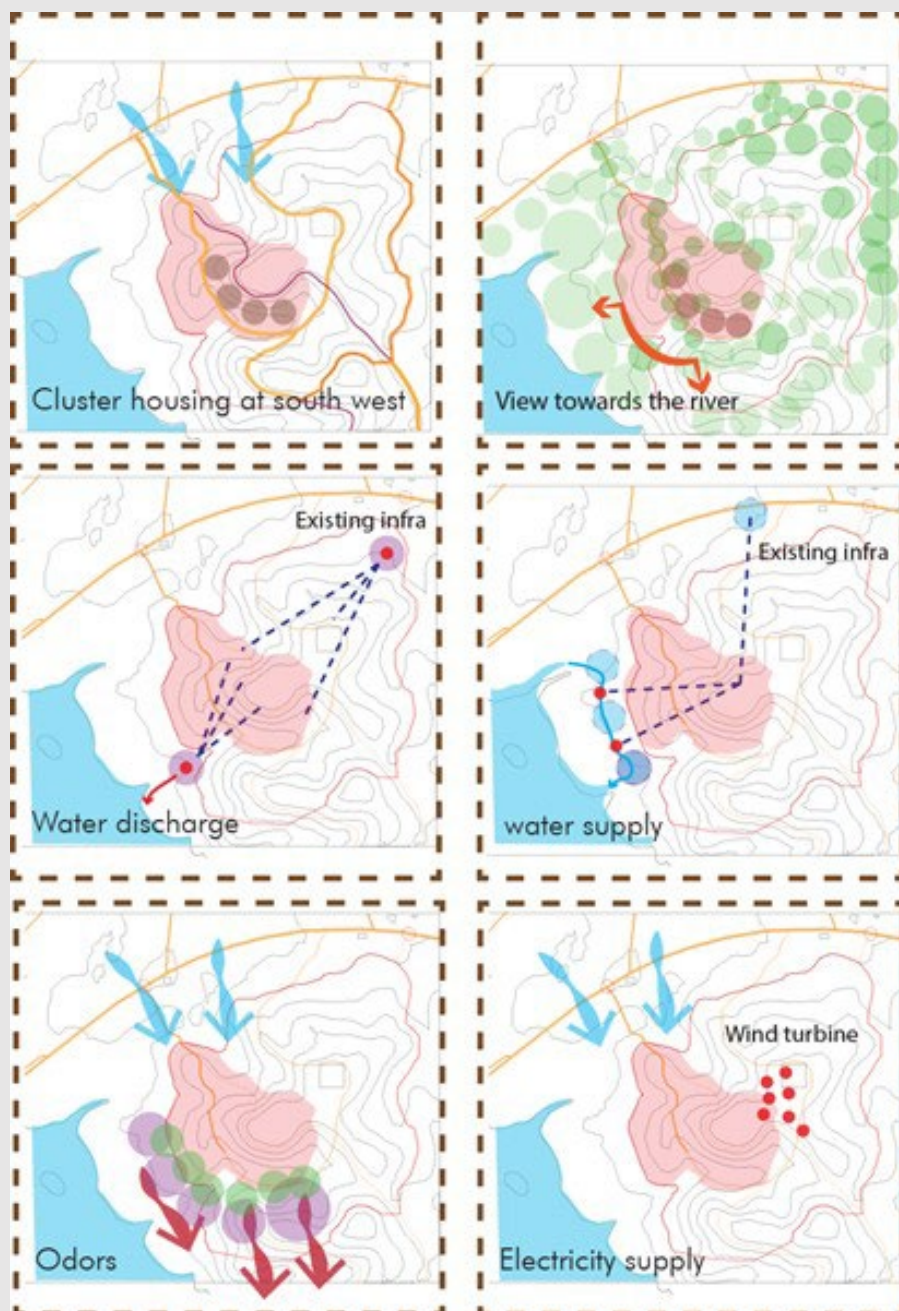


Figure 11: The site planning

FORM DEVELOPMENT

The earth-sheltered building design should have a connection to the outer environment to provide natural light and ventilation, this strategy also helps occupants to overcome the feeling of darkness or dampness (Hassan et al., 2016).

The preferred access direction is to be upstairs, to prevent water flooding, direct winds, or sand cover.

It is optional to use the stairway For unit accessibility and transition between slopes.

MACRO ZONING

The proposed program is divided into the Main community complex with a main central masjid, utilities, and residential quarters with communal local Musallah, communal farming, and shared seasonal farmlands, besides having a water treatment plant and water discharge.

The residential units are divided into clusters with 400 units per cluster, each cluster has a communal co-op of the courtyard and other communal facilities.

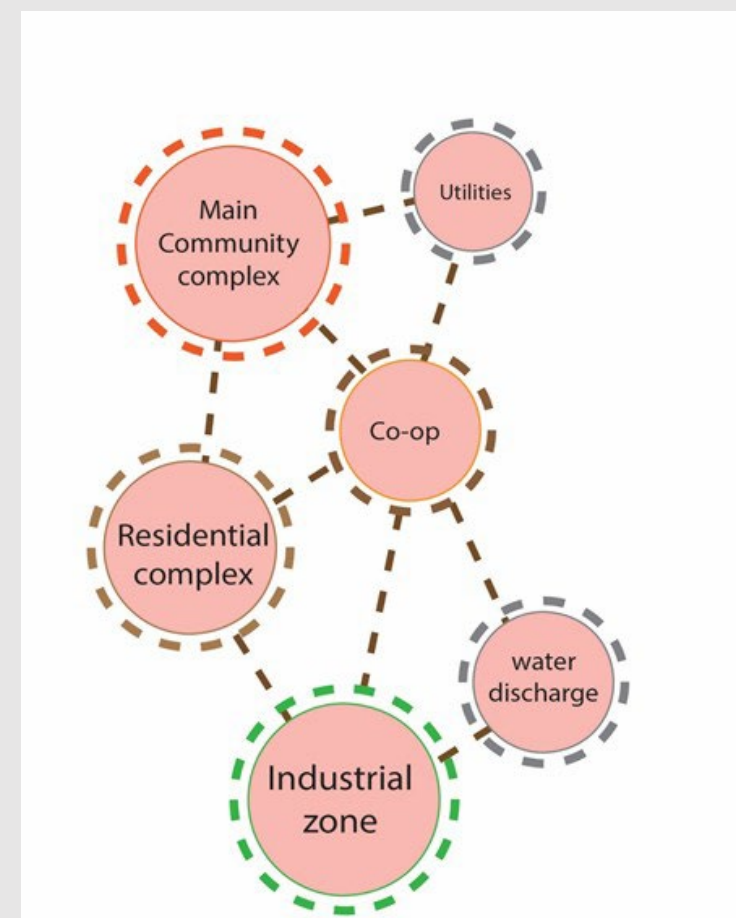
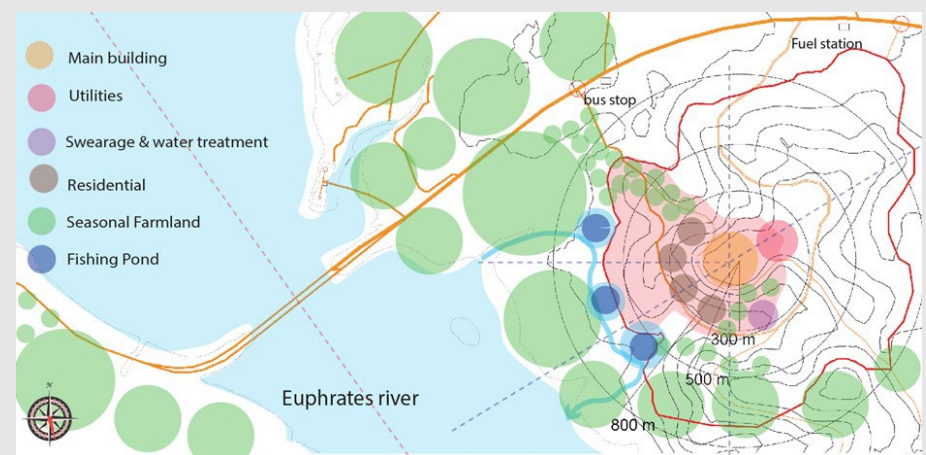


Figure 12: The form development

PROJECT FINDINGS

MASTER PLAN

The main idea behind the site plan is to engage with the surrounding context through a good view that can capture all of the surrounding buildings. The masterplan accessibility considered the best public or service entrance into the site. The structure is laid out in a strewn pattern, similar to solid and void, to allow for cross ventilation. Each building is linked by a walkway that serves as a guide for users.

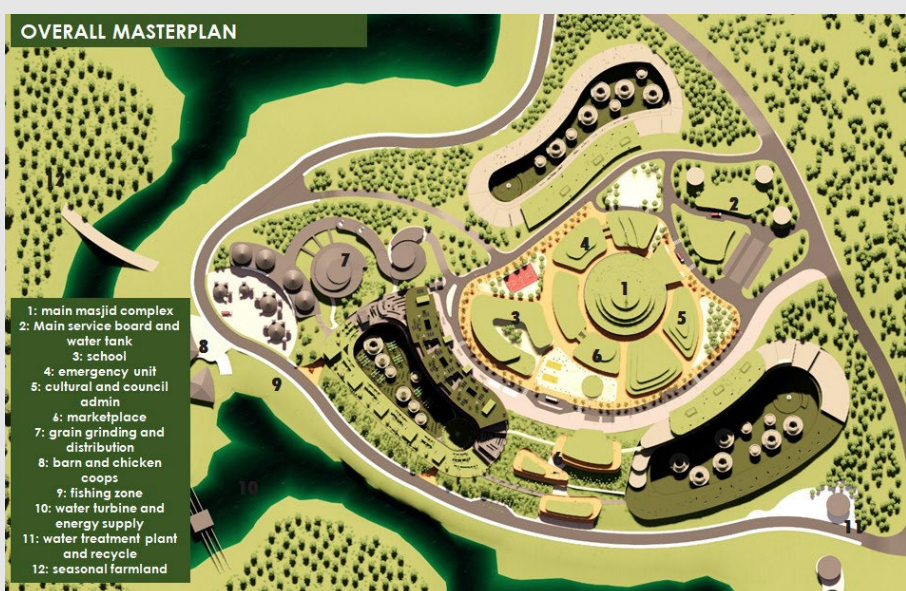
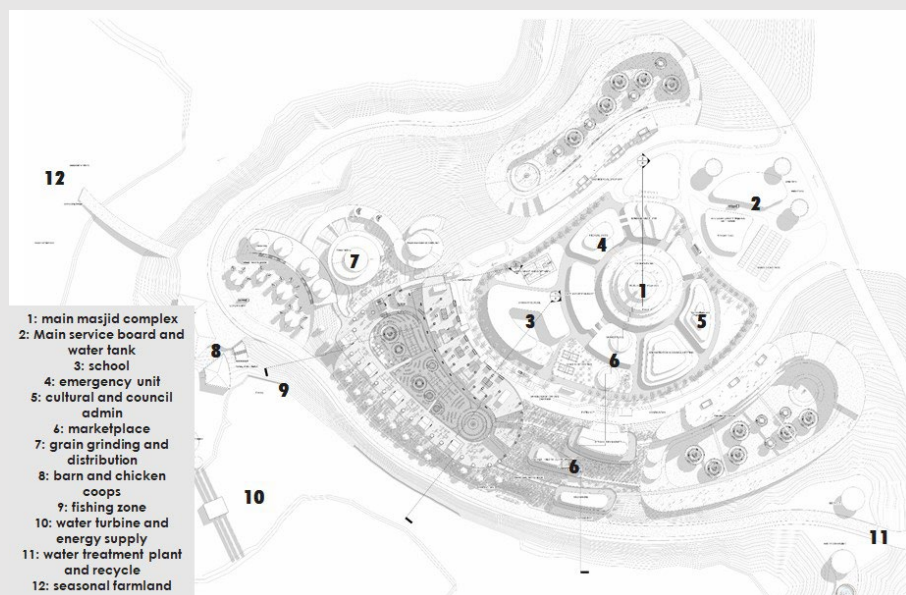


Figure 13: Master plan

SPACE PLANNING

The residential units are earth sheltered, topped with a terraced garden for permanent plantation. The communal farming courtyard and co-op on the two residential complex's left and right sides enhance the sense of belonging to the residents. The communal co-op is a gathering local complex that is part of the residential complex, which connect it to the other public facilities such as Souq and grain grinding and distribution area.

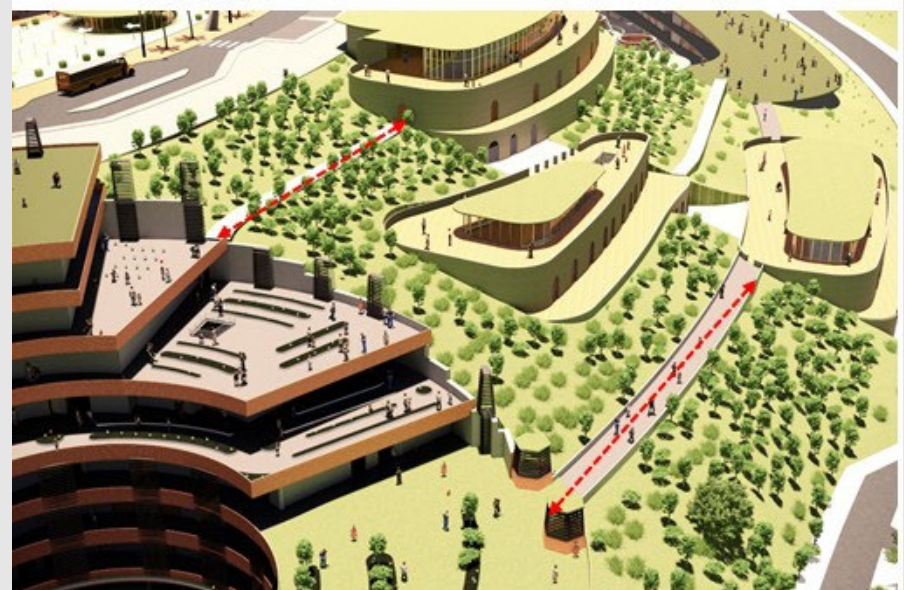


Figure 14: Space planning

Communal facilities

The residential complex includes local Musalla, retail and children's playground, healthcare, elderly care and childcare, primary school, and kindergarten, and a produce market to sell the resident's goods. By having local facilities, residents can meet to cook the traditional seasonal food together that they store for the winter season. Other shared facilities such as restaurants and cafés are open to the public from the main complex.



Figure 15: Communal spaces

The Industrial line

Wheat and bread are the main food for Syrians, which makes it a great necessity to provide them with their decent basic need so that they can produce their own food for winter and summer, the grain grinding is achieved water energy to save electricity and create a consistent supply. 1 & 2 show a connection to the residential complex.

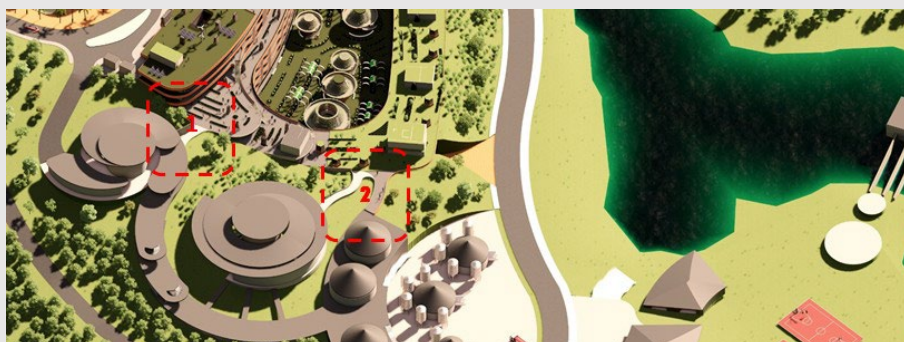


Figure 16: Connection of industrial line 1 and 2

The accessibility to the residential units is from the hilltop which is level GF, and it can be accessed from the lower loop road along the contour of the site, the lower road is surrounding the residential complexes with a cyclist lane, while the upper road is a busy road that connects the main complex with the main road and the other neighborhoods

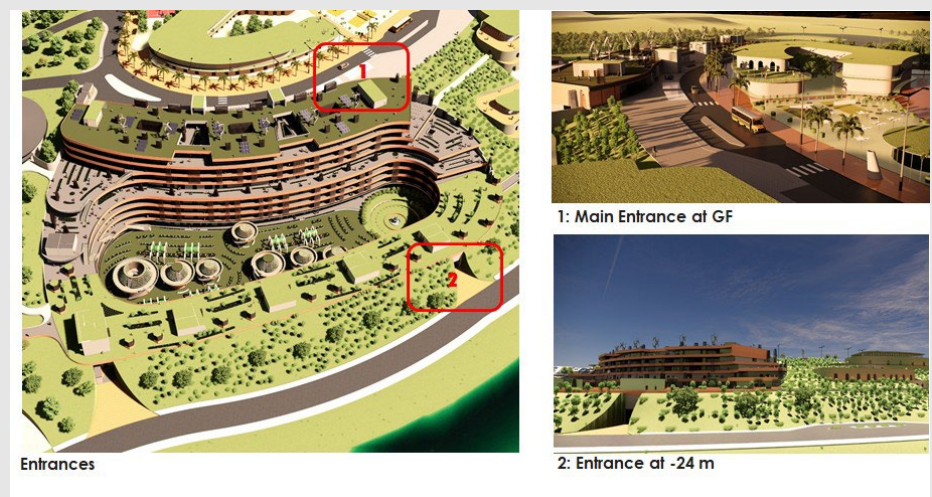


Figure 17: Accessibility

The loading bay is located at the upper loop and the lower loop to cater to the need of the residential units provided. The main power and water supply is from GF while the water discharge by gravity is at the lower floor at a -24 level.

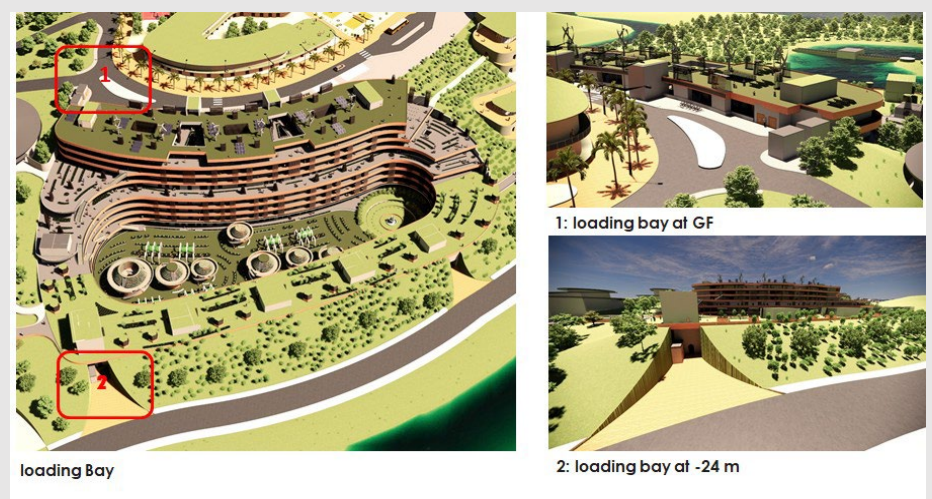


Figure 18: Loading bays

SITE ENVIRONMENTAL CONDITIONS

According to weather Atlas (2022), the weather in Syria is a semiarid seasonal Mediterranean climate. In this area, the temperature decreases with increasing altitude, especially at night and in winter. While summer is usually hot because of the far distance from the sea. The climate in winter is a bit colder in the north, while in summer, it gets warmer as we move away from the sea. The numerical evidence of considerable heat economy and financial adequacy of the earth-sheltered dwelling proves its high potential in the cold climate as the South Ural's is and make it a rational alternative to other ways of energy conservation

Table 1: Syria – weather condition

Qamishli - Average temperatures						
Month	Min (°C)	Max (°C)	Mean (°C)	Min (°F)	Max (°F)	Mean (°F)
January	3	11	7	37	52	44.6
February	4	13	8.5	39	55	47.3
March	6	17	11.5	43	63	52.7
April	10	22	16	50	72	60.8
May	15	29	22	59	84	71.6
June	20	36	28	68	97	82.4
July	24	40	32	75	104	89.6
August	23	40	31.5	73	104	88.7
September	20	35	27.5	68	95	81.5
October	15	28	21.5	59	82	70.7
November	9	19	14	48	66	57.2
December	4	13	8.5	39	55	47.3
Year	12.8	25.3	19	55	77.6	66

According to Berezin (2019) who conducted a simulation of U analysis made on earth-sheltered buildings, the numerical evidence of considerable heat economy and financial adequacy of the earth-sheltered dwelling proves its high potential in the cold climate and make it a rational alternative to other ways of energy conservation

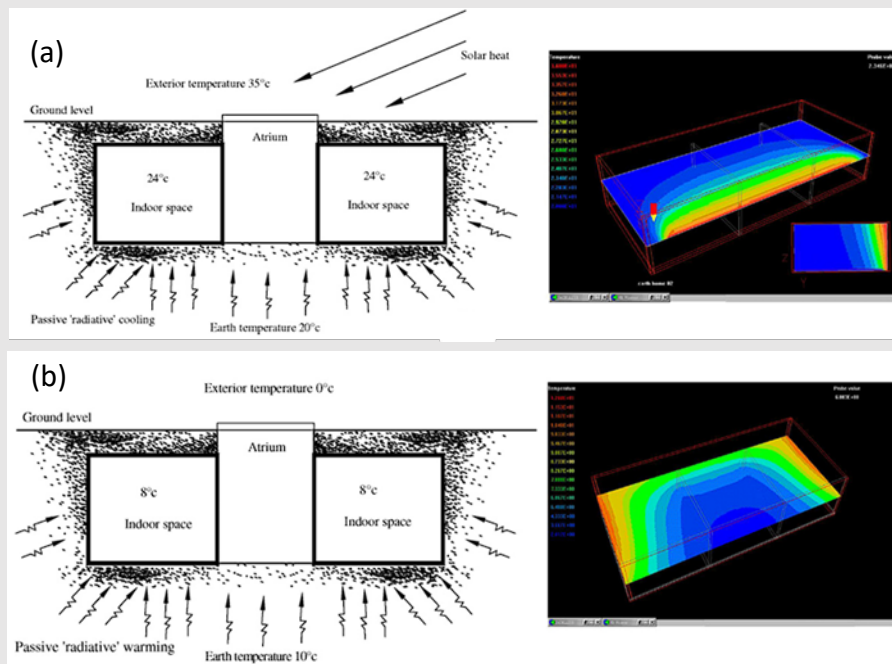


Figure 19: Effects of PAHS and passive cooling on earth shelter indoor space in summer (a) winter (b) of an atrium or courtyard design
Source: Anselm, A. J. (2008)..

EARTH-SHELTERED ARCHITECTURE

The architecture of middle eastern countries like Syria requires several strategies to protect buildings' occupants from severe heat and cold in winter and summer such as providing semi-open spaces, protected open spaces, protected semi-open spaces, and high heat insulation wall materials (Kumar et al., 2007). Based on several case studies, the earth wall with naturally compacted earth of 600 mm thickness is suitable for the proposed earth-sheltered strategy of the IDSPs. Earth-sheltered architecture gives high thermal efficiency, energy conservation, and consistent indoor temperature besides reducing maintenance and operating costs (Anselm, 2008). Earth-sheltered architecture provides a safe and private living.



Figure 20: Sunken earth-sheltered residential building
(Source: Author)

Earth-sheltered architecture requires traditional and local materials of the Syrian culture. Baked Mudbrick and crushed stone are common for the traditional buildings of the region of northern Syria, hence, Shell mesh and steel concrete with dust marble are best to radiate heat and increase the passive design of buildings.

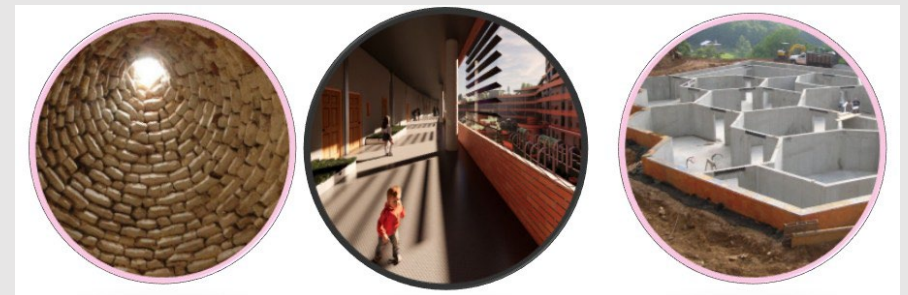


Figure 21: Traditional and local materials of the Syrian culture, the best strategy is the earth-sheltered architecture (Hassan, 2018).

PASSIVE DESIGN SOLUTIONS

Courtyards were traditionally common in Syria and middle eastern countries since courtyards keep the building cool by their effect on natural ventilation and light. The courtyard is exposed to the sun which heats the thick walls during the day. Later, the heat will be transferred into the house during the cold night to warm the internal space.

During the daytime, the hot air rises and moves out of the house by the low pressure inside the house which is balanced by cold air from outside through windows. Which is called the stack process of cooling.

During summer, the courtyard allows cool breezes to pass through while during winter, the courtyard act as a space to preserve heat and prevent direct winds when blocked. The application of the courtyard concept was important to provide efficient ventilation and the best thermal condition.

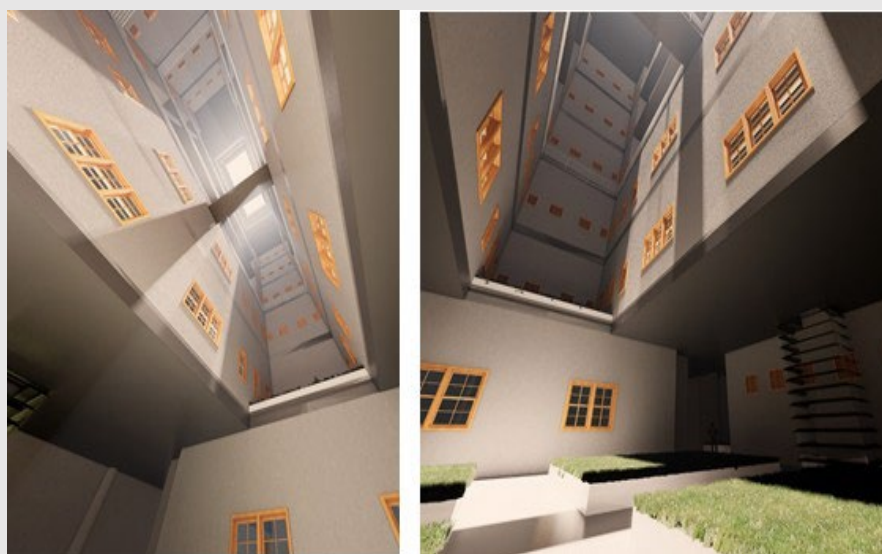
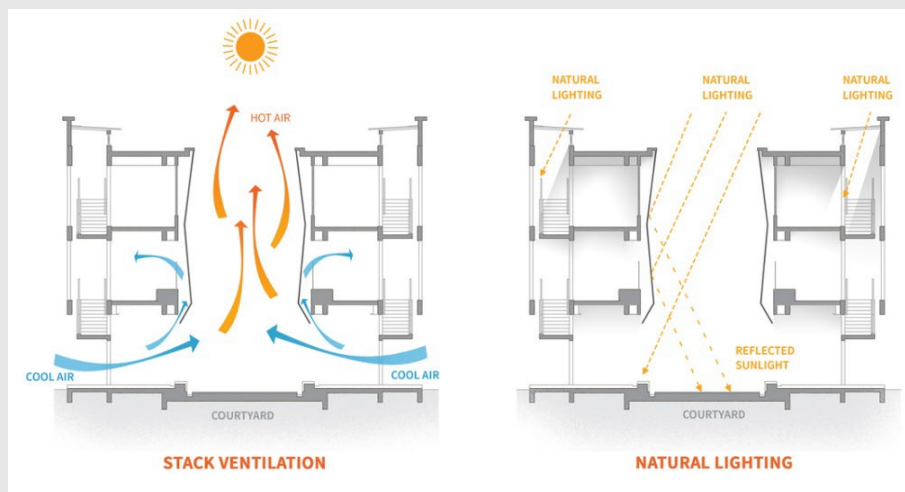


Figure 22: Internal courtyards on the lowest floor
(Source: Author)

The solar chimney is used to have similar effects to the courtyard, it circulates the hot air up and acts as a wind catcher bringing the cool breezes in during summer. In winter, the solar chimney can be closed where it traps the warm air inside the houses. The application of a solar chimney in the proposed design is the best solution for underground spaces.



Figure 23: Shafts for the underground non-ventilated spaces
(Source: Author)

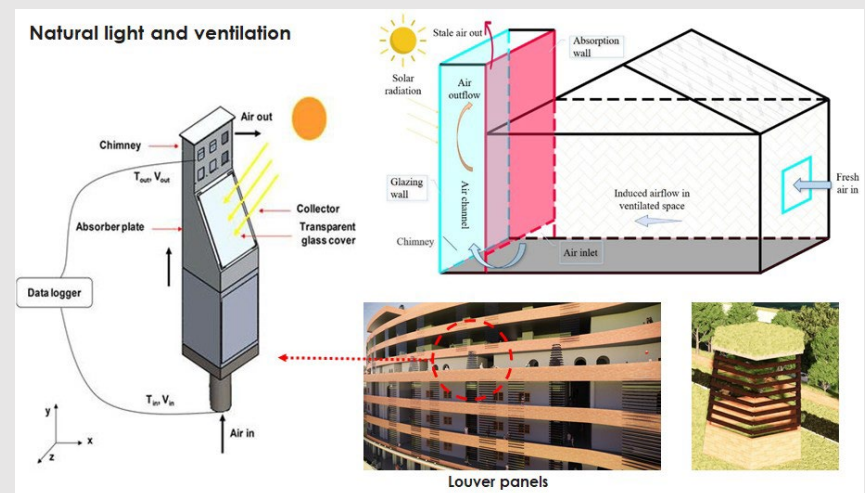


Figure 24: The Shafts bring clean air in and exhaust the hot air out
(Source: Author)

Vertical farming is another self efficient and economical strategy for the IDSP, it helps them to plant and produce their food by their own which gives food security, economical stability and sustainable living for the community. Vertical farming is approved to be the most efficient solution for less water and spaces consumption where it can cater the large needs of the IDSP large and increased community.



Figure 25: Vertical farming with selling market and stores
(Source: Author)

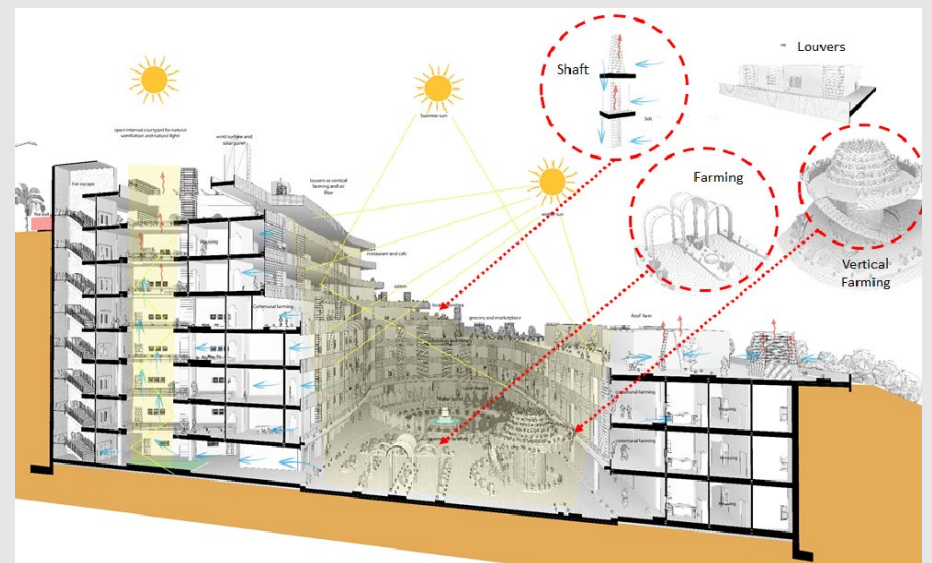


Figure 27: Passive strategies in sectional perspective spaces
(Source: Author)

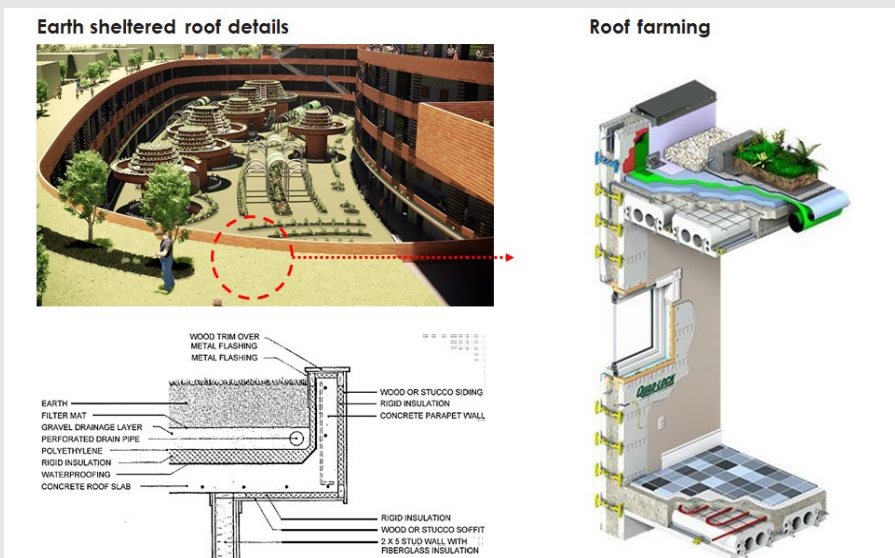


Figure 26: Roof farms and terraced farming spaces
(Source: Author)

CONCLUSION

The earth-sheltered architecture is a decent solution for passive design and energy efficiency of earth-sheltered and underground housing. This local solution of underground decent passive strategies is the most suitable and sustainable and with a lower life cycle cost. Providing IDPs with decent homes with earth-sheltered and subterranean architecture as the main strategy helps them to be self-reliant to improve their lives economically and socially, thus making them feel like belonging to the place and society. In the meanwhile, the courtyard and solar chimney are decent solutions for ventilation and natural light in earth-sheltered and underground housing. However, key decisions or projects must be taken by the states or governments and find a permanent solution for the IDP globally to end the issue of unsafety and insecurity.

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