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Renew of Aleppo City:

Urban Policies in the Renew of the City Center After War

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(licensed)

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Abstract

Rebuilding a city after war requires long-term strategies, especially if the territory has lost most of its cultural identity and its inhabitants that either became refugees or below the poverty line. Citizens are trying to return to their previous life and jobs mainly with the assistance of non-profitable foundations. They are trying to rebuild with the available sources without a specific plan or guidance, which might lead to a state of chaos. This is what is currently happening in the historical city Aleppo, Syria. Five years of civil war were sufficient to distort the main characteristics of civilizations that have emerged over the centuries. Identifying the current situation is a priority in order to implement the exact urban policies and methods that this city needs in its revival process. This dissertation will discuss various urban policies and previous International/Local study cases (Sarajevo, Berlin, Lebanon) resulting in newly developed strategies. Its optimal goal is to build a better future for Aleppo starting from its historical city center. The analysis will concern three main theoretical concepts; Resilient cities(renew), Vernacular architecture (identity) and Post-war rubble recycling(Rehabilitation). The dissertation will also discuss how the integration of private-sector into the reconstruction process will affect the city's cultural identity and resilience.

Keywords: Aleppo City, Cultural Identity, Architectural Rehabilitation, private-sector integration, urban policies.

Resumo

Reconstruir uma cidade depois de uma guerra requer estratégias de longo prazo, sobretudo se o seu território perdeu a maior parte da sua identidade cultural e os seus habitantes se tornaram refugiados ou vivem abaixo do limiar da pobreza. Os cidadãos tentam regressar à sua vida e procuram recuperar os seus empregos, sobretudo com a ajuda de fundações sem fins lucrativos. Tentam reconstruir com os recursos disponíveis mas sem um plano ou orientações definidas, o que pode levar a um estado de caos. É o que está a acontecer atualmente na cidade histórica de Alepo, na Síria. Cinco anos de guerra civil foram suficientes para fazer desaparecer traços culturais de civilizações milenares. Analisar a situação atual é uma prioridade para permitir implementar políticas e métodos de planeamento urbano necessários ao processo de renascimento desta cidade. Esta dissertação discute várias políticas urbanas e analisa casos de estudos internacionais/locais conhecidos (Sarajevo, Berlim, Líbano) que estão na origem de novas estratégias de intervenção. O objetivo principal é construir um futuro melhor para Alepo, a partir do centro histórico da cidade. A análise assenta em três conceitos teóricos principais; Cidades Resilientes (renovação), Arquitetura Vernacular (identidade) e Reciclagem de Entulho do pós-guerra (reabilitação). A dissertação também discute como a integração do setor privado no processo de reconstrução afetará a identidade cultural e a resiliência da cidade.

Palavras-chave: Cidade de Alepo, Identidade Cultural, Reabilitação Arquitetónica, integração do setor privado, políticas urbanas.

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Finally, I would like to show my appreciation to the Aga Khan Organization, who have given me full confidence to carry my country's message of peace.

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List of Abbreviations

AKHCP. . . . . Aga Khan Historic Cities Program

AKTC. . . . . Aga Khan Trust for Culture

BBB . . . . . Build Back Better program

BCD. . . . . Beirut Central District

BiH . . . . . Bosna i Hercegovina (Bosnia and Herzegovina)

CCTV . . . . . China Central Television

COM–SVR. . . . . Community Strength to Vulnerability Ratio

CR . . . . . Community Resilience

CRPC . . . . . Commission for Real Property Claims

DGAM. . . . . Directorate General of Antiquities and Museums

DPA. . . . . District Planning Authority

FBiH . . . . . Federation of Bosnia and Herzegovina

FBiH . . . . . Federation of Bosnia and Herzegovina

FDR. . . . . Federal Republic of Germany

FL . . . . . Florida Resilience Practice Leader

FRG . . . . . Federal Republic of Germany

GDP. . . . . Gross domestic product

GDR . . . . . German Democratic Republic

ICCROM. . . . . International Council on Monuments and Sites

ICOMOS . . . . International Centre for the Study of the Preservation and Restoration of Cultural Property

IDPs . . . . . Internally displaced people

NGOs . . . . . Non-Governmental Organizations

OHR. . . . . Office of the High Representative

PLIP. . . . . Property Law Implementation Plan

PRDU . . . . . Post-war Reconstruction and Development Unit

PRRP . . . . . Priority Reconstruction of Recovery Program

RS . . . . . Republika Srpska

SOC . . . . . Sense of Coherence

SOLIDER. . . . . Société Libanaise pour le Développerent et la Reconstruction

SVR. . . . . Social Vulnerability and Resilience

UN . . . . . United Nations

UNESCO. . . . . United Nations Educational, Scientific and Cultural Organization

UNITAR . . . . . United Nations Institute for Training and Research

USAID . . . . . U.S. Agency for International Development

VE . . . . . Victory in Europe Day

WWI . . . . . First World War

WWII . . . . . Second World War

Introduction

Syrian cities were exposed to continuous destruction due to the civil war that has lasted for ten years, since it started in 2011. The war-affected various aspects of life; it caused significant loss of life, displacement of residents, property damage, destruction, vandalism, looting of buildings, civilizational and cultural heritage sites. This has left severe injuries in its urban fabric. However, this impact could multiply if it is not dealt with and treated correctly. On this level, reconstruction operations within the correct exponent have become one of the most important means of preserving the Syrian heritage, history, and its collective memory. In addition to the considerable damage that might occur due to the lack of management practices for these disasters, adequacy of the necessary planning to solve the problems, and clarity in the reconstruction strategy. Therefore, it is necessary to have clear approaches and strategies for disaster management and a developed reconstruction plan.

These disasters are opportunities for searching for new ways to draw up a precise sequence of action and strategies for the reconstruction operations. Given the unstable conditions in Aleppo, the development of such strategies is a high degree of importance, as it takes a very deep national and symbolic dimension. The old city-center was chosen as this dissertation case study since it carries religious, historical, social, and artistic values. At the present time, the area is exposed to destruction and deterioration due to the events taking place in the city in general and the old city in particular.

The following methodology of this dissertation is Qualitative research. The main reason behind choosing this methodology because the thesis is about an investigation of a case study “Aleppo city-centers,” where an identification of several problems that have faced previous reconstruction processes in Local/International cities. These analyses will assist in developing a new strategy based on the needs of the city, in addition to the preservation of the main Aleppean cultural identity.

Chapter one: The concept of disaster and reconstruction

1-1-definition of war disaster and its effect on Aleppo.

March 2011 a date that is engraved in the memory of all Syrians. This date turned all the Syrian cities that were full of history and safety into ruins and fear, a middle eastern country that was well-known in hospitality and generosity transformed to crowded lines of poor people waiting to get their allowed quantity of bread and gas. That date was the beginning of the Syrian civil war. In a study for Resort to Arms, Small and Singer (1982, 210) defined a civil war as:

> "any armed conflict that involves (a) military action internal to the metropole, (b) the active participation of the national government, and (c) effective resistance by both sides." (p.210)

The general definition of the Civil War can briefly explain ten years of conflict in Syria. It changed the country into a bloody war zone, a place where any resident should fight by any means in order to protect his family. Within those ten years, many people, including the writer Yara and her family, had to evacuate their unsafe house by crawling under a battle of bullets to reach a safe zone. This was a forced choice for many families to depart from their place holding their identity card only, leaving behind their home and neighborhood, without knowing when it would be possible to come back again. As the previous definition of the Civil War identifies how each side resisted against the will of the other, these oppositions caused significant losses on the human, urban and economic levels of each city in this country.

In Nikolaos Van Dam's Book "Destroying a Nation: The Civil War in Syria'', he described the Syrian cities that he visited several times before 2011. Deraa, the town that lighted up the Syrian War, located near the breathtaking Roman theater of Bosra city became part of the Southern Front; Raqqa and Dayr al-Zur, within its magnificent location that overlooks the Euphrates river became a zone occupied by terrorists; Homs-Al Waar region, which was the area that Yara and her family used to live in became a besieged

territory; Hama the city that previously witnessed a violent war in 1982 and a similar one during the Syrian conflict; Palmyra an oasis in the Syrian desert within its ancient temples that were torn down by the assassins (Dam, 2017).

Each Syrian city tells a painful story that lasts more than ten years. The inhabitants of each region cannot forget the pain they were exposed to during this period. However, among all the stories, Aleppo was one of the most prominent tales. According to the United Nations institute for training and research (UNITAR) in a damage analysis for Aleppo city in 2016 demonstrated how the war started in July 2012, which caused the division of Aleppo into two areas (eastern and western parts), each controlled by a different party. The tension increased significantly, and by the end of the conflict in 2016, many civilians faced death, injuries, immigration, or even being trapped in a zone where there is a shortage in nutritional and medical needs. With a satellite analysis for the urban damage, the size of the destruction was estimated for each area in Aleppo. It was found that the Almaji neighborhood suffered the most destruction per hectare during the war, followed by the neighborhoods in the center of the city. Overall, the East parts of the town show higher levels of destruction than the West parts. The analysis stated that: “On average, four

buildings per hectare are classified as damaged or destroyed within Aleppo city. This ranges from 10 - 15 buildings per ha in the ten most damaged neighborhoods (UNITAR, 2019).

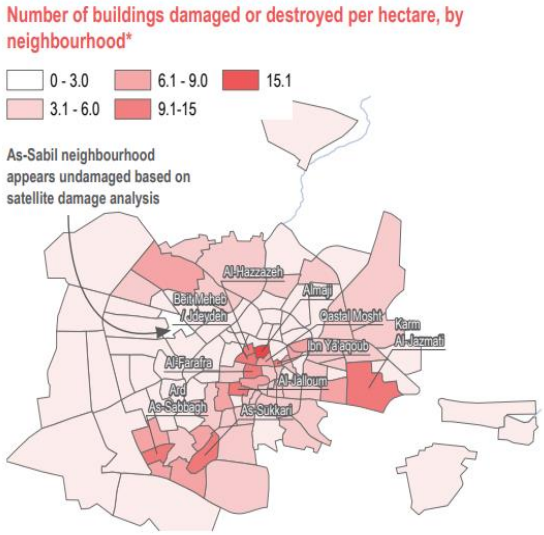


Figure 1: Damage assessment plan. Source: UNITAR-UNOSAT. Date: 2016.

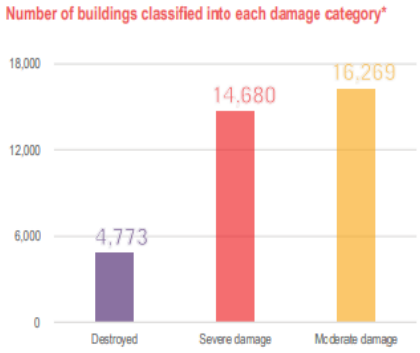


Figure 2: Number of buildings classified into each damage category. Source: UNITAR-UNOSAT. Date: 2016

1-2 Damage and needs assessment after the disaster.

One of the first steps that should be taken after getting out of the state of trauma from a specific disaster in a city, is to estimate the damage resulting from the misfortune, then define the required needs. In addition, to take into account the rights of the affected people who might lose everything they had. The first approach is the damage assessment; the information collected can be helpful to understand what type of damages came off during the period of the calamity, then to identify the sources, either physically or financially, which are required to bring life back to this area. These calculations are usually presented in the media for the entire world to understand what was happening there, especially if the city was documented with real pictures and videos that show the destroyed buildings and streets. However, the damage statistics focus on the material and financial aspects. Still, the social as well as the psychological damage is usually absent or forgotten. However, in some cases, such as Aleppo, after witnessing cases of terror, kidnapping, and bombs, it should be essential to have explicit knowledge about non-physical damage because it might be a critical step to achieve a healed environment. The second approach is the needs assessment; after a clear picture of the types of damage, it is necessary to define the priorities for the repair operations. This approach should be tangible to the inhabitants' psychological effect, health, financial conditions, and education; NGOs and donors usually do this type of assessment to assist people more efficiently. Indeed, involving the affected citizens with the reconstruction process by analysis to understand what they wish to have and how they can effectively accomplish their goals. This will give them power and enthusiasm, and they will appreciate the fact that they could assist by any means (Kelly, 2008). There is no fixed way to recognize the needs of each city after a disaster. Many aspects should be considered, such as the culture, traditions, and the nature of the people. However, once a fine collection of information from reliable sources, followed with a focus on the primary needs, then to use standards that define the requirements, it will produce effective support in the post-disaster period. The Third

approach is the rights-based assessment, which clarifies that each person has natural rights that should not be tolerated; it's driven from the Universal Declaration of Human Rights (United Nations) and the rights-based approach to development. In this particular field, the analysis should consider how the person used to live before the disaster, whether they were living without being subjected to violence or they had these problems before, and that is because the measurements differ from one case to another. This approach revolves around a more profound vision of the survivor's life and needs, not only the basic ones such as water and shelter. There are four direct effects to this assessment; First, the data collected for the right-based needs (which are more deep and detailed in the social part than the other two approaches). Second, the issues set for solutions may not be caused by the disaster itself, for instance, child labor. Third, in some cases, these kinds of assessments require support in different fields that might not be common in post-disaster operations, such as land tenure specialists. The Forth effect is the procedures that are used to solve the social problems may not be included in the competencies of a specific organization that is a part of the aid coordination. One of the challenges that occur is that the right-based assessment is not always on the list. The specialists usually focus on the damage and need assessment due to the time taken to have the results (around four weeks after the disaster), while rights-based assessment takes much more. However, despite all the challenges that may appear when generating information for these assessments, it will be very beneficial for any party contributing to the aid to have an elaborated knowledge about the causes of this disaster and how it could be solved with the most negligible losses. A better vision of the city's future would be achieved if these approaches were treated as a chain not subject to dissociation (O'Neill, 2003).

1-4 Architectural trends after the disaster.

There are several architectural approaches when dealing with post-disaster reconstruction projects: First, the cases headed to modernization and renewal, which concerns creating a new strategy in architectural rehabilitation that is not connected with the history or identity of the city. This type mainly spreads in the aftermath of war conflicts to meet the needs of efficient, fast, low-cost, and single-style housing to accommodate the homeless. It has dramatically spread after World War I to provide shelters for people in European countries (Al-Taher, 2011). Second, the revival direction in the destroyed city; mainly focuses on rebuilding the destroyed historical buildings as it was before the damage, which requires accurate documentation of the harmed area and a detailed analysis of their status before and after the disaster. This process aims to restore the historical architecture and preserve the memory of these buildings, especially in the cities that are known for their historical and symbolic value. Third, there is a tendency to mix between the old and the new; In this direction, there is a mix between traditional building methods and developed ways of reconstruction. Since there are difficulties in using only the old methods and a replica of ancient building patterns, this method that connects the history with modern would preserve the historical buildings and accommodate the immediate and urgent needs of development that is taking place in this current era (Aloul, 2007). Fourth, a symbolic trend witness to events; Preserving the building's condition to be an eyewitness to the destruction that took place and to show some horror of wars against the rights of the human and historical values. This type focuses on preserving the memory and the significance of the event more than the building itself. It works only on specific buildings that would be chosen by many experts to maintain a special symbolism. In general, every case has its strategy in the implementation of the recovery process. Some of the previous issues focus on the functional aspect, while others pay attention to Symbolism, collective memory, and national identity (Al-Taher, 2011).

1-5 Reconstructing the physical structure.

Each reconstruction program was chosen based on the goals and requirements of the society, which also takes into account the conditions, circumstances, and priorities of the harmed city. The capability to achieve all set goals would be a positive point toward evaluating the reconstructed buildings. There are several levels in the rehabilitation of the urban fabric; the essential response after the disaster or war is to provide temporary homes and shelters, especially in the cities that witnessed significant urban damage in the residential areas, which will result in a large number of homeless.

These homes are designed to be used during the disaster and after it for several months only; that is why it is called temporary. These accommodations can be either public buildings such as schools, mosques, or simple homes built from light materials such as plastic, wood, or zinc sheets; it depends on the availability of the materials and time consumed to build and install them. In addition, there are prefabricated houses such as tents or group housing; in some cases, homeless people live with their relatives, neighbors, or friends who have a place that was not harmed by the destruction. As well, the collective camps which the state or international institutions set up. After securing the temporary housing, urban planning moves toward finding the best strategy to restore the damaged buildings; it is a fast and cheap way to provide permanent residence. The effectiveness of this step rises considerably depending on the number of displaced people. Additionally, in many cases, the cost of repairing the buildings would be lower than the cost of rebuilding new homes. This process must include healthy planning, development, and preparation of alternative solutions in case of any difficulties. The restored buildings should be assured whether it's habitable in the following respects: First, the building must be structurally safe for the residents (roofs, walls, system). Second, in terms of health, the accommodation should provide the population with an opportunity to live healthy, such as providing a place to sleep, cook, live, and practice daily activities. Third, the people should be protected from climate and weather conditions and have a decent human life

with personal privacy. However, if the buildings are in a state of total destruction, the solution would be building new homes that meet the needs of its inhabitants. This process requires effort, time, a large number of funds, and full participation of local authorities, society, and institutions. When urban planning achieves all necessary goals, it will result in a better future for people and their city (Barakat, 2004).

1-6 Urban sustainability in post-disaster reconstruction projects.

Sustainable development contains three pillars; First, to protect the environment; Second, to grow the economy; Third, the equal distribution of material and social benefits. However, With the existence of many conflicts, especially the armed one, and the current rapid development in the world, which introduces advanced reconstruction methods. There will be some concerns about the demise of the city's cultural identity if necessary precautions are not considered (Commission, 1987). There are arguments that a fourth pillar should be added to the concept of sustainable development under the name of "cultural continuity" which incorporates the standards of life and geo-cultural identity mixtures and specifications. Undoubtedly, Aleppo, as previously mentioned, is one of the oldest continuously inhabited cities full of heritage within its ancient walls, especially the old city-center. Therefore, the consideration of culture continuation would be an essential concept to achieve sustainable development. It starts with analyzing the current state of the people and the city and spotting the available capacities and resources to identify the main priorities. However, the preservation of cultural heritage should be tangible with the creation of a welcoming urban environment that can convince refugees and immigrants to come back, especially providing job opportunities, such as sessions and workshops that help in learning a specific craft (Khalaf, 2020). Another factor that can associate with creating the proper urban fabric is to take into account the goals of the Build Back Better (BBB) program. The latter states that people's social and

economic conditions should be improved. In addition to recovering from the city's state after the conflict into a normal state that includes resilience and sustainability, which will enhance the physical conditions. Cultural continuity is a mean to reattach people with their roots, history, and traditions. Therefore, reconstruction is an integral part of the healing process from the scars of war that would outcome a better future by building a bridge between traditional knowledge and construction technologies (Mannakkara, 2014).

1-7 Application models for post-disaster reconstruction.

After settling on a reconstruction strategy, funding sources, and the required plans with designs for the damaged area or building, the next step is implementing the most appropriate model. The latter is chosen based on an analysis of certain factors; the size of the damage, construction techniques, the community capacity (economic, technical, and social), the amount of time**,** and the effort needed for the reconstruction process. There are several models in the reconstruction process: First, the contractor form deals with large local or global contracting companies. This model is used because it is considered easy and fast in creating a large number of buildings with high specifications, which will set up homes and buildings, also it helps bring society back to normal. Second, the self-building model, which empowers the community to do the reconstruction process by themselves. This application is possible when labor is available and the house designs are relatively simple. In addition, traditionally, the community used to build their own homes; the family mainly organized the work. However, the only responsibility of the official or external agencies is to provide building materials, specific expertise, or financial support. In some of these projects, the target group may partially contribute financially to the project's cost, in addition to the contribution in employment. Third, collaborative reconstruction is similar to the self-

rebuilding system but with the participation of the whole community. In this process, the building materials are supplied to the community as a whole; all the people in this community are either organizing or following up from a governmental or non-governmental side. The importance of this model is that it reinforces the relationship between all of the inhabitants who share a specific city, improves mental health after war or disaster, and distributes the experiences to ensure the assistance reaches to all the people, especially the poor. This approach can only guarantee a fair mutual benefit for all if it is managed well (Aloul, 2007).

1-8 Responsible for the reconstruction operations.

There are several sides responsible for the reconstruction operations. Their job is to reduce the effect of the disaster, plan and develop reconstruction strategies, then implement these plans in reality. Each side has a specific role that needs coordination and integration between each party (Aloul, 2007). The most important actors in the reconstruction process are: First, the government, where it implements strategies for disaster management and peacebuilding, also guarantees the means and the assistance required to complete these operations, whether in the beginning stage of preparation or in the implementation and reconstruction processes. Second, society is considered one of the most critical roles in the preparation phase for disaster and in the rebuilding process. The higher society's readiness, the faster the response to the disaster, speed of completion, and recovery afterward. Third, non-governmental institutions which are a part of the preparation for the disaster and rebuilding after it. These institutions fill the gaps that may appear in the absence of the governmental role. Their work increases whenever the political authority is weak, especially in the social, economic, and cultural assistance, where it conducts surveys and assists in the field (Dabbeek, 2010). Fourth, the private sector, which plays a vital role in the post-

reconstruction programs due to their possession of the skills, capabilities, employment, and resources, has a great deal of flexibility and adaptation to circumstances. Fifth, external agencies are represented by two primary forms of aid, financial or technical assistance. Entities such as the United Nations with various programs, the World Bank, the European Union, regional banks, or other governments and countries. Furthermore, the most crucial reason for the success of a reconstruction process is the role of these bodies in an integrative function, not individually. It greatly depends on the amount of cooperation and coordination between these agencies (Barakat, 2004).

Chapter Two, Urban policies concepts and theories

2-1 Vernacular Architecture.

2-1-1 Introduction.

Vernacular architecture is a metaphor related to the culture and traditions of a space built by its inhabitants, whether under the supervision of specialists or individually by people who had the opportunity to experiment with various primitive construction methods and materials. These buildings were made to serve their daily needs and to make their homes more convenient. Within the city that contains such architecture, the person can identify distinctive details and shapes. These features and designs were created based on a specific need that helped in making living easier for the inhabitant. Since the late eighteenth century, there was an increase in grand discovery tours to the small towns and villages that included "anonymous" architecture. Wolfgang von Goethe was the first to comment in his letters to Alexander von Humboldt and his *Italienische Reise* about the significant effect of the "everyday" architecture in acknowledging the classical. Afterward, in the nineteenth century, there was an increasing interest in vernacular architecture concepts, especially after the writings of William Morris and John Ruskin, who pointed out new moral values. Indeed, the concept prospered significantly in the postwar period, particularly in early 1947 (Jean-Francois Lejeune, 2009). At that time, Aldo van Eyck was one of the pioneering proponents of Vernacular architecture. Eyck has raised rational foundations for the post-war construction process, where one of its fundamentals is to revert to the roots of modern architecture. The latter was due to his vision against modern town planning; he believed that this modernism planning failed to be the true one, especially for the issue of vast plurality. In his thoughts, the solution to creating a united contemporary society is by investigating the inhabitant's past. Furthermore, in the early sixties, he revealed a new notion for architecture as a "built meaning". This expression considers buildings a

primary visual contact where humans and societies could express themselves. Also, it holds within a language with emotional effect and a social-cultural impact. His view on the production of architecture was based on absorbing the values of three great traditions explained in the Otterlo circles collage: a two-circle diagram, the first one on the left labeled *"by us"*, contained photographs that characterize the three traditions. The classical 'immutability and rest' is represented with the Temple of Athens Nike on the Acropolis, the modernist 'change and movement' with a drawing of a Contra-construction by Theo van Doesburg, and the archaic 'the vernacular of the heart' with a photograph of Aoulef, a town in the Sahara. The second circle labeled "*for us*" is a picture of dancing Kayapo Indians, which indicates a harmonious society. The collection of both circles is the architect's vision about the development of architecture (Figure 3) (Strauven, 2016).

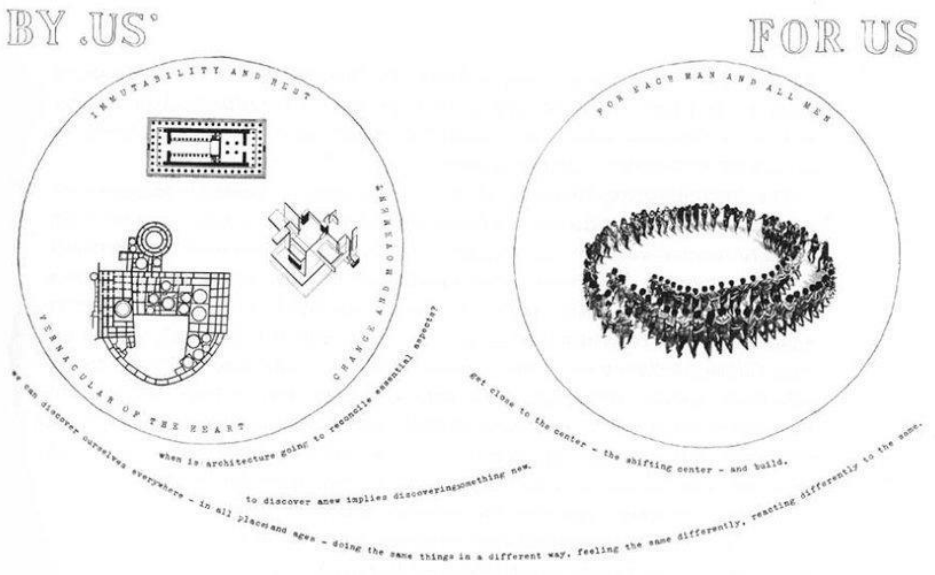


Figure 3: Otterlo Circles Diagram. Source: Aldo van Eyck: Writings. Francis Strauven. Date: 1959.

His methodology was to reshape an expressive language from the primitive artifacts, including old buildings, sculptures, and any object with value. In his opinion, to gain achievements in the 20th-century, there should be a rediscovery for the initial constituents of the architectural language. He stated at the Otterlo congress (1959) that:

"To discover a new implies discovering something new. Translate this into architecture and you'll get new architecture – real contemporary architecture."

Likewise, Bernard Rudofsky is one of the architects who believed in the importance of tracing the past to attain a better future. From his expeditions, he illustrated his vision about architecture, especially in his book and exhibition Architecture Without Architects (1964). He shared his knowledge and experiences that allow people to take advantage of it and be affected by it. Rudofsky's beliefs were different from most modernist architects; he was against the universal consolidated dwelling concepts. The latter was because he wanted to advocate the importance of history and culture on the built environment. Rudofsky's travels to the anonymous spontaneous architecture collected images, items, tales, and customs from their original location. For him, the first phase of the history of architecture starts from vernacular architecture (Jean-Francois Lejeune, 2009). Bernard Rudofsky mentioned in his book" The Prodigious Builders" (1977) that:

"The vernacular is much more than a style; it is a code of good manners that has no parallel in the urban world." It is the fruit of "an unconscious genius . . . free from the hysteria of the planners.", (p. 235)

For Rudofsky, this latter concept is an art that recognizes the intelligence of builders who applied their practical knowledge into an actual human dwelling model. These builders are a source of inspiration that can be learned from, especially their natural gift of building and adjusting their constructions in natural surroundings. As well, handling practical problems without the need to use any demolition tools such as a bulldozer can eliminate any typologies or difficulties and create a flat country (Rudofsky, 1964). In addition, in the early twentieth century, the folklorists studied fields related to ethnography, cultural geography and material culture. These studies developed the concept of vernacular architecture from being related only to practical responses and considerations to consider social and cultural relations. Indeed, the study of vernacular architecture has become connected to the cultural effect on the building practices of a specific people in a particular place. Consequently, these cultural assets impacted the governments in establishing and enforcing national and subnational identities. These cultural impacts of each country on its built can be seen in Rudofsky's photographs from his exhibition (Brown & Maudli, 2012). For example, Rudofsky captured one of the most critical innovative creations made by men in a multi-usage land. The builds date back to the 7th century, and it is called the Chinese loess built (Figure 4) . This construction turned a desert into fertile farmland; the farmers changed the region's zone into rich soils that used to feed about one-quarter of the Chinese population. The farmland was characterized by L-shaped staircases that attached the fields with the below apartments whose room is about 30 feet deep and 15 feet wide, and the vaulted rooms are lighted and aired by openings in the courtyards (Rudofsky, 1964).

Figure 4: Chinese loess built. Source: Architecture without Architects. Date: 1964

Another capture from Rudofsky is an outstanding mastermind creation by non-architect performers, the minor skyscrapers in the Goreme Cones in Turkey. This construction is called architecture by subtraction, in which men used their ability to carve on rocks and produce towns, castles, houses. These mini-skyscrapers range between the size of a tent to sixteen floors (Figure 5).

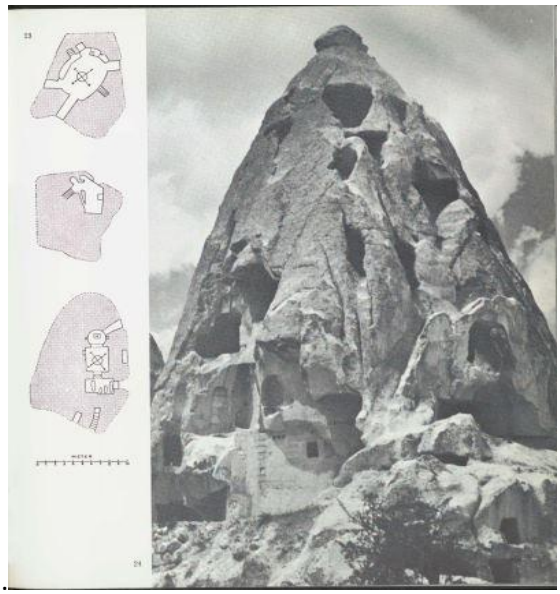


Figure 5: Plans of the apartment inhabited by Simeon the Stylite (in the fifth century a.d.) are shown at right. The lowest floor contained his oratory. Above it was his living quarters with a fireplace and furniture made from stone. Source: Architecture without Architects. Date: 1964.

Additionally, Rudofsky paid attention to the builder's vision in constructing a city. The realistic workers have expanded their vision to spot a variety of methods and ways of construction that are still inspirational until this moment. Their innovations did not stop at accommodation spaces only, but they also considered the streets and roads used during their daily lives. For instance, the arcades, the covered and semi-covered streets give an aspect of privacy to the entire community (Figure 6). The open and closed embroidered ceiling covers amplify how uncomplicated designs can turn into mesmerizing spaces, especially when the light and ventilation penetrates through the ceiling and provides visual magic.

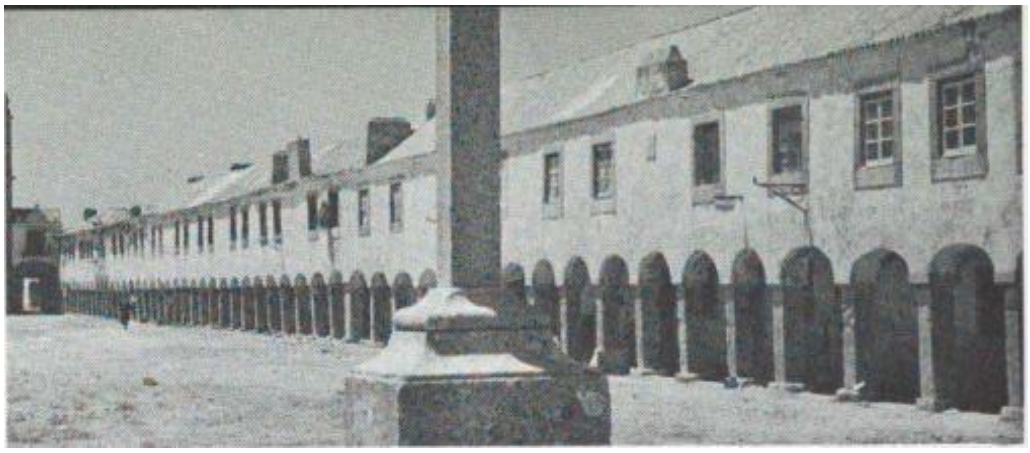


Figure 6: Above, an arcade running along a hospice at Cape Espichel in Portugal. Below, arcades around a square at Monpazier (Dordogne). Source: Architecture without Architects. Date: 1964.

Syria is one of the wealthiest countries in cultural and social norms that assist in creating traditional vernacular buildings and monuments. This country-inspired nation since its ancient roots as embraced in architectural designs all kinds of applied arts mastered by craftsmen throughout the ages.

Indeed, when Rudofsky visited Syria, he was fascinated by the civic and technological structures of past civilizations such as the water wheels in Hama (Figure 7). He considered the waterwheels as a remarkable example of the spread of primitive technology in the Middle Ages. As a consequence of the inhabitant's creation of an innovative method of irrigation. It consists of wood and iron nails immersed in water; the boxes are overturned and empty. The 64 feet tall wheel rises water from the Orontes River and pours it into a channel with multiple aqueducts. This water reaches the city's orchards, most of the bathrooms, some houses, mosques, inns, and cafes (Rudofsky, 1964).

Figure 7: Water wheels in Hama. Source: Architecture without Architects. Date: 1964.

Another example is the public baths of Damascus "*Hammam*":

The historic baths were created in the Hellenistic period and flourished in the time of the Romans and Byzantines. In Damascus, the typical *Hammam* is characterized by two zones, one for undressing (*Meshlah*) and washing (*al-Berrani, al-Westani, and al-Dakhli*). Both zones contain central water features with stone or marble washing basins (*jurns*). The bathing space is a hot room called (*Bayt-al-nar*). The hot room temperature comes from the furnace or (*qammımı*), which is built against it. The walls keep the heat in the *Hammas* because it is constructed with thick stone or brick. The domes and vaults were built with bricks. The floors are tiled with geometric patterns of polychromatic stones and marble tiles. In addition, the heating system consists of smoke ducts under the floor and rises in a chimney in the wall, which separates the warm areas from the cold ones. In *Hammam Ammuna* (Figure 8), one of the famous *Hammams* in Damascus, the fuel for the furnace comes from recycled wood shavings and garbage. As for the natural lighting and ventilation, the domes and vaults are formed with intricate patterns in the washing rooms; the patterns are either pierced with circular or star-shaped roof lights (Figure 9). The star-shaped openings (*qamariyyat*) on the roof are closed by glass caps. Some of these glass bulbs can be removed to allow natural air to enter when the bathing spaces are not used (Weber & Yannas, 2013).

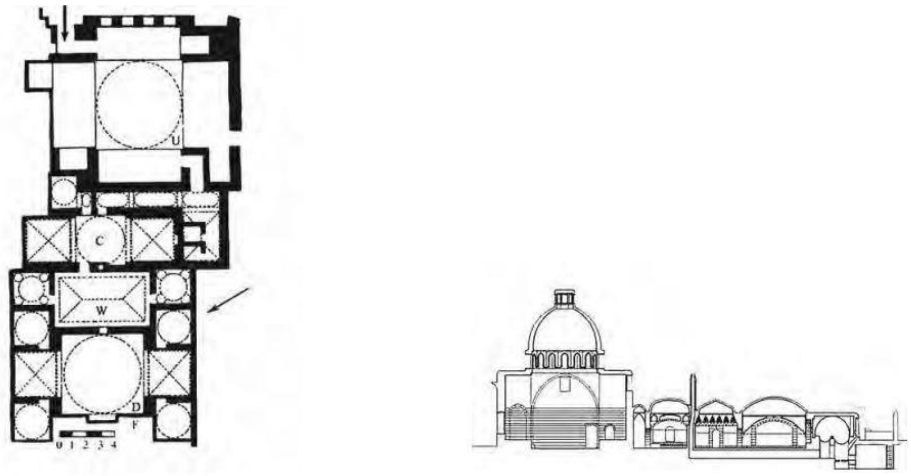


Figure 8: Plan and section of Hammam Ammuneh (Fourteenth century) showing its linear organization and the underfloor duct heating system. Source: Adapted from Ecochard and la Coeur. 1942/1943

Figure 9: Interior and exterior roof openings, geometric patterns of qamariyyats in hammam Ammune. Source: Adapted from Ecochard and la Coeur. 1942/1943

Since the inception of a city, there has been a clear connection between government policies and architecture. The city has always been a reflective image of the ruling regimes. In Syria, the what is named "traditional architecture" gathers the productions of untutored builders in the terms defined by Rudofsky, as well as important civic and technological structures of past civilizations, such as the hammans, water wells, whose construction is the product of might and knowledge of past generations. This ensemble of structures, lay and savant, shaped the old neighborhoods of the historic city and became the expressive space for the Syrian society, away from the dominant government.

The inhabitants created traditional buildings based on their social, psychological, and religious needs. Although some of these neighborhoods arose due to the development of life, they played a significant role in creating each city's identity. The production of dwellings in each area is based on the naturally available building materials, for instance, stone and timber. In the rural areas of Syria, the builders were influenced by their ancestor's dwellings, such as caves, tents, twig huts, and earth houses (Figure 10) (Jager, 2012).

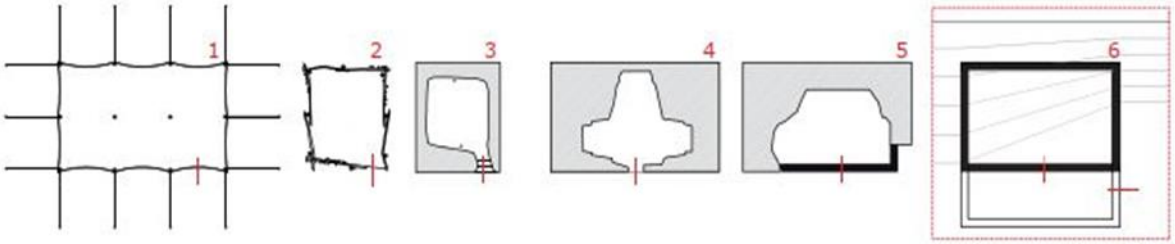


Figure 10: Illustrated classification of primary dwelling types. Source: M. Wesam AL ASALI, Iyas SHAHI.Date:2016

1 tent, a nomadic accommodation, *baīt š'ar*
2 twig hut, *shībāt*, respectively summer hut
3 earth house, *debābe*
4 triple concha cave as used in Roman tombs and subsequently used for temporary accommodation
5 naturally found and extended cave
6 basic house form of sedentary farmers

During the late 18th, 19th, and 20th centuries, five models of traditional dwellings of sedentary farmers appeared. First, the Basic or Closed Rectangular House, is a simple and common type. The house gathers family members and their cattle in one space. It is a closed façade with an entrance door and small openings for ventilation (Figure 11).This closed area provided a sense of security and a suitable temperature for all-weather seasons. The temperature was preserved due to the double-layered exterior walls built as dry masonry from cobblestones or as quarry stone masonry. The exterior façades with stones were kept visible for decorative purposes, while the interior walls were plastered and whitewashed. There were two levels in the interior space that assisted in keeping the house clean. The entrance and stable

were in the lowest area, whereas the other functions were a few steps above. The outdoor spaces around the house were used for cooking, washing, and the toilet. In addition, the flat earth covered house roofs were used as areas to dry vegetables and fruits (Jager, 2012).

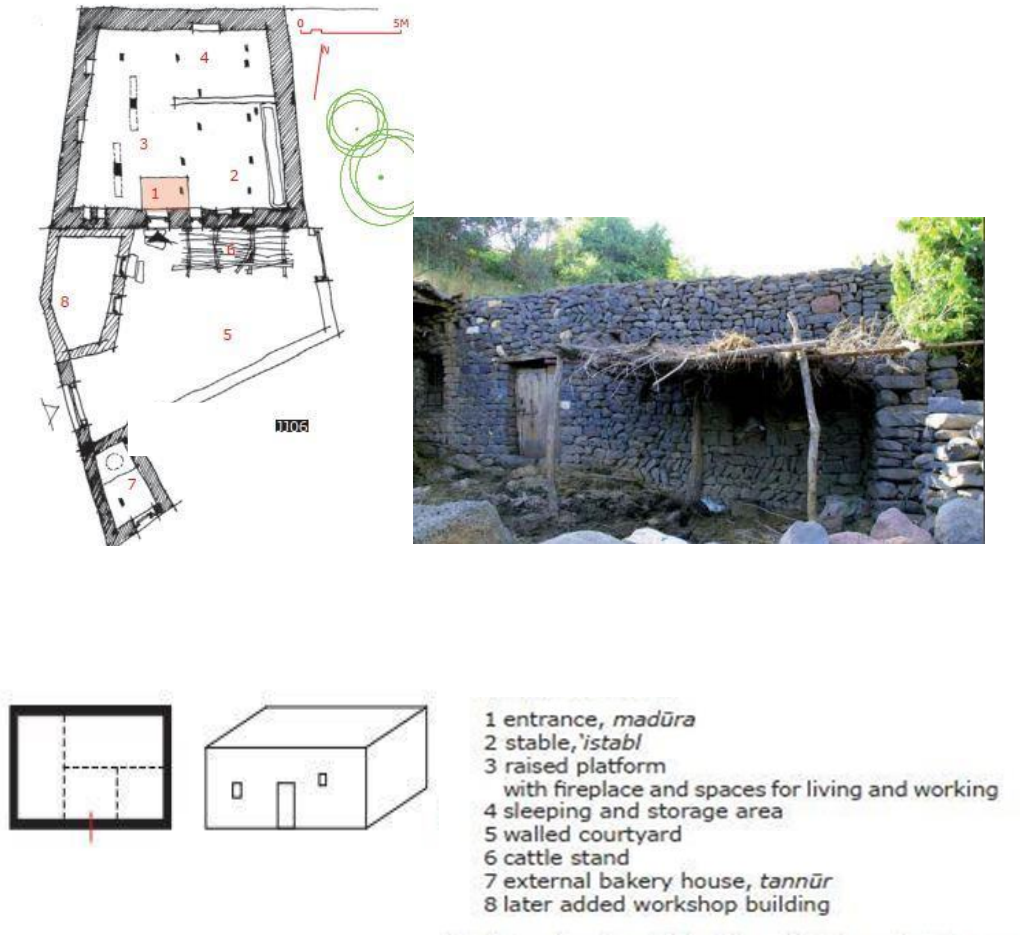


Figure 11: plans and elevations of a simple closed rectangular house, showing masonry from basalt cobelstones and interior timber and beam structure, Al Kaime,Syria. Source: M. Wesam AL ASALI, Iyas SHAHI.Date:2016

Second, Liwān House, the name originates from Persia, which means open hall. This building is characterized by a central open space connected to the exterior with an arched passage. From this central area, "the Liwān" the rooms are distributed both on the left and right sides (Figure 12). The room's doors symmetrically face each other. Around two-thirds of the Liwān area is raised in height and designed with

revolving seating furniture, which functions as a roof covered terrace and a representative area for the reception. Unlike the closed rectangle house, this dwelling spatially separates the man from the animal. However, it maintained the cooking, bath, and toilet functions in the exterior area. The orientation of the Liwān house varies based on the location. For instance, in Damascus, the orientation is usually toward the north. The roof-covered terrace assists in preventing all sunrays from accessing together. This application is beneficial for protection in the sunny summer and the windy, rainy winter.

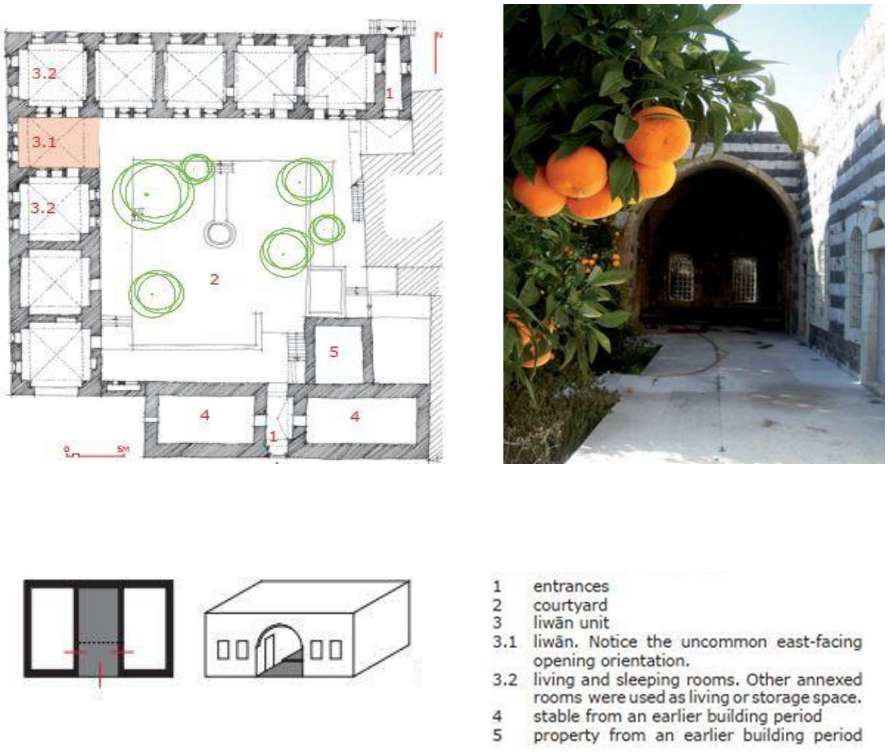


Figure 12: Liwan house illustrating an asymmetrical L-shaped plan, Al Kaimeh,Syria. Source: M. Wesam AL ASALI, Iyas SHAHI.Date:2016

Third, Courtyard House, commonly found in the Syrian plateaus, for example, *Hauran* plains (Figure 12). The house appears simple from the outside, yet the beautiful part can only be seen inside. In the interior area, the house is characterized by a walled courtyard around several buildings. This open space area

functions as circulation zones, living areas, and working spaces. The orientation of all significant openings toward this enclosed yard. Usually, this open space is designed with greenery and a water fountain. This building type may contain more than one courtyard; each one serves a specific need (Jager, 2012).

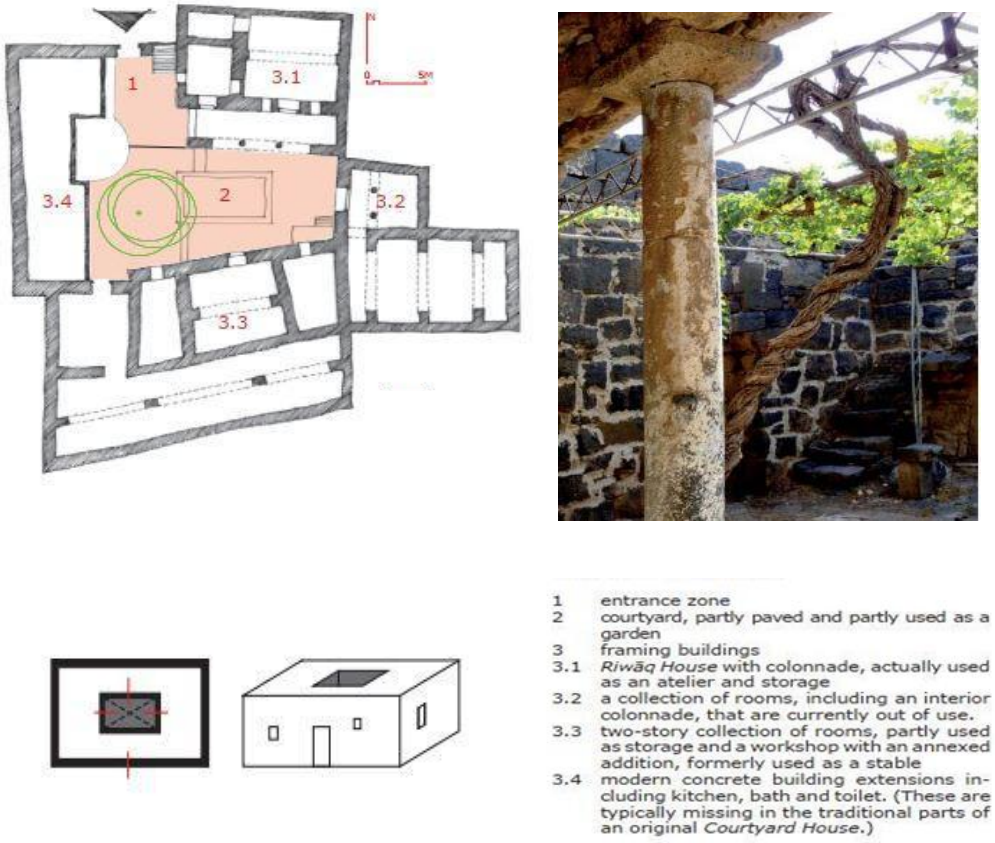


Figure 13: A courtyard house, the courtyard acts as central circulation zone. Source: M. Wesam AL ASALI, Iyas SHAHI.Date:2016

Fourth, Riwāq or Gallery House, this type is widely used in Syria (Figure 14). It consists of one or two floors. External stairs can reach the second floor. The Riwāq is characterized by an open aisle with a series of colonnades or arches of mason worked stones. Commonly the length is longer than the depth. This open corridor functions as a circulation zone, a multifunctional terrace protected from the weather, and a temporary family space. The open gallery creates a primary area between inside and outside. This house

contains a broader range of rooms number, which express the need of privacy for its inhabitant. Accordingly, this increase caused a disadvantage in defining a clear space for the living area where the family gathers. The toilet and kitchen are usually found outside in a separate building.

The roof is flat covered previously with concrete, then the hipped red-tiled roof appeared and was applied mainly in the coastal areas (Jager, 2012).

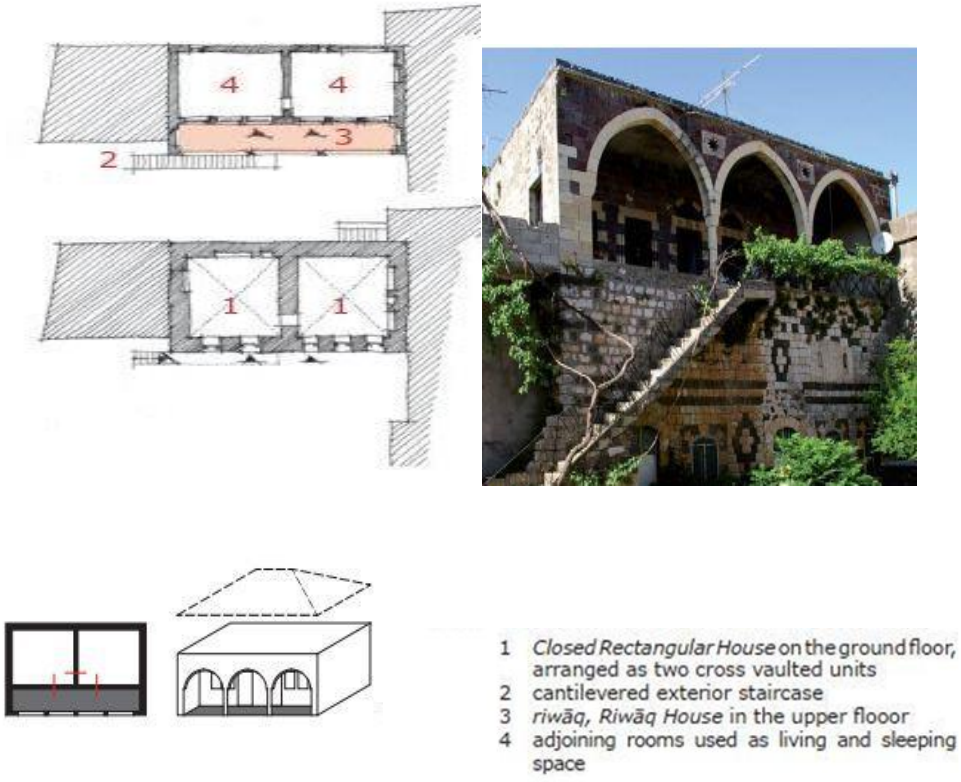


Figure 14: Plans and elevations of Riwaq house. Source: M. Wesam AL ASALI, Iyas SHAHI.Date:2016.

Fifth, The Central Hall House. This type exists in Syria to a moderate extent (Figure 15). It is often called the Lebanese House because it is primarily spread in the coastal mountains of Lebanon. This model contains either one or two stories. The first floor is accessible from the front, while the second floor could be entered from the rear. The central hall with an arcade can either be one area or divided into sections.

This hall faces the house rooms doors, which leads to sleeping rooms, the kitchen, and the sanitary area. The decorations and masonry work has been meticulously designed. As well, the arcades of each hall are decorated remarkably. This type includes balconies or porch roofs located in front of the central hall, usually used to underline the axial symmetry. The roof is usually a common red-tile pitched or flat concrete roof. This traditional building type was used by the wealthy peasants as a prototype to design their villas, especially during the late 19th and early 20th centuries (Jager, 2012).

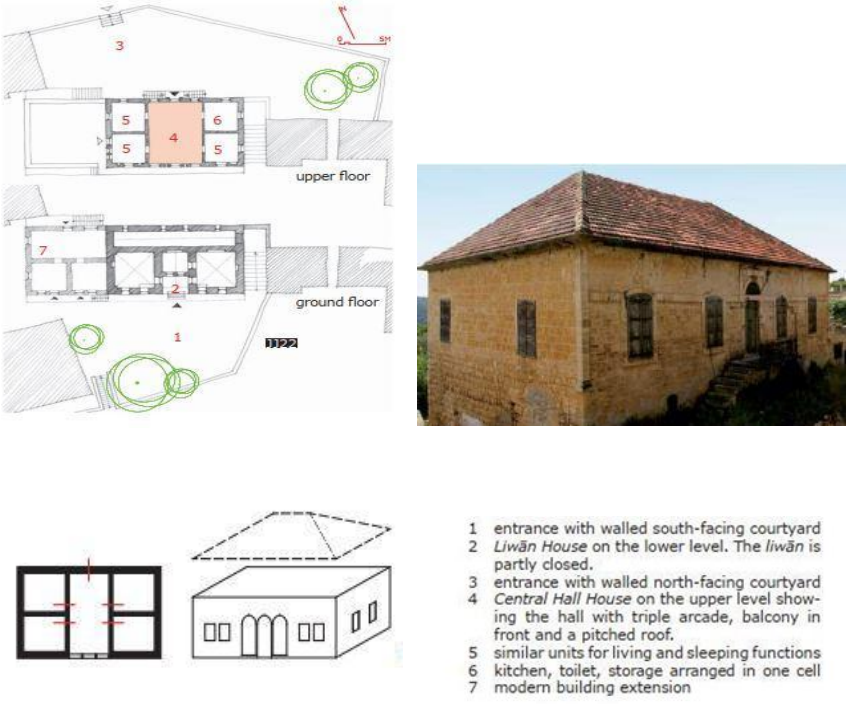


Figure 15: Plans and elevations of Central hall house with pitched roof. Source: M. Wesam AL ASALI, Iyas SHAHI.Date:2016.

What differentiate these five models is based on the space and function, and the relation between interior and exterior spaces. Usually, the house size represents the social status of its inhabitants.

In Aleppo, the traditional house is related to the second model, the Liwān House. Dar Zamaraya is one of the remarkable examples for describing a traditional house in Aleppo (Figure 16). The house is located in

the city center and dates back to the eighteenth century. Despite the years that passed by and the Ottoman dominance, the traditional houses in Aleppo maintained almost the same within its form, style, and local traditional designs. Dar Zamaraya was constructed with various stones with different colors and geometrical shapes; the stones were located near the city. The entrance is through a long narrow alley that leads to the door. This gate is a large wooden piece covered with zinc; it is narrow and allows only one person to pass through it. After entering, the person walks through a dark, narrow pathway that reaches an open courtyard.

Usually, the courtyard would be covered with greenery and a water fountain. The courtyard overlooks the vaulted Liwan and the guest rooms designed with wood ornaments and patterns on the wall. The courtyard's walls, floor, and fountain were made with marble, wood, and gold ornaments. The house windows stand out from the exterior walls and are framed with wooden cages called (*Mashrabiyas*). Dar Zamaraya consists of two floors; the first contains a kitchen with an attic, storage room, fire stove, and chimney. As well, a small veranda that looks out to the courtyard. As for the second floor, it contains open balconies to the public alleys that expand horizontally. The roof is a large garden with a couple of storage rooms. The common element in most traditional Syrian architecture is the underground vaulted floor which functions as a haven in summer and a storage area in winter. The house became a 4-star hotel that opened its doors to the tourist who wanted to experience the traditional Syrian architecture and is called Dar Martini Zamaraya. However, due to the Syrian war that started in 2011 and lasted for ten years and six months, the results were tremendous on Dar Zamaraya, which was keen to destroy and eliminate most of its heritage (Figure 17).

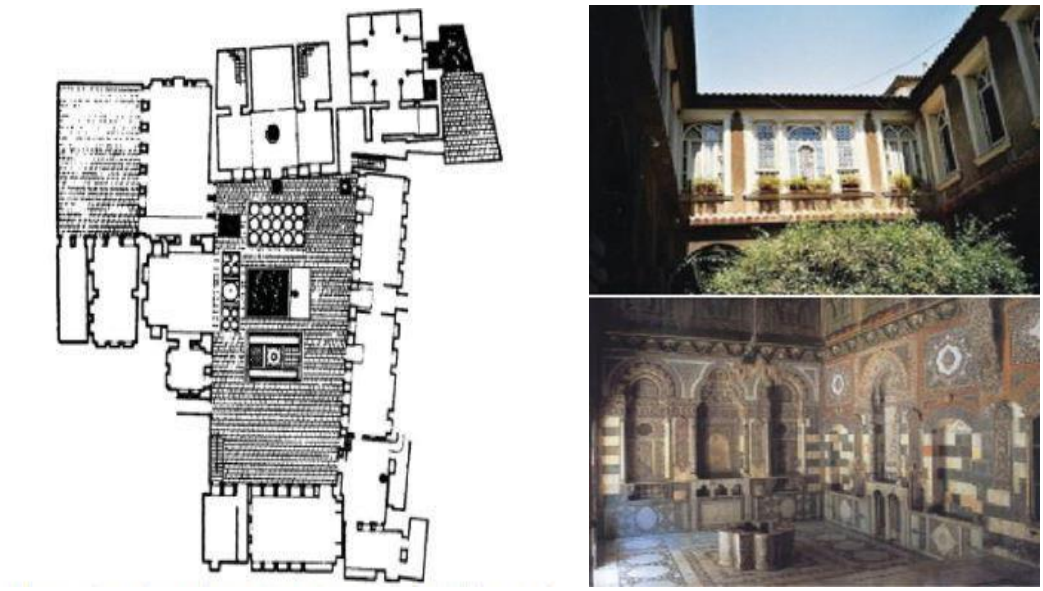


Figure 16: Dar Zamaraya. Source: Ministry of tourism. Date: 1995

Figure 17: Destruction of Dar Zammaraya after the civil war. Source: Alsulaiman. Date: 2014

The latter example is a representation of traditional architecture implemented with sustainable ideas. Especially that the house used local construction materials or with its ability to withstand all the environmental and social changes that accrued since it was constructed. Despite the changes that appeared when the house became a hotel, it still identifies a strong identity on how a traditional house in Aleppo looks. The house was architecturally inspired by the city's habits and traditions and how it formed

its functions. This heritage and all the damaged buildings should be considered and restored in a methodology that backs up the traditions and heritage because it is a form of sustainable continuity. In addition, it is necessary to shed light on the modern evolution of societies which can be accomplished if the compound correlation can be illustrated between man and environment, just like the case of transforming the house into a hotel that could represent the past in a modern way (Alsuliman, 2016).

2-1-2 Approach for choosing this theory.

The role of vernacular architecture has a significant impact on the architectural rehabilitation process, especially for land that speaks history within its walls. In addition, the following headlines that formalize this concept should be taken into consideration during the recovery process:

First, the cultural impact of the traditional buildings. Generally, the city's culture is specified based on human activities, social rituals, geographical location, and building materials. The complexity of mentioned values and the function that occupies these buildings are the reasons behind the historical timeline's variety of forms and designs. These constructions are a museum for human production during the previous times (Maudlin, 2016).

For example, Alfama is one of the oldest and most typical areas of the city of Lisbon, located on the hillside of the Castelo de São Jorge, descending to the Tagus River (Figure 18). Its name, derived from the Arabic word "*Al-Hamma*," which means "The Springs," is explained by the presence of thermal waters in the area's soil, which was channeled to feed the city's springs. Alfama is Lisbon's most emblematic quarter. Its houses, built in different architectural styles, reflect the variety of people who have lived there over time. Writing about Alfama has an extraordinary beauty on a personal level as I was fortunate to walk in the old city almost every day for two years, and I cannot deny my happiness when I knew that the city has a significant influence from the Arabic civilization, which made my bond with this lovely part of the city

even greater. It is one of the most traditional neighborhoods of Lisbon. When you enter the old streets, your eyes can only see the cultural richness embodied in buildings, commerce, and even music. It is a trip to the past to see how the city's inhabitants used to live before the 1755 earthquake. The city's identity and soul are preserved by unique vision and conservation of important architectural landmarks such as the sé cathedral and São Jorge Castle, a significant landmark beautifully located over the whole city and symbolized as the center of power. The city used to have rich religious diversity as, besides Muslims and Christian, Jewish used to live in Alfama, which led to the creation of the Jewish quarter. Indeed, this Jewish neighborhood was not affected by the earthquake, and until today we can see the street in its old form. Alfama is an important example of how traditional buildings represent the old city identity. It is a source of originality that influences its visitors with its preserved features over the centuries. It represents the Foundation of the Portuguese capital starting from the Phoenicians and Carthaginians until this moment (BENIS, 2011).

Figure 18: Alfama, Lisbon.Source: Paul Bernhardt. Date: 2020.

Second, vernacular architecture with traditional constructions is the cornerstone that prevents some globalization forces that might demines the city's essence. Architecture globalization is generating significant challenges for cities and regions. It is important to follow up with the rapid International progress in the urban and technological context. However, it is necessary to mind the city's cultural identity and its own essence. The global cities term manages to possess some of the architect's mind in designing equitable worldwide cities. (Lo & Yeung, 1998). For example, Beijing is evident of how various international architects worked to design remarkable buildings but with irrationality and uneconomic ways of using steel for the structures. Their National Olympic Stadium of 2008 is one of these buildings designed by Hence Herzog & de Meuron, along with the 230-meter-high CCTV tower built at the same time by the architect Rem Koolhaas. Such commodified urban sprawl that comes with an expansion of transportation means such as automobiles and high-speed trains in Japan and the European continent has gradually erased the idea of projecting new cities with their character, just like the old historical cities have. The latter is backed up with saying of Mies van der Rohe (1950s):

> "There are no cities, in fact, anymore. It goes on like a forest. That is the reason why we cannot have old cities anymore; that is gone forever, planned city and so on. We should think about the means we have for living in the jungle and maybe do well by that."

The ideas of urbanization and urban influence were dominant in several cities, including Egypt. During the late nineteenth century, the city was fascinated by the Western trend. The architects tried to follow and imitate western architecture, with its different styles; neoclassicism, baroque, and cosmopolitan modernism. However, the architect Hasan Fathy had different ambitions. And He wrote in his book “Architecture for the poor” (1969):

> “In modern Egypt there is no indigenous style. The signature is missing; the houses of rich and poor alike are without character, without an Egyptian accent. The tradition is lost, and we have been cut off from our past ever since Mohammed Ali cut the throat of the last Mameluke.” (p.19)

His dream was to design a real Egyptian house that expresses the Arab-Egyptian-Oriental character. In 1937, Fathi started his revolution against these trends by designing Villa Gravis. The design is inspired by elements from local architecture and Arab-Islamic architecture. The villa was characterized by a central courtyard, mashrabiyas, and the separation between public and private spaces. The new trend was not just a metaphor for elements and design principles from the past but rather a comprehensive and integrated approach. Another project was the "New Gourna" village project, which was inspired by the building techniques from Sa'idi and Nubian architecture. The construction relies on mud, which Fathy used but with renovation according to design principles, construction methods, and modern needs. The constructions included simple environmental solutions, such as providing a natural air conditioning system by determining the direction and location of the houses concerning the sun and wind movement. Furthermore, the architect's vision was to create real, local architecture, from curved roofs, vaults, and domes to the smallest details like designing traditional doors and windows. The architect's vision was to benefit from local architecture, but with a modern twist, he rethought old building materials and used mud as a principal element (Hassan Fathy, 1969). Fathy is recently classified as a master who created a different idea of modernity. His architecture succeeded in finding a third-way solution between old and new by gathering local, modern and sustainable architecture.

Third, the revival of vernacular architecture does not limit the process of development and progression. In architecture, tradition and modernity are usually described in terms of opposites. However, in many cases, they are connected through a historical timeline. This connection could be linked either with materials used or methods of construction (BERTINI, 2020). Therefore, some modernist architects embraced some aspects of vernacular architecture. For example, Le Corbusier noticed the importance of rural buildings and villages during his tour to Italy, Greece, Spain, and Algeria. Within the old houses, he noticed the harmony between stone and their builders. As well, he described their architectural solutions as intelligent, full of life, and affordable. Likewise, the architect Frank Lloyd Wright declared that the first tools in modern compositions came from vernacular forms and principles. Indeed, for him, any studies about art and architecture must include an analysis of traditional buildings. Wright believes that people can liberate themselves from commercial standardization architecture once they explore and study vernacular constructions (Jean-Francois Lejeune, 2009). Also, the evolution exploration of this concept could be a factor that assists in creating new architectural solutions. It may also revive some old techniques that are suitable, economical, and hold within an expressive value. The latter can be seen in Hassan Fathy's designs using mud bricks and ancient Nubian techniques in his home country in the 1940s. The necessity of connecting the past with the present is important because traditional architectonics is usually known as a gate of history that represents continuity and accumulation. However, they are under threat of destruction or demise due to many perceived failures of international modernism. Therefore, it is important to create a balance between the valuable past and the evolution of the future to ensure that one side does not prevail over the other (Brown & Maudli, 2012).

The changing correlation between heritage and modernity is a universal matter. The shared interests between both can create ingenious, adaptive, and reflective constructions. This methodology is presented in Van Eyck Orphanage in Amsterdam (Figure 19). He could gather the three traditions mentioned above in the "Otterlo circle". The classical touch in the well-ordered geometrical plan is characterized with

columns and architraves, The traditional vernacular touch in the appearance of the building as an old settlement and, the modern touch the dynamic centrifugal space.

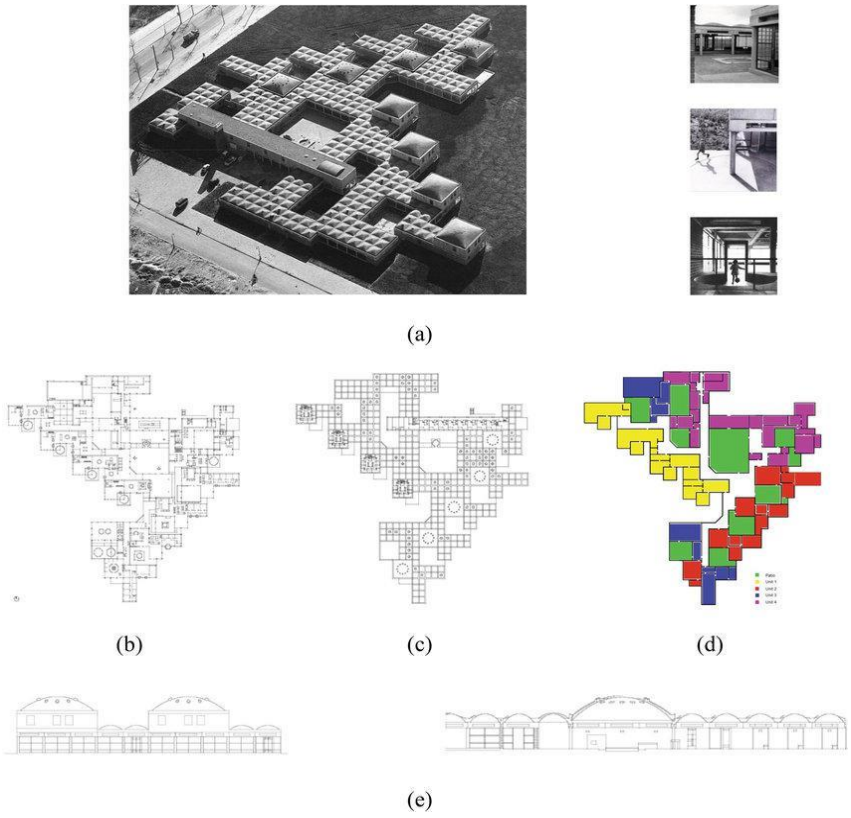


Figure 19: (a) Amsterdam Municipal Orphanage. Arch. Aldo van Eyck, (Source: ArchDaily.com 2008-2014); (b) Ground floor plan; (c) First floor plan; (d) Functional scheme of the units in the original building; (e) Elevations (Source of images a, b, c and e, Weston

Eyck's vision was to create a 'configurative discipline' in his designs, which escalated Dutch architecture to Dutch structuralism. This discipline deals with contemporary urban extension and towns. For example, in the Orphanage, he implemented the first steps of his vision. He considered the building as 'a tiny city' where the urban fabric is whole of small but sophisticated, open and close, small and large. For him, the primary failure in contemporary architecture is the modern planning that does not relate to human needs.

Eyck worked to humanize these problems by taking advantage of each tradition and implementing them in the reality of contemporary complex life (Strauven, 2016).

Moreover, the British architect Kenneth Frampton was also aware of the complexity and diversity of contemporary life. He believes that a lucrative future is in the hands of the agnostic architecture concept. This architecture is inspired by history and surroundings instead of the ruling international taste. For him, the term “agonistic” means the continuity and development of an architecture that takes its ideas from the local nature. The architecture that follows and respects the topography, the climate, and priorities the local context. His vision is against superficial aestheticism that focuses on the decorative or minimalist cover. These implementations are vanishing one of the foundations in architecture: to design and organize the public space in a cultural manner. One of his mentioned examples about a potential approach of agnostic architecture is the Studio Mumbai in Bombay 1995, created under the supervision of the architect Bijoy Jain. The studio designs seem to approach Kropotkinian building culture, as well it goes back in time that the carpenter was considered the first architect. Jain’s mission was to be more of a coordinator than an architect. He supervised the carpenters who applied their skills to this remarkable building. What distinguishes the studio is the relation between tradition and modernity: the regional resources and the capability to carve high sophisticated contemporary shapes. Such building also clarifies the importunacy of the relation between humans, nature, and the ingenuity of thinking. The architects mentioned above found third-way methodologies to implement the rich cultural history concerning the contemporary designs and requirements (Kenneth Frampton, 2013).

2-2 Resilient cities.

2-2-1 Introduction.

Resilience is elucidated as the ability of any given system to withstand natural or man-made disasters and recover rapidly to its function. This metaphor applies to an entity, community, or even a person. Resilience is measured by the capability to absorb the stress and provide solutions, whether with previous planning or after an unpredictable shock (World Bank Document, 2017). The concept emerged in the 1970s against the methodology of the modern system. One of its original developers is the ecologist Crawford Stanley Holling, who concentrated on acknowledging complex systems. His technique was to try various systems to understand the diversity of interactions between human beings and nature. Furthermore, in the 21st-century, the concept expanded to reach different fields, from its origin utilization in ecology and geography to architecture, health, technology, economic, and even politics (Holling, 1973). Resilience goals are directed toward positive frames for the future and to withstand any shocks or stresses. The latter targets emphasized the necessity of interdisciplinary studies. In particular, the researchers had to consider more than their discipline; they study and recognize all the factors and fields that accomplish it (Bosher, 2008).

Resilience strength and actions are assumed based on the party being dealt with, either one person, community, or a whole nation. From the individual or a household level, the resilience assumption embraces how the person can avoid a shock (for example, to live in a safe, protected location), cope with it if it occurs, and move forward after it. In addition to these, the community resilience level also includes the importance of group work in stress management. For instance, the city relies on the government to manage risk and to keep essential services working. These actions are done with cooperation from governments and the city's households and communities. Moreover, When Looking from a global

perspective, the regional and national level should consider and include the reforms of policies, investments, and the strategies of financial protection (GFDRR, 2015).

Within this broader context, resilience became a basic vocabulary in architecture or any built world and applied to a broader scale of urbanism, architectural planning, or urban crisis management. Accordingly, the metaphor *Urban resilience* appeared and defined as the city's challenges in adapting to any change that may occur while maintaining or quickly returning to its desired purpose. The city's system should be flexible to new transformations with the minimum loss possible and the most potential benefits. This desired system will be accomplished when the systems can manage risks, avoid shocks and also consider Synergies and trade-offs. Investing in urban resilience will assist in achieving the World Bank Group goals toward ending extreme poverty and elevate shared prosperity around the world, which will help strengthen the city's resilience. This strength will educate people on how to handle a variety of risks that might appear in the economy and the environment, such as disaster risk management or climate change adaptation, which are the primary objectives of the urban resilience agenda. Disaster and climate change represent the most significant difficulties toward development in our time due to their negative impact on the cities. In particular, the climate change problem is anticipated to escalate the number and intensity of the existing hazards. In addition to the natural hazards, resilience expanded to include economic, technological, social, cultural, and political stresses and shocks (Figure 20) (GFDRR, 2015).

Natural	Technological	Socioeconomic
Drought	Building collapse	Business discontinuity
Earthquake	Chemical spills	Corruption
Epidemic/pandemic	Cyber threats	Demographic shifts
Extreme temperature	Explosion	Economic crisis
Flooding	Fire	High unemployment
Insect infestation	Gas leak	Labor strike/unrest
Severe storm	Industrial accident	Massacre
Tsunami	Oil spill	Political conflict
Volcanic eruption	Pollution event	Social conflict
Wildfire	Poisoning	Supply crises (e.g. food, water, housing, energy, etc.)
	Radiation	Terrorism
	Transport accident	War
	System breakdown (e.g. ICT, water and sanitation, energy, health, education, etc.)	

Figure 20: Classification of urban hazards.Source: UN-habitat.s City Resilience.Profing tool and based on classification of hazards by EM-DAT and PreventionWeb

The principles of planning in resilient cities may vary from one city to another. However, there are main common resilient principles that identify its characteristics:

First, the main traits of resilient systems are simplicity and flexibility, which can be achieved by a modular system—the modularity assists in obtaining the straightforwardness needed to increase resilience. In comparison, the flexible modular systems and solutions can adapt more than the non-modular ones, which can break down and need maintenance.

Second, the locally existing resources that are renewable present more resilience. The flexible system depends on the area's internal resources such as groundwater, building materials, and solar energy, which produce more resilience than the external resources. Especially if the latter might not be renewable or accessible.

Third, the diverse systems are more resilient. Whenever there is more diversity and redundancy in the social systems, ecosystems, communities, and economies, it will be more capable of withstanding shocks or changes. For instance, the multi-functional area is more adaptable and flexible to any changes or needs from its users (M.Langeveld, 2013).

Fourth, resilience foretells shocks and a dynamic perspective. The primary dynamic formation in the city is the natural environment that the town is built on. This formation undergoes constant changes such as natural disasters, climate change, and cultural-social alterations. A resilient city is capable of foreseeing these natural shocks and disruptions. In addition, to respond correctly to the interchanges with a dynamic architecture (Abhas, K. Jha, Todd. W. Miner, 2013).

Fifth, the “Know-how” assists in resilience. The capability of reducing the damages that cause disasters in a city, especially the natural ones, is also a feature of resilience. The “Know-how” refers to the transition of the living culture from one generation to another. In addition, increase the knowledge of execution of the basic living requirements, such as the construction methodologies and agriculture. The latter escalates the city’s ability to recover in case of any disturbance. For example, if the traditional building techniques and cultivation culture are inherited through generations, it will be easier for the inhabitants to recover rapidly in architecture and agriculture terms. Therefore, the communities that know their everyday needs play an active role in the restoration process (M.Langeveld, 2013).

Sixth, durability boosts resilience. This metaphor refers to the building techniques, as well, to the infrastructure, the structure design, and the ecosystems. Therefore, using durable building techniques and materials involves escalating the building’s life cycle and its capacity to bounce back from any disastrous events (Abhas, K. Jha, Todd. W. Miner, 2013).

2-2-2 Approach for choosing this theory.

Architects usually confuse the idioms of 'resilience' and 'sustainable.' However, they are not of the same derivation. Sustainable architecture mainly deals with the present and future of the building environment, while resilient architecture is more deeply concentrated on long-term improvements. The latter reach back to embrace vernacular building studies and methodologies in order to learn, update and include them in the future. Indeed, the core of a resilient system is not only confined in continuity and to re-use, it is also related to the flexibility for changes or innovations and to adapt for it (Merrill & Giamarelos, 2019).

Vernacular architecture, since its origins, has been in constant evolution and proved over time that it was capable of adapting to any new system after a disaster or a shock. The latter indicates that there is a resilience capacity within this architecture (Dipasquale & Mecca, 2010). Furthermore, since it is impossible to foretell the future, the relying will be on the historical past to assess resilience factors (Ripp, 2014). The vernacular history is full of design methodologies and strategies that include resilience. This architecture was developed and adapted by different civilizations for hundreds of years. These different societies had various habitation needs, especially the dwelling areas. However, by following methodology 'trials and errors,' they created suitable shapes and features that adapt to the climate factors, available materials, and cultural conditions. Any society that contains in its historical timeline local cultural architecture and traditional wisdom assists in identifying the resilience characteristics. Knowing the indigenous plays a critical role in determining how these societies coped and dealt with adverse conditions from previous disasters or significant changes (Dipasquale & Mecca, 2010). One of the primary sources for resilience is the indigenous knowledge deeply related to the relationship within the inhabitant of the same community. Their bonds formed by experience and learning are inherited through generations, which means they have inbred consciousness that clarifies their rights and responsibilities to the people who

share the same community (Berkes, F., Colding, J., 2000). In fact, a comprehensive readout has been created to understand the potential of resilience in any vernacular architecture. This reading identifies and examines the local culture and environment based on five distinct categories:

First, resilience sights through design. One of the main principles for vernacular constructions is the adaptation to the climate, which affects the building form. For instance, the roof shape plays a significant role in the building shape; in the rainy areas, the pitched roofs are mainly used, while in the desert areas, flat roofs are primarily used. Another vital construction principle is the consideration of energy efficiency and sun orientation. For example, the "courtyard houses" were mainly built in the hot climate areas such as Aleppo city, as previously mentioned (Figure 21). These houses are characterized by introverted features that control sunlight, provide sufficient natural ventilation, and protect from sand storms. The climate conditions also affect the city's urban pattern. For example, Mardin city in Turkey is characterized by a hot, dry climate that stimulated the builders to develop the urban plan that accumulates with the weather. The orientation of the buildings is toward the south to have natural heating from solar power. In addition, between the dwellings, there are narrow streets called "*abbara*," which are used as a protected passage from the rain and sun. These alleys act like a passive ventilated cooling system ideally adapted to hot climate areas (Figure 22). In contrast, in the cold areas, the building envelope is designed in a compact way and with small openings to control the heat loss with the outside environment.

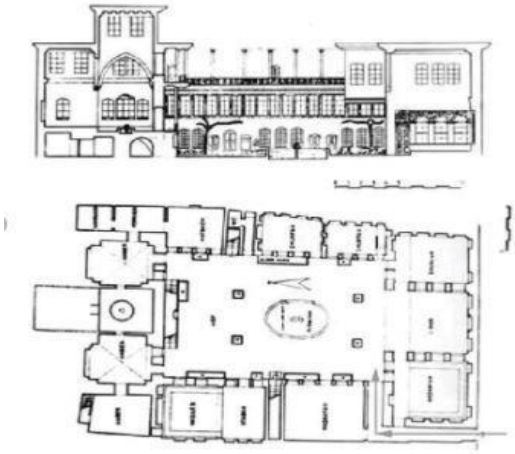


Figure 21: Building's model in Aleppo. Source: Ministry of tourism. Date: 1995.

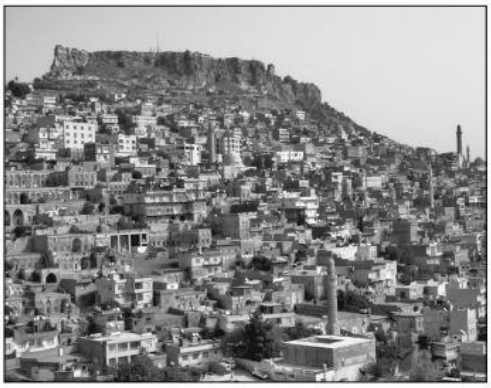


Figure 22: General view of the city of Mardi. Source: B.Ozel.

Second, resilience sights through multi-land usage and collectivism. Redundancy and flexibility in using spaces are some of the critical requirements for a resilient city. The ability to raise the activeness for used spaces and lands assists in cutting down the carbon footprint from an urban system. The areas that have only single-use and Inflexible are not fully exploited, while the mixed-used spaces magnetize the effectiveness of various activities such as the cultural and the commercial ones. Vernacular alleys and neighborhoods are characterized by practical living and collective facilities for social exchange, which are more resilient than the single-used areas (Figure 23).

Figure 23: Public space in Erice, Sicily, Itarly. Source:L. Dipasquale.

Third, resilience through using the proper materials. One of the resilient architecture characteristics relies on the correct choice of building materials. Indeed, vernacular architecture constructs with local building materials. The latter means that these local composites are widely accessible, economical and, it facilitates building maintenance. In addition, since the local building techniques utilizes low transformed materials and rarely use construction machines, it assists in the reduction of environmental pollution because of the carbon emission. For example, Trulli in the region of Apulia, Italy shows the creativeness of designing with local materials; it was mainly built with dry stone masonry only, and the builders did not use any cement or mortar (Figure 24).

Figure 24: The "trulli" in valle d'Itria in the region of Apulia,Italr. Source: L. Dipasquale.

Fourth, resilience sights through construction systems. The used systems in vernacular architecture are distinguished with simplicity, and it enthuses local labor. The locally-made designs and materials such as wooden windows, floors, or clay or lime plasters can be replaced or renewed smoothly. As well, it eases the maintenance, encourages the local economy and local builders. Undoubtedly, identifying traditional architecture systems that were inherited through generations enhances the socio-cultural resilience and expands the comprehension of local cultures (Figure 25).

Figure 25: Resilience through construction system in Apulia, Italy. Source: L.Dipasquale.

Fifth, resilience via encouraging the homegrown creations and autonomy. In this matter, vernacular architecture is related to resilience in the prospect of food security and cultural landscape protection. In this context, this architecture respects the basic human requirements and for the self-sufficiency of the inhabitant. The design methodologies provide sufficient zones, which, in turn, fulfills these demands. For example, in the dwelling areas, each house is integrated with zones for cultivation gardens, domestic storage, and livestock. The existence of such areas facilitates access for the food. For instance, in Chianti, Italy, the houses are surrounded by their working areas; farms, laboratories, and conservation sheds (Figure 26) (Dipasquale & Mecca, 2010).

Figure 26: Reselience by promoting local production and autonomy: Chianti. Source: B.Ozel.

The definition of resilience varies based on the type of disaster that occurred, as mentioned previously. One of the critical issues in the urban resilience context is man-made disasters. The latter is described as cities and towns' capability to preserve and keep real living opportunities for any living creature-from humans to any beings, even with any level of disturbance it may encounter (Rhodes, 2012). Furthermore, the resilient cities, communities and individuals are keen to deal with war shocks and stresses because they have the socio-environmental capacitance. In a resilient city, all parties should function as a group because the capacity of resilience varies from one area to another. The latter depends on the scale of the prevalent disturbance and the accessibility of potential resources in each zone. Consequently, some areas are more resilient than others due to the city's coordination in ways that reflect and produce the tacit socio-economic disparities (John Clute, 1979). Resilience in a city means more of a process than a feature, the evolution of urban resilience is related to factors such as culture, economy, and history. However, what constantly formulates and reformulates it is the political decisions, where the power exists. Therefore, the main active factor for city development is the government's power, interests, and settlements. Undoubtedly, the war conflict affects the urban inhabitants, environment, and infrastructure, which the cities rely on. Some critical infrastructures may be negatively affected, such as

food production, water supply, electric power generation, energy production, transportation, and telecommunications. These urban internal infrastructures represent a city's pumping heart and veins; their readiness and functioning are vital for urban resilience, specifically during a disaster. Indeed, people who live in a city and face a fierce war would have three possibilities: either to die, hide and survive at home, or become immigrants in another place. In military terms, staying alive or migrating is an adaptation to unusual stress, and conditions produce resilience. Furthermore, in order to comprehend the urban transitions and transformations during war periods is by understanding the critical concept of *evolutionary resilience* or *devolutionary resilience.* Identifying the primary stages of a city and its inhabitant history guides how it evolved and modified in terms of architecture, agriculture, manufacturing, and industrial centers. The latter knowledge provides higher productivity in a society's adaptation to various environments, which depends on inherited knowledge and naturally available resources. For example, In World War II, each city had a story to tell about how it was affected or influenced by other areas. Despite that the war was not on the United States lands, it witnessed a significant evolution in its urban-industrial field. In addition, by the end of the war and implementing its "arsenal of democracy," it could produce nearly half of its global industrial production. This war assisted the region in getting over a traumatic economic depression. However, it also significantly transformed the cities. For instance, the expanding arms and other industries made people migrate to towns and cities, which led to an increase in the suburban sprawl by designing green neighborhoods for the white, wealthy, middle-class families. These suburbs produced a tight social environment for the North American post-war period. However, in a structural term, this war speeded the evolution of consumer culture, the cities that depend on cars, metropolitan regions, and interstate highways. This development consumes vast quantities of natural resources and fossil energy, which in turn generates tremendous amounts of pollution. Therefore, this war is one of the reasons that created a harmful environment model of

urbanization and town planning that was also spread in other continents and regions (Simo Laakkonen, J. R. McNeill, Richard P. Tucker, 2019) (Figure 27).

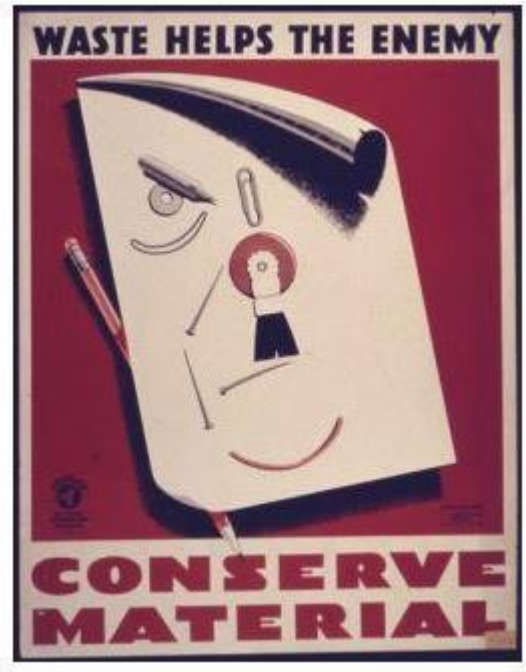


Figure 27: The power of persuasion. During world wars the best artists were engaged in national campaigns to reduce consumption, spare natural resources and reuse and recycle for the public good. Source: Poster designed by Vanderlaan, National Archives.

In contrast to this, especially the Asian and European cities directly damaged from the conflict, they suffered from the reversal or even a halt in their urban-industrial evolution. In such cities, the devolutionary resilience was accomplished by coming back to primary phases of the city's socio-culture. Indeed, the industrial production volume declined and focalized on limited strategic sections; The first measurement towards evolutionary resilience to alternate from industrial to local production and manufacturing, which means to use simple vernacular tools and techniques, save energy and recycle and reuse all advantageous resources, tools, and materials.

The second widespread measurement was to turn to and make use of agriculture in cities and towns. This demands accessibility to extra farming areas for cultivation such as public parks putting, bombed fields, urban wastelands, and private lands. An essential part of agriculture was water accessibility, therefore in some areas, the people had to dig new wells, or they set old pipes and channels to a new utilization. Producing local food elements was an effective factor of urban resilience during the war. In fact, this devolution transferred the citizens from being food consumers to producers. In some cases, horticulture became a continuous and serious urban agriculture (W. M. Tsutsui, 2007).

The third measurement is to come back to original strategies used since humans existed, the 'hunting economy.' The hunting depended mainly on small-sized available mammals such as ducks, rabbits, and domestic pigeons. Towns and cities that had available watercourses depended on fishing, which secured more food than other cities. This extreme transformation was used in the most desperate situations of the inhabitants and their towns because of the lack of protein. Indeed, each town worked to provide local nourishment supplies based on the surrounding urban area's available materials. In addition, recycling took an essential place in wartime; people collected firewood from forests and any combustible material in the destroyed buildings. In total, the inhabitants of the damaged town used their local environment to find edible elements and use any material that could be recycled or reused (W. Tsutsui, 2004).

Moving forward toward a new perspective in Resilient cities, the concept of community resilience (CR), an evolved research domain, consists of a construct of multivariate related to physical and perceptual compositions. It is conceptualized to concern the fundamental physical needs and to ensure protection (Ungar, 2011). In addition, it considers the inhabitant’s attitudes, their understanding, and their pattern, for instance, the existence of society resources, confidence in authority, and social cohesion (Obrist, 2010). During stressful times, CR is backed up through economic wealthiness and the equal division of resources. Additionally, it is related to the wellbeing of its population, group effectiveness, and for the community to be prepared for any future stress or shock (Ahern, 2006). Consequently, CR forms a primary

asset in a community that assists in easing the coping process with extreme experiences and disasters (Braun-Lewensohn, 2014). An analysis for individual resilience indicates that in order to understand the adaptation of the intense difficulties, it entails synchronous analysis of the positive coping and pathological procedures (Charles, 2010). Thereby, in determining community resilience, it should mind its strength and disregard discontent feelings that might become predominant amongst community members. These negative feelings might point to security or economic sense of stress or other fear of lack of resources (Hobfoll, 1989). A study case was made in Israel to investigate community resilience that is determined by its strength after distressing to the ratio of vulnerability (COM–SVR). The study was held after the war in Gaza Strip in 2014. The used data was gathered four months after the war. These information was collected from participants who lived in two different areas throughout the conflict; 251civilians adults lived in the south of Israel who were under a recent threat by extensive missile fires, and 259 civilians lived in the north, who were not under recent missile attacks (Eshel & Kimhi, 2015). This Study used the sense of danger as a measure of community vulnerability after an adverse matter due to the success of terrorist acts in producing a constant sense of danger (Scott SB, Poulin MJ, 2013). The community's reaction toward these acts plays a vital role in the post-war level of adaptation. This concept was associated with five resilience indicators:

First, community size, CR is measured over small, defined community subdivisions, such as school districts, neighborhoods, or wards, to obtain clearer variability than the analysis of overall averages of different communities (Bonanno, G. A., Romero, S. A., & Klein, 2015). A study for the Israeli civilians that were under rocket attack showed the value of community size; inhabitants of smaller communities achieved a higher score on CR signs such as confidence in authorities, preparedness for any danger, gaining social support, and being prepared for any emergency. Additionally, it indicated lower stress levels compared to the residents of more extended urban communities. Therefore, community size is used as one of CR predictors (Braun-Lewensohn, 2014).

Second, individual resilience; the study determined this resilience by the dimension of individual's vulnerability and strength, which is by healing from a tragic act to the ratio of stress signs. The results clarify that this resilience is predicted positively by promoting resilience factors such as the economic situation, sense of coherence, and sense of well-being. In contrast, it is negatively correlated with the distress symptoms after the war (Eshel & Kimhi, 2015).

Third, National or social Resilience, this concept approaches the community's sustainability, durability, and strength in front of any affliction. (Ben-Dor et al. 2002) In a time of any adverse action, the national resilience is signified by four main social components; nationalism, social integration, optimism, and confidence in political and public authorities. The results show that the national resilience of the inhabitants in Israel is positively related to community commonality, religious feelings and beliefs, and the age group of participants (Obrist, 2010).

Fourth, well-being, which concerns the evaluation of the quality of life being fulfilling and satisfying. It is associated positively with health indicators such as less physical symptoms and coping better with illness. While it is affected negatively by difficulties such as immigration or discrimination (DIENER, Ed, LUCAS, Richard E., & SCOLLON, 2006). Furthermore, this study notes that well-being is also related to individual resilience; it positively predicts it, which in turn is positively connected with CR (Eshel & Kimhi, 2015).

Fifth, a sense of coherence (SOC) plays a primal role in the inhabitant's ability to adapt to any adversities and relive a normal life after this harrowing experience. The SOC scored higher when connected with lower levels of stress and negative effects and greater self-esteem, optimism, life satisfaction, and positive effects. Positive and negative assessments assist in determining the proper response for tense situations (F Pallant, 2002). Sense of coherence (SOC) level also affects this response; the higher its level is, the positive response will appear which decreases the stressful, traumatic effects and strengthen the

inhabitant's faith in their capacity to adapt successfully to any stressful event. In this context, the SOC is an interceder that connects individual resilience with its predictors (Eriksson M, 2005).

After examining these five predictors to vulnerability ratio, overall results show that four of these predictors enhance CR while one suppresses it. In particular, individual resilience, national resilience, well-being and, SOC positively predicts and supports COM–SVR, whereas community size negatively predicts COM-SVR. Indeed, to determine community resilience in a specific area during adversity, equal consideration should be taken into account; the community proficiency level and its ability to adapt and function positively in parallel with its vulnerability level. This study examined the vulnerability level by the sense of danger after specific stress, as mentioned above. The examination results positively supported that COM-SVR is a one of resilience measurement. Analyzing CR in its strength elements without being associated with its vulnerability elements may cause Inaccurate results and a lack of information that might be essential for comprehending the whole idea of the multidimensional environment of communities' response to trauma (Eshel & Kimhi, 2015).

2-3 Post war rubble recycling.

2-3-1 Introduction.

Rubble is defined as the remains of demolished buildings and the traces of constructions, including structural elements (such as concrete, brick), furniture, personal belongings, and other waste. The rubble may result from natural factors such as earthquakes and landslides or due to human factors that include sabotage and deliberate demolition during conflicts and wars. The ruins differ from typical remains resulting from the work construction to conflict ruins due to the possibility of containing unexploded ordnance and corpses. As for rubble recycling, it is defined as the process of treating debris that aims to produce new materials that could be used for construction purposes, such as gravel.

Indeed, there are central rubble recycling management criteria that need to be followed to obtain successful operation and a safe environment: First, it is essential to verify that rubble recycling does not negatively affect the surrounding residents and neighborhoods. Second, providing a safe work system that protects all the employees and visitors. Third, guaranteeing that this process does not harm any plants, animals, or the environment, including groundwater. Fourth, the conduction of rubble recycling work should be near the rubble source, which will reduce transportation costs and truck traffic (United Nations Environment Program, 2020).

The importance of rubble recycling is that it could be reused in future constructions, preserve the environment, and provide a sustainable community. The rubble could be considered a “national treasure” that needs to be sorted and evaluated by experts and responsible committees. In general, building waste usually consists of concrete, ceramics, tiles, glass, iron, timber, asphalt, soil, and electrical installations. There are Specific methods followed when dealing with rubble, and it varies based on its type. Some materials can be separated or assembled and be used directly (metals, iron, wood), or materials that can be reused after treatment (rubble, stone, wood), or materials that cannot be used because they are

polluted and harmful to the environment and health, such as insulation materials. Therefore, the process of rubble removal is complicated, and it takes a great time to sort out recycled materials from non-recycled materials. The removal process acquires specific machines such as long-arm excavators equipped with hydraulic shears to cut concrete columns and casts. It also needs recycling dumps, which consist of the main crusher that grinds huge cement blocks to separate iron and turn it into small gravel to be reused again (Homs, 2019).

2-3-2 Approach for choosing this theory.

In most countries, the amount of waste resulting from construction and demolition works constitutes a significant proportion of the total waste transferred to landfills during normal conditions. However, these quantities increase significantly in cases of natural disasters and wars. For more than seven years, the Syrian Arab Republic has gone through a major crisis that resulted in a large number of partially or totally destroyed buildings, which resulted in vast amounts of rubble. Their disposal requires great economic, environmental, and service needs. In addition to being a major obstacle to the reconstruction process. Therefore, it is necessary to re-use this rubble as much as possible through recycling operations. Indeed, removing rubble after the war is usually a task primarily undertaken by construction companies that have made beneficial deals in their favor with the cities. However, these companies naturally need the support of the local inhabitants. In Syria, millions of cubic meters of rubble must be removed. As for the historic city of Aleppo, more than 70% of its historical center has been destroyed due to the armed conflict. Since the violence stopped, the demolition of the structurally dangerous buildings should begin, and then the rubble is carefully stored in order to be re-used again. In other words, removing debris, in this case, is equivalent to maintaining what can be preserved from the valuable original building materials. Conservation of rubble is carried out on two levels:

First, for the single historical building, it is essential to impose a protection zone for the building that cannot be bypassed or interfered with the rubble of the destroyed building. The process should be within a legal framework and under the supervision of experienced authorities, such as the Directorate of the Old City of Aleppo and other contributors. After removing original building materials, such as old building stones from the rubble and re-repaired, the responsible should identify their original places and collect all the available evidence from the past documents to be used in the reconstruction process again. This level is now seen in some of the historical monuments in Aleppo, such as the Umayyad mosque, where the stones were collected and preserved for the rebuilding process (Homs, 2019)

Second, the historical city-center as a whole. At this level, the rubble clearing should include all buildings and streets. The wreckage should be transported outside the historical cities within a legal framework. This process could be achieved by forming human chains to pass usable building materials to a specific collection point, where they are carefully cleaned and preserved. This work should be organized through shifts to speed up the removal and collection of rubble after the war. Aleppo should consider this level since the wreckage still exists in many parts of the historical city center. Removing the traces of destruction will assist in the revival of the city (Kosa, 2015).

Furthermore, In Aleppo rubble is still a concern for the inhabitants who used to live in areas destroyed by the war. Despite the expected benefits of recycling, there are several obstacles that affect the start of rubble removal, such as the high cost of this process, the absence of designated landfills and the lack of government support (Homs, 2019).

Chapter Three: Case Studies in the Field of Reconstruction

3-1 Sarajevo-Bosnia and Herzegovina.

Sarajevo is the capital city of Bosnia and Herzegovina. It is a cultural center located in the valley of the Miljacka River, at the foot of Trebević mountain, encompassed by the Dinaric Alps. Sarajevo's architectural character is mainly Ottoman architecture of the pre 19th century in addition to a twist of Turkish architecture. While Ottoman architecture prevails in central, the other surrounding areas contain a great selection of Austro-Hungarian buildings. The city holds strong Muslim characteristics, such as the existence of a significant number of mosques, wooden ornamented houses, and the historical Turkish marketplace "the Baščaršija." Unfortunately, Sarajevo's history witnessed two crucial conflicts; The first was WWI, which was initially associated with the 1914 assassination of The Australian Archduke Franz Ferdinand. The second was the siege of Sarajevo during the Yugoslav civil war in 1992 (Encyclopaedia Britannica, 1998). Since 1945 Yugoslavia has been divided into six republics; Bosnia, Macedonia, Slovenia, Croatia, Montenegro, and Serbia. However, within these republics, there was considerable tension in the 1990s, which caused a nationalist revival. Indeed, this stress squinty turned into one of the dreadful bloody wars in the European region since world war II. The republicans competed against each other and tore down the Yugoslavian society fabric. Within this brutal war of ethnic cleansing and crucial fighting, the cosmopolitan capital of Bosnia, Sarajevo, was under a dreadful situation, especially on April 5, 1992, where the Bosnian Serb Nationalists put the city under siege. Troops of 3,000 Bosnian Serb enclosed the city. The surrounded hills and mountains were the location of the snipers who turned these remarkable popular areas into a horrifying zone that signified death. The sieged inhabitants were under continuous snipers' fire attacks, and they were bombed indiscriminately by mortar shells. The city's situation during the conflict seemed like the deadly game of Russian roulette.

Three years and a half were the duration of the siege of Sarajevo. Within this time, the inhabitants suffered from a shortage of supplies; lack of food, heat, water, and electricity. The black market bloomed within that time; people had to ingest dandelion roots and wild plants to avoid hunger and burn furniture to retain warmth. In addition, the residents had to put their lives in danger to conduct water from fountains stalked by the mountain snipers who took advantage of the inhabitant's desperation. Furthermore, on the 5th of February 1994, is the day that marked the most considerable percentage of life elimination during the siege; 68 inhabitants were murdered at the Merkale Market while waiting in a queue for their turn in bread at what was once the beating heart of the city. The residents maintained resilience within these crucial circumstances; they evolved various methods to endure this hardship despite suffering and destruction. For example, they got inventive with UN rations, and they improvised a system for water waste. In particular, the most important fact is that the inhabitants were willing to survive and continue under any circumstances, which indeed was their biggest revenge and their most potent weapon in the face of any heartless trials to break them off. In this context, the coffee shops remained open where people and friends gathered, children played between the rubbles, and women continued to put makeup on and style their hair. The main characteristic about Sarajevo residents is that they continued respecting the ethnic diversity that they had before the conflict. In general, before the war, Bosnia was more diverse than the other republics, people were friends, and even romantic relationships were made despite their ethnic origin. However, even during this ethnic war and division, the people of Sarajevo maintained their tolerance practice; Muslims of Bosnia kept on sharing their life with the Serbs and Croats. By the end, the siege of Sarajevo was officially over on the 29th of February 1996 after signing the Dayton Agreement. These sieged years were punctuated by ongoing shelling that caused the death of 13,352 people, 5,434 of whom were civilians (Christou, 2019).

3-1-1 Results, effects of the war and the reconstruction strategy:

In general, when the war terminates, the torn society's central focus turns to its upcoming development; by arranging peace-building and reconstruction operations. The definition of reconstructions based on the Cambridge dictionary is to create or build something that has been ruined or damaged and recover it to the pre-war condition (Martín-díaz, 2014). There are three connected elements in the reconstruction process; to restore, the reformation of the structure-either with creating or deconstructing institutions, regulatory structures, and organizations (Kumar, 1997). The latter will be involved in enhancing the efficiency and activeness of the existing foundations. Likewise, Sultan Barakat (2010), the director at the University of York for the post-war Reconstruction and Development Unit (PRDU) mentioned that reconstruction is:

> "a range of holistic activities in an integrated process designed not only to reactivate economic and social development but also to create a peaceful environment that will prevent a relapse into violence". (p. 11)

One of the reconstruction definitions is a process that concerns the restructuring of the governmental, institutional and social status that assisted in producing the war. The strategy that was followed to rebuild Bosnia is one of the examples of the comprehensive renewal range in the efforts of post-war reconstruction. Indeed, the Priority Reconstruction of Recovery Program (PRRP), in coordination with the World Bank, priorities the 5 billion USD that was given to create programs and projects that assist in finding job opportunities and demobilization support, education, telecommunication, health, energy, housing, water and waste control, transportation means, industry, landmine clearing, and agriculture. The PRRP mission was to revive economic transformation to a market economy in different political and social strategies and frameworks. In Sarajevo, the urban restructuring was formulated, the peace-builders held the same objectives; building a sustainable peace by reshaping and encouraging economic and political

liberalization. This operation was under the coordination of the Office of the High Representative (OHR); the responsibility was to supervise and arrange the civil sides of the DPA(WB, 1996). Furthermore, the OHR mission upgraded from only supervising the agencies and institutions to direct authority. The latter was due to the difficulties that appeared from local forces who tried to pause the peace-building process (Caplan, 2004). In addition, the OHR also interfered directly in some of the civil applications such as the resettlement of refugees and IDP's, civil management, establishing temporary structures, or constructing political organizations (Donais, 2005).

The urban structure of Sarajevo presents historical diversity in its urban timeline; from the Ottomans, then the Austro-Hungarian Monarchy, to the Yugoslavia Kingdom, the period of the state-socialist. Within the time of socialists, Yugoslavia witnessed the most significant urban development in its history, where the population grew from 99,000 residents to 244,000 from 1948 to 1975. In the census that was made prior to the war in 1991 for the city of Sarajevo that consists of four central municipalities; Novi Grad, Novo Sarajevo, Stari Grad, and Centar, the calculations were 361,000 inhabitants. These residents were from different ethnic backgrounds; 50 percent were Muslims, 25 percent Serbs, 13 percent Yugoslavs, 6 percent Croats, and 4 percent others (Hamilton, 2005).

The siege of Sarajevo caused severe destruction of its urban fabric. The city was territorially divided into two entities, in which Bosnia was split; the Republika Srpska (RS) and the Federation of Bosnia and Herzegovina (FBiH) (Figure 28) (Martín-díaz, 2014). Hereafter the siege, the housing quarters showed massive destruction that was done throughout the conflict. Three municipalities out of four estimated the building damages around 74 and 96 percent. Beyond the residential areas, many iconic buildings were severely damaged or destroyed, such as the remarkable modernist tower, Bosnia's capital building was burned with what remained from the city. In addition, the city hall, Vijećnica, and the library, which contained valuable rare books, were damaged. Furthermore, in Bosnia, around 35-50 percent of all hospital complexes and health care facilities were destroyed. Sarajevo depended strongly on outward

assistance in the reconstruction process. The rebuild operations started in 1994, with a team supervised by William Eagleton, who was titled as the Special Coordinator for Sarajevo. Eagleton supervised seven action groups and a local counterpart to evaluate and introduce an action plan to recover essential public services in Sarajevo. Local and international agreements proceeded throughout the post-war rebuilding process, with districts having engineers and architects working directly with international contributors. Donor task forces were landed to organize and direct the reconstruction of strategic sectors. The reconstruction process did not include a physical regeneration, considering that rebuilding destroyed and damaged constructions had to be restored in an equivalent approach. This argument raised different views, with the international contributors more agreeable to utilize rebuilding to refresh materiality to a novel context and demands. The physical reconstruction, viewed as the most prosperous area of international interference, had both bilateral and versatile aid plans and programs. The principal multi-donor was the PRRP, with a four-year reconstruction program (Lamphere-englund, 2015). The latter objective was to replace the dependent aid economy by beginning with the recovery process instead of rebuilding all damaged foundations, which will produce local funds. It is stated in the World Bank report (1998) that:

> "it will be essential for the economy to have a growth momentum that can be sustained in the face of the inevitable future decline in external concessional assistance". (p.8)

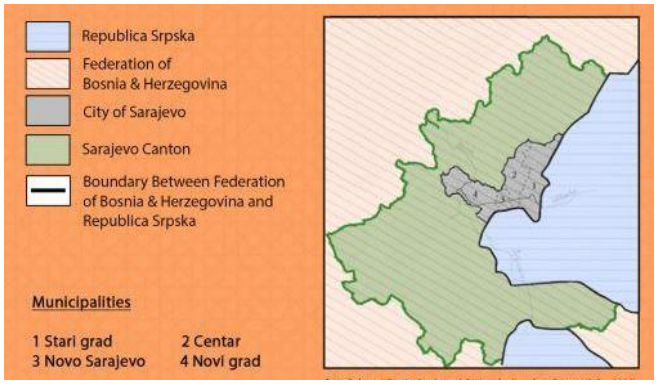


Figure 28: Map of the present day of Sarajevo. Source: Robert J.Donia. Date: 2006

Nevertheless, the absence of assistance invested in the industrial division, which made up of the PRRP's expense around 2.3 percent, has drawn a focal point on the restructuring nature of the program since it ignored the principal economic division in the anterior Yugoslav Republic (ICG, 1999).

Within this broader context, since 1995, when the war ended in Sarajevo, the transformation of its urban structure could be classified into two periods; The concentration of the first period was on the principal post-war difficulties. In particular, the physical reconstruction was primarily of local and international participants (Martín-díaz, 2014). The siege damaged most of Sarajevo basic infrastructure; only a fifth of the city had power or water, which was the starting process in the rebuilding process. In addition, the City Development Institute planning office considered "glassing" as an immediate priority, which means to change the destroyed glass in the city's buildings. The latter office was sponsored by international donors, the U.S. Agency for International Development (USAID), and non-governmental organizations (NGOs) such as the International Rescue Committee and Catholic Relief Services. In 1998 the physical reconstruction of Sarajevo's schools was almost completed. However, the educational systems were split and with poor essence; the educational strategy after the Dayton system was left to be produced separately in each of the ten cantons in the country (Figure 29), which caused weakness in the curriculum and the educational measures. The overall educational system in BiH is enclosed by inflexible systems, ethnic considerations, and uneven access (Lamphere-englund, 2015).

Figure 29: Political map of Bosnia Herzegovina. Source: Robert J.Donia. Date: 2006.

By the year 1999, the private, alongside some government investments, nearly completed the restoration of the primary network infrastructure all over the city. In the time of the fundamental infrastructure reconstruction, there was also a focus on restoring the ruined or damaged houses. Practically, there was not any construction for new buildings, and the rebuilding process appeared slowly in the city. In addition, the property restitution was loaded with difficulties, such as the transformation of property rights from collective to individual and the claims of the actual owners who left the city for their houses that Bosnians and political elites occupied. These ownership problems appeared due to a vulnerable legal system and weak implementation strategies. The Dayton Accords set up the Commission for Real Property Claims of Displaced Persons and Refugees (CRPC) to assist the people in need for reclaiming their own property. However, only three percent of the property claims were restituted; due to the local authorities who have stopped these returns, especially since the general supervisors in the CRPC were from the people who were living in these contested properties (Lamphere-englund, 2015).

Furthermore, four years after the end of the war, the Property Law Implementation Plan (PLIP) was generated. This planning methodology concentrated on the rule of law and the rights of individual property rather than highlighting the value of returns. In fact, this plan dealt successfully with almost all the restitution issues, and it banned the local command from taking advantage of the political or ethnic means to wreck the plan, as mentioned above. This was also accompanied by the OHR decision in 1999, which stated a restriction for land allocation in order to strengthen racial territorialization. This decision halted the attempts to form a real-estate market and directed the policies to proceed to rebuild a multi-ethnic Bosnia and Herzegovina (Martín-díaz, 2014).

One of the basics of rebuilding a city is to ameliorate the provincial administration, state bodies, and urban planning capability. However, as mentioned earlier, the main focus in Sarajevo was only on rebuilding the physical structure. Such improvements did not precede in the first years of reconstruction. Indeed, repairing these institutions could prevent any recreation of dysfunctional patterns found earlier before the war. In fact, many plans contained such enhancements. However, they were hindered by political obstructionism and incorrect outlining and coordination approaches (Lamphere-englund, 2015).

The second period, which was from 2003 onwards. The international contributors continued the restructuring policies that aimed to change the economic aid from being dependent to self-sustainable. In May 2003, after four years from the land management decision, the OHR re-allowed the privatization of land, which caused a significant growth in the development of the city's real estate.

The new urban projects were mainly constructed and developed in the central areas of the narrow valley where the city was expanding. In particular, the concentration was on the Novi Grad and Novo Sarajevo municipalities. Indeed, 109 new urban projects were developed after the war, and they were classified into eight groups (Figure 30).

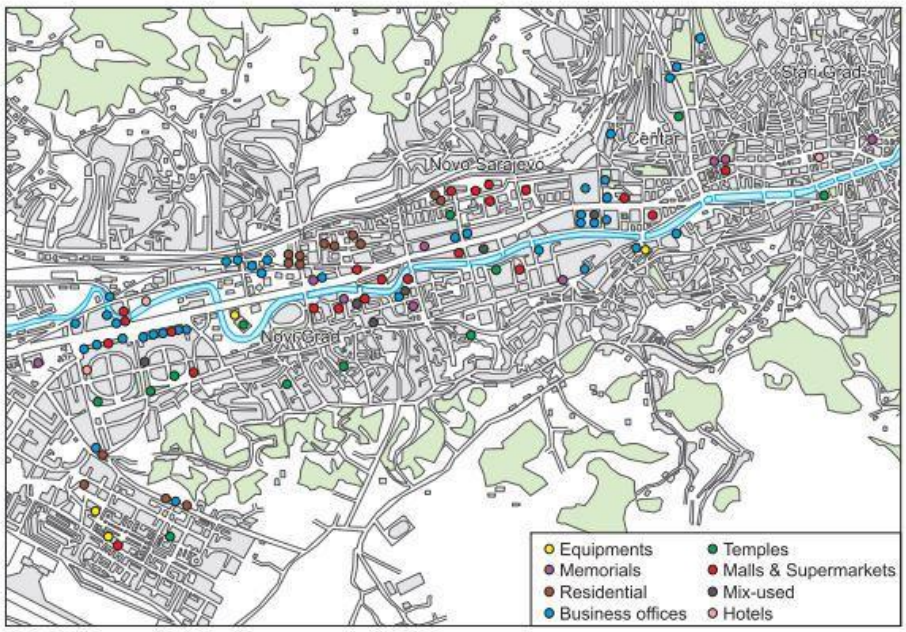


Figure 30: Location of new urban projects in post-war Sarajevo. Source: Martin Diaz.Date:2014

The division of the new developments was as follows; Business offices represent 29 percent, the commercial projects such as malls and supermarkets represent 21 percent (Figure 31). The third group represents 14 percent, which is the residential projects that private investors mainly developed. Then there is the mix-used projects group such as the Bosmal City Center (Figure 32), the Importanne Centar and the commercial projects and offices represent three-quarters of the new urban projects after the war. The latter group signifies the correlation of the economy and the development of new models in consumption. Then there is the symbolic projects group, which represents 15 percent. The symbolic projects represent memorials, temples, and mosques. The mosques were sponsored by Islamic countries such as Turkey, Saudi Arabia, and Malaysia, and they were spread widely in Sarajevo. In addition, these private investors have played a primal role in the city's development, such as the Sarajevo City Center, and Bosmal City Center that was opened in 2017. In fact, most of these new urban projects were sponsored and developed by private sectors, either local or international, and some of these buildings

were constructed without any permit. These projects reflect the reformulation of the city's identity and the transformation of the urban structure and landscape, which led to an increase of the central zones and the functional diversity, which are the features of the post-socialist cities. In addition, these post-modern constructions significantly transformed the urban fabric by implying globalization and increasing the diversity in the neighborhoods, the predominant traditional aspect in it (Martín-díaz, 2014).

Figure 31: New supermarkets in central Sarajevo. Source: Martin Diaz. Date: 2014.

Figure 32: Bosmal City Center in Sarajevo. Source: Martin Diaz. Date:2014.

In addition, by 2005, the PLIP resolved 93 percent of the claims since it only achieved 12 percent of the claims when it launched, as mentioned in the first period. However, this success hides an unfortunate fact; most real owners reclaimed their properties to sell them and depart or relocate. One of this period's characteristics is the international discouragement from the shortage of measurements that the national governments should take. Indeed, until 2006 there were strenuous attempts for state-building, creating an actual constitution, and voting. However, in this year, the extensive pressure from the U.S. and other international demands directed to vote on a constitution that would have involved political reforms, but it failed, and the international organizations' credibility fell with it. Furthermore, after this failure, the international sponsors maintained their public support for rehabilitation efforts, but indeed, they became more pessimistic about Bosnia's future. The USAID and EU donations decreased considerably. The latter has been hastened due to donor depletion, several global humanitarian conflicts, and the difficulties to the democratic legitimacy of international forms in Bosnia such as the OHR (Lamphere-englund, 2015).

One of the reconstructing cases in Sarajevo is the City Hall known as Vijećnica; it was established by the Czech architect Karl Pařík in 1891 during the rule of the Austro-Hungarians. It is a complex building designed with a Moorish style. Before the war, it was the house of the National Library. However, during the siege in 1992, it was hit by a mortar and burned down. Furthermore, the post-war rebuilding process started in 1996 and ended in 2014 and cost around 12 million euros. In fact, the original building was rebuilt in two years' duration. However, the reconstruction that was befalling in four phases took this long time to complete because of the funding restrictions. A promotional campaign ran for Vijećnica by the city of Sarajevo, which was successfully requested from the libraries of Spain, Prague, and Budapest, in addition to EU Structural Funds. Periodical statements to the sponsors determined funds usage and the reconstruction process. Since the building was completely damaged, the original plans found in Vienna and Zagreb widely assisted the rebuilding to the original shape. However, after the building was reconstructed in 2014, there was a political controversy about the characteristic of the general

reconstruction in Sarajevo; the library preserves legal title to Vijećnica. However, there are some endeavors from the municipal management to take control of all the structure for city offices, along with the quarter of the opulent mayor. Since February 2015, the building has been partial with no occupation and is suspended until there is a solution for this argument (Figure 33).

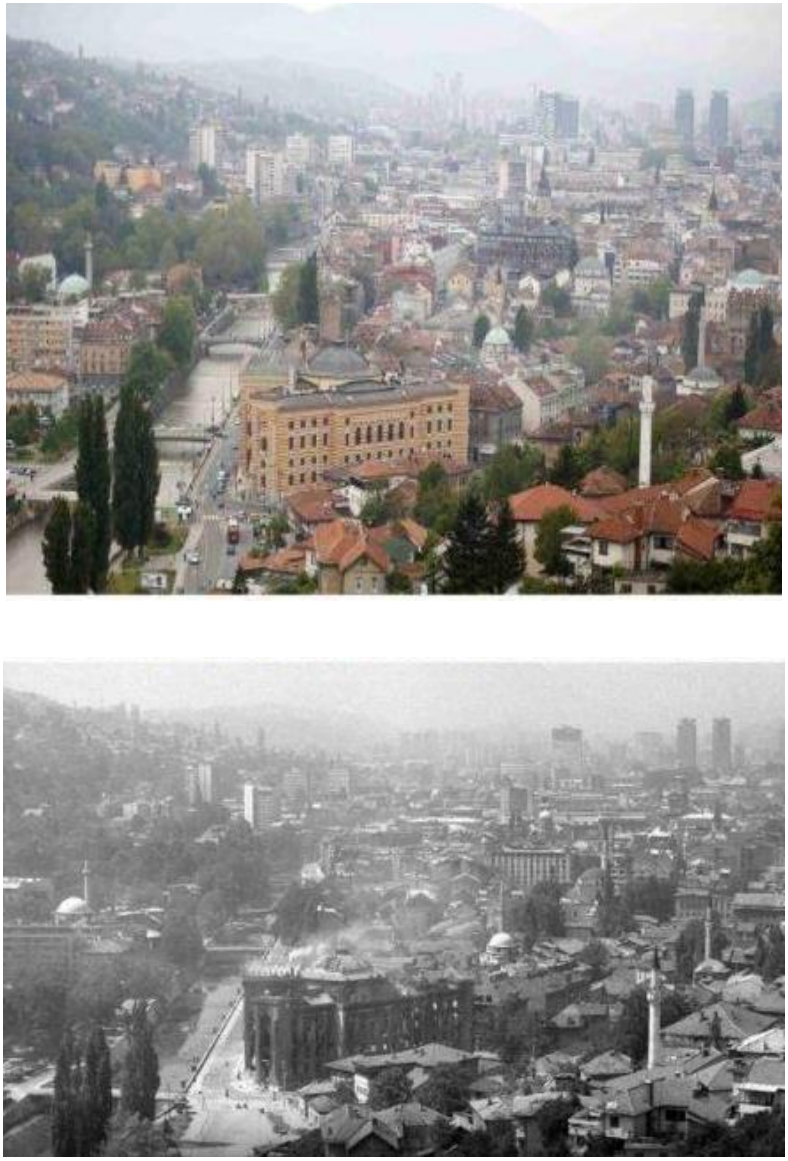


Figure 33: The National Library of Sarajevo during(1992) and after (2014) the siege. Source: REUTERS/Hidjet Delic/Dado Ruvic.

Overall during these two periods, one of the main goals of the international donors was to shift to a market economy rapidly, and it supported and facilitated the creation of a modern banking sector. Indeed, in Bosnia, the socio-economic condition was enhanced in 1995 compared to the post-war condition. Until the year 2000, the Real GDP witnessed a slow growth, and then it was enhanced considerably until 2008. The average of its growth is 3.5 percent per year, as well the GDP per capita witnessed a growth until 2008. However, since 2008 the growth has deteriorated because of the internal economic confusion and the worldwide financial crisis. Indeed, the profits that were gained earlier were not distributed equally. Due to this, the city suffers from youth unemployment problems, the downgrade of Bosnia from the World Bank index of the ease of doing business in the past few years. In addition, diplomats and locals pointed out that the city suffers from a vast corruptive system, which was confirmed by the 2013 polls of the National Democratic Institute, which highlighted that corruption is the worst issue that BiH is facing, along with the state of the economy.

On the whole, the post-war condition in Sarajevo was indicated by a deficiency of a future vision and urban planning; there was no specified master plan for the rebuilding process, which caused a division in the modernization plans that were created in the previous century. The reconstruction process did not follow the lead of the plans that were laid by the socialists. During the transitional period, it curved away from the visionary goals of Yugoslavia. Due to the lack of cooperation between the federal level and the Cantonal level planning office in Sarajevo, the informal grey areas increased. During the post-socialist period, architects suffered from these random planning methods, in addition to the changing environment of their role. The central control on Sarajevo's planning decisions was not the urbanists or the architects' responsibility, it was mainly in the politicians and legal offices' hands. Inexperienced leaders were responsible for an extreme level of destruction and urbanization of the public spaces. In addition, these leaders were giving license for massive shopping centers and buildings without any justification. Furthermore, between 2000 and 2014, around 816 landslides on the hills of Sarajevo appeared due to

unsustainable illegal housing development patterns along with massive flooding. Since the end of the war, each urban municipality was concerned about its own planning. The municipalities inside Sarajevo are now six, which means that there are six chiefs' architects inside the city, and each one of them is responsible on his own agenda. These problems show that the city is turning to an unsustainable urban growth that supports the liberal vision on account of unprotected population and inclusive expansion (Lamphere-englund, 2015).

3-2 Berlin, Germany.

Berlin, is the capital of Germany, and its largest city. It is located at the center of the North German Plain, in the broad frozen valley of the Spree River that passes through the city center. Nine different countries border Berlin; Denmark to the north, Austria and Switzerland to the south, Poland and the Czech Republic to the east, and Belgium, France, Luxemburg, and the Netherlands to the west. The city is Germany's top urban center with a geographic and commercial east-west axis. The latter is one of the reasons that made it the capital of the kingdom of Prussia, and then from 1871, it became the capital of unified Germany. It is composed mainly of sandy glacial soil surrounded by lakes and forests that appeared due to the waters of the Havel in the west and the Dahme River in the southeast. In fact, around one-third of the area of Greater Berlin is coated with mixed birch woods, sandy pines, beaches, and lakes. The city's layout was initially developed in the early 13th century. It was expanded from a small town during the late 17th and early 18th centuries and acquired a baroque appearance; new castles were constructed, such as Charlottenburg Palace. The city's central district grew and was ornamented with spacious avenues, impressive squares, and grand stone buildings. In addition, this area obtained wide north-south streets, for example, Friedrichstrasse and Wilhelmstrasse avenues, and it is connected to the central east-west road axis. Various exit roads are linked with this axis, and they all work as major traffic arteries. During the late 19th century, living areas were built around these arteries and their subsidiary routes, such as the

large-scale design of modern office buildings and apartments. These areas were widely damaged during World War II (Reuter, L. R. and Erb, 2021). Within this broad context of World War II, Berlin has witnessed a brutal war during that period. From 1933 to 1945, Germany was ruled by the Nazi Party under Adolf Hitler's leadership. The war began in Germany on September 1, 1939; it was declared by Britain and France two days after Hitler attacked Poland from the west. In 1941, the Soviet Union repelled Hitler's incursion on the Soviet lands by attacking Germany in eastern Europe. Furthermore, in June 1944, British and U.S. forces were able to re-control the axis powers and conquer German territories; it was possible when a successful Allied invasion in France. During the same time, the Soviet forces directed by Premier Joseph Stalin started their operations in the east. Within this year, the Red Army was marching to Berlin. Their campaign intention was to eliminate Nazi Germany. On April 16, 1945, right before dawn, the final savage battle between Russia and Germany started when the Soviet forces released their thunderous artillery bombardment along the Oder River that echoed 40 miles away on the suburbs of Berlin. The German troops had drawn back to evade that pounding and maintained strong at first. However, they could not resist the surge of the Belorussian first front led by Marshal Georgy Zhukov, who was recognized as the savior of Moscow. His troops that made their road toward Berlin were numerically superior to the German forces. In the south, the commander of the Ukrainian first front, the Marshal Ivan Konev, tore the Fourth Panzer Army ere turning toward Berlin to battle with Zhukov for that award; Stalin stated that "Whoever reaches Berlin first, let him take it." Zhukov's destination to the city was shorter; that is why he won the competition, despite Konev's fast advance that drew this rivalry around the city.

Furthermore, half-million Soviets launched a fierce attack on April 26 on the city center, where the Reich Chancellery is located, beneath which was occupied Hitler's bombproof colonelcy bunker. Many defenders tried to repel invasions until the last moment, such as the civilians, Waffen--SS units, and the Volkssturm, they tried to counter their losing battle. Still, they were outgunned and outmanned, and they witnessed the city become a burial pyre for the Reich and the leader who directed it to dilapidation. Adolf

Hitler terminated his life on April 30 while he was hiding in the Führer- bunker; his aides cremated his body after his death. During the evening of that day, the Soviet forces marched their path to reach the Reichstag, where they marked and raised their red flag over this destroyed city. On May 2, 1945, the German troops admitted loss, and then on May 7, 1945, a formal unconditional surrender was signed by Grand Adm. Karl Dönitz, who was left in charge of the wrecked Reich and its broken armed units to the victorious Allies. News of the official surrender expanded immediately, and the ceremonies vented all over the world and are called "Victory in Europe Day" or "V-E Day." The United States and Britain celebrated this victory on May 8, where people were crowded in the city squares and streets, while soviet states celebrated this outstanding achievement by a victory dance that came on May 9 (NEIL, KAGAN STEPHEN, 2020).

3-2-1 The results and effects of the War.

After World War II, the Allied leaders (Winston Churchill, Prime Minister of Great Britain, Joseph Stalin, the Soviet Union leader, and Franklin Roosevelt, the United States President) held the Potsdam Conference. The duration was from 17 July and 2 August 1945, to confirm the division nature of Germany and the occupation status. Germany was split into four areas, each occupied by a different control; Britain, France, the United States, and the Soviet Union. However, despite that Berlin was in the Soviet Union area, it was also divided between the four powers. West Berlin was under the control of the French, British, and American sectors, while the Soviet Union held East Berlin (IMW, 2015).

Furthermore, the Soviet Union and the United States started to appear as 'superpowers' ideologically opposed; each force aimed to input its methodology in the post-war world. Cold War politics focused on Germany, especially after the rose of tension between East and West. This stress led to Germany's formal division into two independent nations; The German Democratic Republic (GDR or East Germany), controlled by the Soviet Union, and The Federal Republic of Germany (FDR or West Germany), which was

ruled by Western democracies. In 1952, the decision to close the border between East and West Germany was determined by the government of East Germany. This decision did not include Berlin, and the borders were maintained open; people who lived in the East could still leave through Berlin to the West, where there was a less iniquitous and more opulent situation. However, on the night of 12-13 August 1961, a barbed-wire barricade was built around West Berlin to reinforce the borderlines and prevent East Germans from moving to the West. The crossing points between these two zones were closed, which led to a division of neighborhoods and families during one night. The barrier developed from wires to a fortified concrete structure enclosing West Berlin and detaching it from the encompassing East German land. The Berlin Wall consisted of two walls; each was nearly four meters high and approximately 155 kilometers long. It was reinforced with spikes, barbed wires, and metal gratings. Between these two walls is a guarded buffer zone that was called the 'death strip.' This area was under constant monitoring by the armed guards of the East Germans, who were commissioned to execute anyone trying to enter their area. In fact, over 28 years of this wall's existence, around 100 people were shot and killed while attempting to escape through this wall. The post-war destruction outcome was tremendous in many German cities. Berlin was 70% damaged by bombing and around 80% of its city-center, due to five years of bombing, and violent street fights. A survey made in 1947 stated that around one-third of the city's dwellings and 40% of its rooms were unlivable. The latter means that around half a million apartments and 2 million chambers were damaged, which resulted in around 55 million cubic meters of rubbles. The great capital, Berlin, was nothing more than a vast landscape covered with debris. However, the postwar rebuild accomplishments were remarkable. The initial stage before any building process is to remove the rubble. It was an astonishing task done mostly by women because most of the men were war-injured; they were grouped in teams under the leadership of the occupying powers. The remains were removed by hand. Many lines of "rubble women" worked to clean and stack the wreckage from the streets. This scenery became a signature memory of the city's initial recovery intervention during the first years of the postwar

period. Furthermore, the reconstruction process that came after this step was characterized by a lack of a clear authorization party, and there was no defined agreement on a particular architecture form. In addition, Berlin did not revert to its prewar status, where it was growing through industrial dynamism. Instead, it was rebuilt as an East and West subsidized propaganda showcase. After the war ended in 1945, the period that came directly after was recognized as the "zero hour"; a new physical, economic and ideological start was essentially required (Vale & Campanella, 2005).

3-2-2 Reconstruction and preparation of plans.

The first post-war years were dedicated to planning from a visionary perspective rather than the practical. There were only some reachable resources used for general repairs in some of the damaged buildings due to many residents being obliged to live in them. In addition, by then, there were no agreements about the future of Berlin (which was split into four political sectors); that's why the new construction programs were more delayed. In 1949, the split occurred, and the city was divided into two zones West and East Berlin. In the East, there was a significant transformation in the architectural ideology; The architecture goals of the communist rulers' in the GDR were shown in the reconstruction plans of their first significant project, the Stalinallee boulevard (Figure 34), that was named after the Soviet leader for his birthday in 1949. The street reaches to the East from the center of the city. In 1950, the mile-long boulevard was concluded as an extensive road surrounded by classical ornamented apartment buildings. Furthermore, the ruling parties in Germany played an essential role in the rebuilding process. The East tried to introduce its methodology as protector and heir of German culture (Vale & Campanella, 2005). The Communist rulers were prepared to criticize modernism in populist language, which is comparable to the ideas that were followed by the Nazis who backed up the "healthy common sense of the people" without any foreign or avant-garde influences. However, Lothar Bolz, the reconstruction minister of the GDR, stated that there

were no similarities between East German plans and the Third Reich. Still, he mentioned that not all the ideas that Hitler banned were undoubtedly good (Healy, 1969).

Figure 34: Former Stalinallee boulevard. Landesarchiv, Berlin. Source: Vale & Campanella. Date: 1968.

In contrast, the Western Zone (FRG) immediately denounced the latter architecture ideas due to its closeness to Speer's Nazi architectural ideas. The GDR didn't see it from that perspective; in their involute thoughts, they were seeking to regain the national heritage of Germany that the Nazis vitiated. In addition, the communists were obeying the party line that was fixed by Moscow. In fact, before two decades, Stalin refused modernism due to its form that concentrated on the artistic design and layouts, also its direction towards the cosmopolitan, where it neglected the national and local traditions. Walter Ulbricht, the leader of East Germany, declared that modernist architects and their cosmopolitan vision assumed that it was possible to construct dwellings in Berlin that would be suitable to the South African landscape. The architects in East Germany were under the supervision of the Soviet associates to consider the decentralized, horizontal city as opposed to the evolution of socialism because it created isolated people who are unsuited for collective work, such as in England and the United States. One of the lectures by a Soviet executive stated that the Soviet Union is against the theory of the Anglo-American. It desires and values the decentralized city because it is not economic, it is not shielded from air attacks, and it separates

the inhabitant from the politics. It transforms him into a petit bourgeois. Indeed, organizing the mass demonstrations was one of the important seniority in the urban planning of East Berlin. In fact, the latter was crucial in principle planning choice that affected the center of the city; the 1950 demolition of the enormous royal palace that was war-damaged in order to generate a spacious public square that could fit a more significant number of crowds than what the Nazis could have been capable of assembling. Overall, from the East German point of view, the components of the Nazi city should be refused, which is not to incorporate its scale or its neoclassical monumentality. Communist rulers designated that the typical Nazi constructs are the reinforced concrete bunkers, which means that the actual style of Nazi was industrial modernism that identified capitalism in its fascist style and its bourgeois-democratic (Preston, 2002). In addition, Ulbricht connected Nazis with modernism in their militarism by describing their architecture as the "barracks-style." Despite the fact, the latter was historically inexact because Nazi barracks were commonly built in Heimat style, which is conservative and was characterized with timber, stucco, and pitcher roofs instead of concrete, glass, and steel. However, the communists accurately distinguished the primary contrasts between Speer and Stalinallee's north-south axis: the framed buildings in the communists' boulevard granted dwellings for all strata of society, even for ordinary workers. The latter GDR point was not included in the Nazi's plan for Berlin. As previously mentioned, the ruling party has played a significant role, especially in aftermath reconstruction methodology, which clarifies the contrast between the east and west of Berlin. The West rebuild planning vision was more linked to the employee status, which was not found in the East; many pioneer German designers conquered important positions in the Third Reich period. The latter can assist in demonstrating the reason there was no clear vilification of the Third Reich architecture. Still, there was also more attention to any details that might reflect any Nazi design. The FRG vision connected the Nazis with axiality, classicism, monumentality, and historicism, as explained by Reich chancellor, Albert Speer. Furthermore, West Berlin that was filled with rumps, which was in need for a re-function of the city -center, did not take any significant steps toward rebuilding the

essential public buildings instead, the initial vital rebuild process was the development of small dwellings, for instance, the Ernst-Reuter-Siedlung (1953–1955). The latter project took the renowned model of Berlin in the 1920s, the modernist housing distributed in the inner city that was previously dense (Homer-Dixon, 2009). In addition, it transformed the solid rows of dwellings into separate housing that has a distance from the street. Similar measurements were also created for the industrial lofts and storefronts distributed in the courtyards and ground floors of the old constructions. The West project exposure came after as a response to Joseph Stalinallee methodology. In 1957 the West laid the International Building Exhibition known as Interbau, which reconstructed the Hansa quarter, a large dwelling area in the central West that was destroyed during the war. In 1953, when the Interbau project was launched, the construction director in West Berlin stated that this work aims to clarify great support to the Western world architecture. It should display the Western vision about the planning of modern cities and decent housing, which contradicts with the incorrect concept of Stalinallee. This major project was to represent international modernism, which invited pioneer international architects to participate in their designs. However, some refused, and Le Corbusier asserted that big buildings should be located in a different place in the city. Still, design suggestions by Alvar Aalto, Oscar Niemeyer, and Walter Gropius were among those constructions. The Hansa quarter's low-rise slabs and high-rise towers were scattered through the landscape, not organized along a road. The Hansa quarter restoration was hailed by Western critics and politicians since their vision supports the free market, individual decentralized achievements, and an unregimented system of democracy. One of the city developers demonstrated that he didn't use rectilinear geometry in his plans because he believes that the free human will not desire to reside in an army compound, where the houses are lined up in rows like workers' barracks. Indeed, this is what the Hansa project achieved, it maintained away from workers' barracks of the residential city, but it also stepped away from the totalitarian trends, which is one of the representations of both the communist East Germans and the Nazis. The Interbau exhibition aimed to represent a practical Western

reconstruction model. The deemed model of the free market was achievable by confiscating all private areas in the old Hansa quarter and providing freedom for the urban planners and developers to recreate the property lines and streets, which was not possible to do in other quarters. However, both the Western in this project and the Stalinallee reconstruction project have experienced the same problem: the building expenses for a housing unit that was unsustainably expensive. The extra fees were added in thought it would outlast unique (Eaton, 2001).

Figure 35: Hansa quarter. Source: Landesarchiv, Berlin.

In 1958, after the Hansa quarter project, a design contest called *Hauptstadt* Berlin was made to reform and reunite the capital. There were 151 approaches from sixteen nations that introduced spacious modernist suggestions and plans. There were similarities in many of these approaches; they mainly focused on decentralization and circulation and ignored the existent buildings and streets model. The winning project was Gerd Pempelfort, Spengelin, and Fritz Eggeling. However, it was not executed, and the dreams of reunifying the city were gone when the Berlin Wall was constructed in 1961. Looking back to the 1950s, planning, architecture, and the social need for reconstruction, especially the rebuild of dwellings, have played a significant role in characterizing the Cold War in Berlin. Both parties have

introduced a considerable resource in building a visible town that represents their cause. However, in the 1960s, the Cold War in architecture ended, and the contrasts in style gradually disappeared, even though it still existed in other areas (Armond, 2000). This means that architecture and planning had stopped having the same political goals that they previously had. The latter was due to several reasons:

First, the most apparent reason was the significant transformation in the East architecture style after the mid-1950s. The economic developers in the GDR knew that the Stalinallee project and other similar projects were very high in fees for the housing unit. This is why Nikita Khrushchev, the new leader in the Soviet Union, refused extravagance in architecture. He stated that using industrialized, prefabricated construction techniques is elementary to acquire the dwelling needs. This means that the GDR followed the Soviet directions again, creating its own methods and plans for constructing the prefabricated concrete panel, which later accounted for a significant number of the new GDR premises. In 1959, the new methods were used in a grand project, which is the segment of Stalinallee that connects the neoclassical section with the center of the city. Indeed, in 1961, Stalinallee street was renamed to Karl-Marx-Allee, which ended the Stalinization. The building's appearance transformed from the old forms; they were unornamented plain floor slabs constructed of prefabricated panels, with no articulated facades nor a classical ornament's appearance found nearby down the street. Additionally, they were not lined up with the boulevard; they were distributed in grand zones that reached the back of both street sides. This planning method resembles a similar methodology used in the Hansa quarter, but it did not include similar diversity in its architecture.

Furthermore, there was still considerable variation between both sides of the wall, but there was also a notable similarity during the 1960s and 1970s. For example, the commercial centers in central areas (Ernst-Reuter-Platz in the West, Alexanderplatz in the East), and the significant housing compounds on the urban periphery. Both in West and East, a technocratic model of modernity had prevailed and removed the void left by any political ideology in any urban design.

Second, in 1961 the building of the Berlin Wall assisted in transforming the competitive nature between East and West. Before constructing the barrier, the borders were open, which allowed all people and workers to cross the borders freely. However, after forming this wall, the inhabitants of East and West were separated, and they don't share the same urban space anymore (John Arquilla, 2001). The architectural historian Francesca Rogier (2000) in her book "The Monumentality of Rhetoric. The Will to Rebuild in Postwar Berlin" Commented that:

> "Without the flow of people back and forth across the border, spatial and social consciousness of built form receded, and with it the association with ideology." (p.184)

The competition between East and West shifted to living standards and consumer goods, such as private spaces and goods. The transformation was toward industrial modernism, which aimed at a quantitative goal of building many apartments to provide housing for the residents. This goal was different from Stalinallee's initial vision about the workers' showcase, which could not guarantee accommodation for a sufficient number of workers. The results were remarkable on both quality and quantity of the reconstruction measures in both areas of the East and West. In fact, the West area was more productive than the East.

Furthermore, the wreckage was gathered in the city parks and formed mountains. These mountains became the highest point in the city. These ruins were yielded and used in new constructions, and the housing shortage and its quality were considerably improved. However, in the 1970s and 1980s, there were some attacks in the East and West about the new housing due to its failure in providing urban and street life and its monotony. But the latter had different results in the East because the designers used one shape of the prefabricated concrete panel and became nearly International; it assisted in producing efficient constructions. These buildings had a pleased leaseholder because of their well-equipped and well-designed spaces. In spite of the split to East and West, Berlin could prove that it was characterized

by resilience. By the 1980s, the reformation process was coming to an end, and both cities of Berlin were almost reconstructed. The disconnection between the towns did not significantly change its fundamentals during the postwar rebuilding process.

However, in 1989 the unexpected fall of the Berlin Wall made it necessary to remold both cities into one. There were apparent scars in the urban fabric, especially in the lands nearby the wall, which was left with no specific use. A third restoration for the city started in the 1990s to heal the visible and invisible scars of the war and the division. During the 1990s, the "critical reconstruction" was the official policy in rebuilding the city center of Berlin. This policy aimed at the design principles of the early twentieth-century city that focus on the restoration of the public spaces, visible appeal, density, and the city scale. The new rebuild methodology was not similar to the reconstruction process that happened in East and West; it aimed to revive the urban form that was damaged during the war and the Third Reich, which means all postwar rebuild processes needed a revision. In Berlin, during the 1960s, there was an increasing dissatisfaction about the reconstruction after the war and how it produced a modernist city. In some places, it was common to be described as the “second destruction” of Berlin. The latter was due to the massive projects that were established after destroying uninjured premises and districts. There were some arguments by critics about how the reform process in the East and West had widely displaced the old city with massive inhuman projects similar to what was introduced by Nazis. This implies that the form of Nazi architecture was similar to modernism. The planners' vision differs between the postwar period that aimed to establish a city that is better than it was before, and the post-wall removal period in the 1990s that shifted away from modernism vision and focused on reforming fundamental properties of the damaged urban fabric, in which this was the primary output during the late nineteenth and early twentieth centuries. The maximum height limits of premises were unified, reformation of the street network with the narrow streets nearby, emphasis on masonry facades, and tries to copy or to fully restore similar diversity and scale of personal owned and built pieces of lands. The latter rules were taken

from old documentations such as photographs and maps of the prewar Berlin. The latter design principles were supported by the public, especially since the disappointment of the modernist city.

After the wall was demolished, there were ideas about rebuilding the disappeared visual identity of Berlin, which also included reconstruction of the damaged Royal Palace that was located in the East zone who also had possession of Berlin's historic core. The palace dates back to the 18th-century designed by Andreas Schlüter. First it was a the main residence of the Prussian then it became the German monarchs.

The goal behind rebuilding the palace was due to its visual appearance as an essential point in the center of the city and not because of its monarchy (Vale & Campanella, 2005). The palace dates back to the 18th century and was originally the German monarchs, which was designed by Andreas Schlüter, then it was demolished during the war and was built instead of the Palace of the Republics during the GDR (

Figure 36). However, in 1990 this building was demolished again, and a museum called the Humboldt Forum was built instead by the Italian architect Franco Stella. The 40,000-square-metre museum was mentioned as one of the big cultural European developments. The final reconstruction was constructed around a steel frame and cores of concrete, the four facades of the museum had three of them, an exact copy of the original building, but the fourth is modern with a stone façade created by Stella (Ravenscroft, 2020). The museum was designed with three courtyards that resemble the squares and six entrances that represent the city gates. Stella mentioned that. The museum was only digitally opened due to the coronavirus pandemic. However, it physically opened on 21 of May 2021 (

Figure 36).

a

b *c*

Figure 36: a) The Royal Palace during reconstruction

b) The museum facade

c) The museum entrance.

Source: Alexander Schipple.

Furthermore, one of the primary considerations during the rehabilitation process is the memorial landscape. These memorials provided a different link between the cityscape and its history. For example, the 1987 temporary exhibition that was called Topography of Terror. In addition, the 1998 Berlin Wall Memorial, a national monument that represents the victims of the division (Ravenscroft, 2020).

Figure 37: Berlin Wall Memorial. Source: Alliance.Dpa.

3-3 Beirut, Lebanon.

Beirut, the capital of Lebanon and its largest city. A coastal city and a chief port located on the eastern side of the Mediterranean coast. Beirut is surrounded by the Mediterranean Sea from the north and west and laid by Mount Lebanon to the east and Sidon to the south. The city lies over two hills, Al-Muṣayṭibah in the west and Al-Ashrafiyyah in the east. The city's climate is subtropical; humid-hot in summer and temperate-cool in winter; this is what made it famous for its natural beauty. There were 15 civilizations and empires that inhabited Lebanon, such as the Phoenicians or the Canaanites civilization, who were one of the initially recognized civilizations that inhabited Lebanon, and Beirut was called by then Lattakia Canaan. After which, there was the Roman civilization who named Beirut Mother of Laws. As for its valuable location nearby, the sea was the center of attention for the Ottomans, and they called Beirut Al-Durra Al-Ghaliya. The city was named Beirut, originally from Beʾerōt, a Canaanite name that means wells, and it signifies the underground water that residents commonly use. The city layout of growth was studied and organized during the Ottomans vilāyet and the French rule (Salibi, 2020). During that time, the French architects tried to mimic the Parisian Star in Beirut's historical center by designing a square surrounded by straight radial streets, and they called it Nejmeh Square, which means "star square." This project demolished most of the traditional constructions. The new improvements and projects used modern building material and reinforced concrete in many decorations and details. Furthermore, this material played an essential role in creating multi-story buildings, similar to the Western cultural and social style. The main characteristics of the dwellings are the expansive balcony on the exterior of each floor of the building and were called buildings with the veranda. Despite these developments, there was still a state of communication and continuity with the Ottoman houses. The interior of the homes kept some similarities with the traditional houses of Beirut, such as the spacious liwan and the kitchen location, which is at the corner of the house (Al-Rabeo, 2020). However, in 1943 after the independence, the growth was

unexpected. From the 1930s to the early 1970s, the population rose ten times, and the city's zone expanded three times from what it was in 1900 (Salibi, 2020). This significant growth came because Beirut became the main port of the Mediterranean coast and the influx of Syrian and Palestinian business people, politicians, and fugitives. By that time, there was a new transformation in the urban fabric from the colonial style to the International Style, which was specified in the New York Show of Modern Architecture (INTERNATIONAL STYLE EXHIBITION 1932). The city grew, and there was an increased demand for homes, which caused overcrowded, polluted buildings that were getting higher to find dwellings for those who moved to the city (Al-Rabeo, 2020). Indeed, the organization of the streets and neighborhoods did not follow a specific form or rhythm. Most districts contain large modern constructions, slum homes, residential flats, and traditional red-tiled roof Lebanese houses. However, only some remains were left from the old city in the 1950s, and a large number of them were damaged during the civil war that started in 1975 and ended in 1990. A decade and a half of war lasted on the Lebanese lands, costing the death of about 150,000 lives. The reasons behind this war did not appear suddenly; there was a continuous crisis and causes related to its regional location and the way it transformed into an area of conflict (Salibi, 2020). The leading causes are; the appearance of political factors embodied in the division between Muslims and Christians, social and economic factors that resulted from the spread of deprivation and poverty, in addition to the external factors centered on the issue of Palestinian resistance, fear, of settlement and the armed conflict. The trigger of this war was the tension between the Lebanese Muslims and Christians because of the existence of the Palestinian militias in their land. These tensions displaced both Christians and Muslims from their homes; the Christians settled in the Eastern Region, near the Palestinian camps. The majority of Muslims were or moved to the Western Region. There was a line called the Green Line, which separated the regions from each other.

Furthermore, the war was paused in 1977 because of the intrusion of Arabian troops directed by Syria. However, the conflict continued because of the Syrian army, who backed the Muslims and Palestinians

against the Christians. This led to the intervention of the Israeli military in 1982, who invaded Lebanon to assist the Christians in eliminating the Palestinians from their country. In addition, there was International military interference from America and Europe, but it has resulted in failure. The economy in Lebanon deuterated rapidly from 1983 to 1900, and also, there was a constant fight between Muslim and Christian militias. The civil war officially ended in 1990, when the Taif Agreement was signed under the assistance of Saudi Arabia, which helped in reforming the constitution in order to divide the power between Muslims and Christians. Additionally, the war came to an end only when America approved the Syrian domination of Lebanon (Vale & Campanella, 2005).

3-3-1 The results and effects of the War.

After 15 years of civil war in Lebanon, which resulted in the immigration of around one million and a half out of three million of its inhabitants, nearly 150,000 people were killed. In addition to the physical destruction through the whole region and more severely in Beirut. During the quiet and violent times in the war, the Downtown area was a targeted vacated separation zone and an intense fighting area between both sides of the divided capital. In 1983, Beirut Central District (BCD) was considerably damaged; during that time, a newly developed plan was created by Dar al-Handasah for reconstructing this area. Dar al-Handasah is a grand regional consultancy related to engineering and architecture, and the owner was Rafik Hariri. The latter is an affluent business tycoon; he made his wealth by being employed in the Saudi Arabian royal family. However, this plan was only established one year after the end of the war in 1991. Indeed, Hariri was one of the involved people in creating the Taif Agreement. Furthermore, the envisioned plan for BCD was comparable to the Gulf barren deserts, an area that has no valuable history or ancestors, and aimed to build massive high towers on the wreckage of the previous downtown. In 1992, a conference was held in London where many Lebanese and other International

specialists urged not to introduce privatization on the reconstruction plan (ILYÉS, 2015). The reason behind their opinion was that the rebuilding process should concern reforming the institutions and rebuilding the trust of the inhabitants with their government, which will reattach the society back together. In addition, they mentioned that rebuilding the BCD should be connected to the reconstruction process of the whole city and should gather all ethnic, religious, and class groups as well as, if the development process is in a private/public sector, fixed measurements should be placed by the government to guarantee that there would not be any manipulation or any control over any public interests. However, the plan of Dar Al-Handasah overlooked the last recommendations, and it aimed to create a real estate company that is public-private, which will have the primary lead for all the reconstruction and demolishing process in the downtown, and to build two massive towers that are comparable with the New York's World Trade Centre buildings. The plan also included forming three-wide roads that link the downtown with the sea. Between these roads, apartments and marinas will be constructed. Hariri fully financed this project, and became the prime minister in the first government after the war. Indeed, the public support was weakened from this project along with several interests' disagreements. In 1992, there was tremendous pressure to move forward with the rebuilding to keep the political stability from the Taif Agreement. This settlement had covered much intense tension within the Lebanese communities by adjusting the political power division; less power to the Maronite Christians and more power for Shias and Sunnis. Overall, the only available way the Lebanese government could reconstruct the BCD and reattach the political split is by almost a complete privatization of the project. Especially since the International financial support from Western Europe and the United States was transferred to rebuild the former Soviet empire (Kabbani, 2015).

3-3-2 Reconstruction and preparation of plans- SOLIDER project

The SOLIDER is the French shortcut for Société Libanaise pour le Développerent et la Reconstruction de Beyrouth. The project was created in 1994. It was only possible to be made when the law changed in 1977 and approved on establishing a company responsible for the city center reconstruction process. The project did not impress many Lebanese lawyers; they mentioned that SOLIDER methodology in exchanging the city center lands for a share in their project is against the constitution. In addition, the Lebanese banks lacked transparency in its system, and the future of the city center could be under the authority of any investor, who will have the free will to control this area, instead of reforming the essential infrastructure and the main rebuilding processes. In other words, when SOLIDER was created, it did not concern the public interest problems or needs. This project was responsible for rebuilding a land of 180 hectares, which is two principal lands; the Waterfront District, a new modern city that includes high buildings and greenery areas, and the Traditional City Centre, which should preserve a number of the old historical constructions (ILYÉS, 2015).

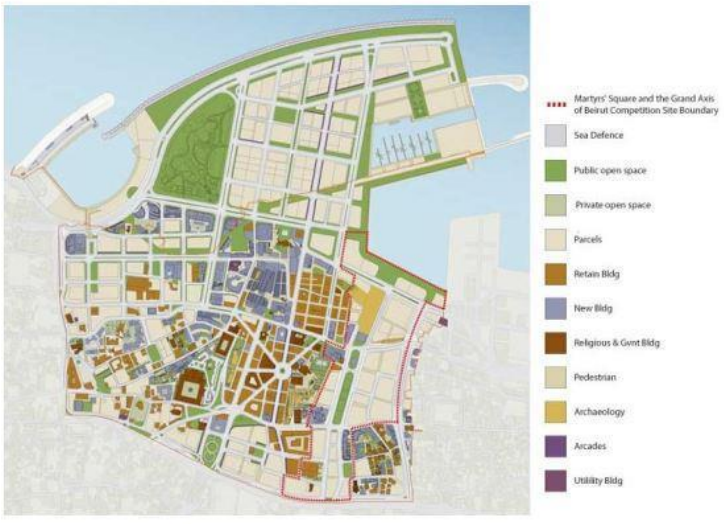


Figure 38: Master Plan of Beirut Central District. Source: Roupé M. Johansson M. Date:2004.

The latter area was split into ten sectors; each one contains specific conditions to be followed, two of them in the Waterfront District and the other in the Traditional City Center. The damage assessment calculations began in 1995 by SOLIDER. Also, by that time, they analyzed which buildings should be preserved by a specific committee responsible for classifying the structures based on their historical and cultural value. Defining the valuable structures that need to be kept caused some disagreements in what to keep and what should be eliminated. Many valuable buildings were constructed in the 1940s-1960s. In addition, there were modernist structures that were considered the best in the Middle East. However, not all of them could be preserved; it was specified based on its level of distraction. Furthermore, some construction elements were in good condition, such as iron, wood, stones, and they were reused in rebuilding the facades to create a link with the past structures. Based on the master plan, the salvageable structures in the BCD were 292, in which 27 of them were mosques, churches, and one synagogue, in addition to public facilities such as the Lebanese Parliament, the Central Post Office, the Grand Serail, and Beirut Municipality (The Chronicle, 2012). In 1995, around 30 percent of real owners maintained their real estate in the SOLIDER area, and about 114 structures were kept under the ownership of SOLIDER. Most of the property right holders were allowed to rebuild their holdings. However, they had to follow the preservation laws that had been set by SOLIDER. These rules were obliging, high in price, and had a fixed schedule for the rebuilding process. Indeed, this project designed an urban plan with technical specifications for the reconstruction process for both structures; the company's restored buildings and those owned by others (Becherer, 2005). Some of the rules for most buildings were: First, the restoration of the exterior walls should be similar to their post-war state; if the previous materials were still available, they should be reused. Second, any construction or design elements such as wooden doors, windows, granite curbstones, ornamental ceramic tiles from the destructed, no-preserved buildings should be used in other salvageable structures. Third, any reconstruction process should follow the fire and safety arrangements and implement passages for the disabled. Fourth, the interior space and the entrances are

restored in a more modern way, adding a highly refined and contemporary sensation that is different from the pre-war statues. Fifth, all the responsible developers should consider specific safety standards regarding the earthquake vulnerability; each sector in the BCD had a particular density, which defines the heights and the road frontage (The Chronicle, 2012). After twenty-one years from establishing the SOLIDER project, there were several achievements, such as removing the noxious dump of garbage and wreckage beside the coast, and it was displaced with a shielding sea wall and a new disposal area. An enhanced infrastructure for the 3.8-kilometer ring-road that distributes movement throughout the city center. The expanded downtown area on the reclaimed lands was designed as a developed marina and park. The old destroyed souks were replaced with a massive shopping area called Beirut Souks, which transformed the environment of retail space in the central area. The main area is provided with 2,500 parking zones, including underground parking. During the planning process, Beirut hired a group of famous international architects to add their style to the city, such as Renzo Piano, who was responsible for the development of the Pinwheel, which is a neighborhood located between the old city center and the new area in the port. In regard to Zaha Hadid, who designed a section from the Beirut Souks Mall, a five-story department store. Also, the British architect Norman Foster, who created three high towers with different heights for the resident's privacy. Steven Holl designed the yacht club in Zaituna Bay. The 119-meter tall tower is called Beirut terraces by Herzog and de Meuron. Beirut Souks was created by Rafael Moneo, who wanted to recreate the ancient city but with a modern touch (ILYÉS, 2015). Furthermore, the General Legal Counselor of SOLIDERE Ghaleb Mahmassani (2012), in an interview on Structuring the Legal Framework of SOLIDERE stated that:

> "Beirut city center was considered of prime importance in repositioning Lebanon on the world map. The city center represented the economic heart of the country and the focus of coexistence and interaction between the various religious communities of the country. Lebanon and its people

needed to move beyond warfare and its inter-communal strife, and the city center was the best place to have that happen." (P.64)

However, this vision was not similar to many criticizers' opinions; for them, this project failed to reattach the Lebanese people. It was an urban planning mess and a financial catastrophe. It was a post-war failure period, and there were many disagreements, chaos, and disintegration. The failures were from both the practices of the Lebanese businesses and politics and the determinations that the company did. The political environment played an essential role in reconstruction decisions; in many cases, it was beyond SOLIDER control since it depends on investor trust. For example, when Prime Minister Rafik Hariri was assassinated in 2005 was a significant tragedy, specifically for Beirut, since he was the primary sponsor for SOLIDER. Also, after this tragic event, many deep conflicts and divisions appeared in the society.

Furthermore, the Prime Minister was murdered in a car bomb in the downtown area, which means this place was no longer a safe zone. This was followed by the "Cedar Revolution" that took place in the BCD areas. The latter factors made the Gulf investors lose trust in the SOLIDER project since public interests are linked with politics, making it a non-stable place to make investments. In addition, after one year, a conflict between the Lebanese and Israel resulted in a considerable number of Lebanese immigrants out of their country. This was followed by the 2008 economic shocks that affected the region, resulting in the withdrawal of the Gulf money to Dubai and other areas to cover the damages. In addition, in 2011, the Syrian conflict costed a drop in oil prices, resulting in a decline in tourism and investments. In addition, the prices maintained high for the Lebanese since their currency is fixed to the dollar. In such circumstances, the reconstruction projects that SOLIDER created could not be flourished. In addition, the political practices and the religious/ sectarian divisions that generate communal conflicts make any trials for public engagement in the rebuilding process extremely complicated and time-consuming. SOLIDER project was capable of reconstructing the city center with highly finished details and measurements. However, the main goal of regathering the Lebanese people in this center was not achieved. The streets

are empty and almost deserted; the person could only see the security guard and lone shop assistants in the luxury stores. The area becomes only for international visitors and wealthy people since the rents and the goods are extremely expensive for most Lebanese people. Specialists who worked in Beirut confirmed their disappointment in this project. Omar Hallaj, an architect and development consultant in Beirut, mentioned that SOLIDER spent 70 billion dollars on designing empty buildings and apartments in the area that are supposed to represent Lebanese history and identity. Instead, it was reconstructed for the wealthy high-class people who could afford to invest or buy these real estate, primarily international investors, particularly in the Gulf region (ILYÉS, 2015). The SOLIDER methodology did not aim to rebuild the BCD as it was in its post-war state; instead, it demolished many recoverable buildings to construct modern towers (Wainright, 2015). Indeed, about two-thirds out of 800 damaged structures were removed; some buildings were demolished due to political purposes, others were located in the Jewish neighborhood, and ones dating back to the ottoman rules and the old souk. This destruction strategy coasted Beirut the loss of 80 percent of its architectural heritage. When SOLIDER company established the new BCD, they did aim to link these new modern constructions with the broader city of Beirut. There is a considerable physical contrast between these two areas, such as the cobblestones, signage, even the internet speed, and the lack of any public transportation that directly links to the BCD. In other words, the heart of the city was separated from its surroundings (Lepeska, 2015).

Figure 39: Beirut Downtown, Al-Nijmeh square. Source:AAfap. Date: 2008

Chapter Four: Disasters and Reconstruction in Aleppo-Syria

4-1 About Aleppo (location and history)

Aleppo, the current Arabic name is "*Halab*," is the industrial capital and the second-largest city in the Syrian Arab Republic. The city is located in the northwestern part of the state. In the north, the city shares the border with the Turkish state. The town was built on a plateau known as the Aleppo Plateau (Al-Halayqa, 2015). According to the administrative division, the province of Aleppo is divided into eight regions (Figure 40). In addition to its important industrial center, it's also famous for its commercial and agricultural fields, such as textiles garments, silk and woolen fabrics, cotton ginning, carpets, laurel soap, olive oil, and food industries (Aljazeera, 2014). The city gained its commercial importance due to its location between three continents and being on the world trade routes between East and West and the Silk Roads. This reputation was the influence that made Aleppo's name mentioned twice in the Macbeth and Othello plays for Shakespeare (Hadjar, 2000). In addition, due to its great historical value, UNESCO has classified it among the historical cities because it contains more than 150 eyes of historical monuments and from various human civilizations that the city has lived through and succeeded in ruling until today (unesco, 1986).

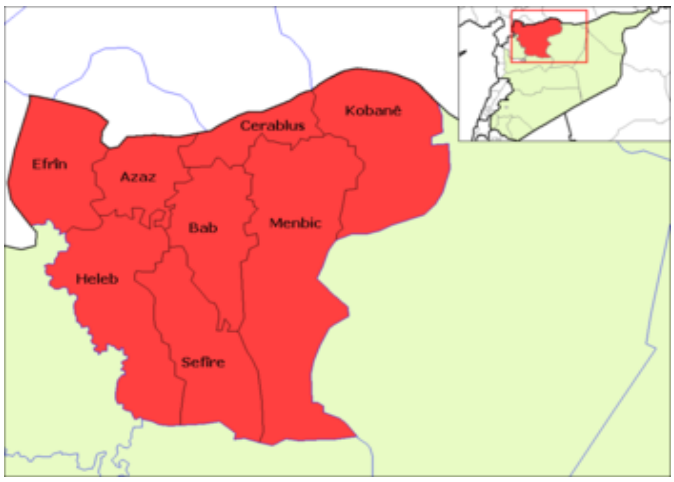


Figure 40: The eight regions of Aleppo. Source:marefa.org.

Aleppo is one of the oldest inhabited cities in history, dating back about seven thousand years ago. During its ancient and contemporary history, the city has functioned as a crossroad of civilizations. The first surviving proofs of the settlement were found in the "Caves of Aleppo," these traces were from the dawn of history, the stone ages. Aleppo was first introduced in the tablets of Tell Mardikh and Ebla (2250 BC). Furthermore. *Halab* was also mentioned with this name in the cuneiform tablets of Tell Hariri and Mari. During the first half of the second millennium BC, the city was the capital of the Yamhad Kingdom. By that time, it built robust trade routes with Euphrates cities. In 1600 BC, the Hittites ruled over the city; Hittite hieroglyphic engraving was discovered on the wall of al-Oigan Mosque in the 'Aqaba quarter in Aleppo. It mentioned the names of the Hittite kings Telepinu and Talm Sharruma. In the subsequent period, the Aramaic culture grew in most of the Syrian cities and Mesopotamia. Following the Aramaic, there was Assyrian State, which collapsed in 612 BC against the Babylonians, then in 539 BC, Aleppo became a Persian province under the rule of the Achaemenid Persians. Furthermore, in 333 BC, Seleucus I Nicator established the Seleucid dynasty in Syria and Iraq. In 81 BC, Syria became a Roman province, and it was called "Beroea" during the Roman and Byzantine periods. The remains of Byzantine architecture were still apparent in the Halawiya school columns. The school dates back to the 5th century. In 624 AD, Aleppo gates were peacefully opened for the Arab Moslems who accessed it in 16 AH/637 AD through the Gate of Antioch. The city flourished under the rule of the Umayyads in 30 AH/651 AD. In 132 AH/750 AD, it was ruled by the Abbasids. Afterward, in 333-393 AH/944-1003 AD, the Hamdanid dynasty controlled Aleppo, where a well-known leader is still appreciated called seif al-Dawla; he was known for his passion for literature and art. Then in 406 AH/1015 AD, the Fatimids ruled Aleppo, followed by the Mirdasids, the Bani Aqil dynasty, the Seljuks, and Ourtoukids. Furthermore, in 582 AH/1186 AD, the city was under the rule of Al-Zaher Ghazi, who started considerable construction work in the city, such as mosques and schools. Also, he reinforced the citadel. The city was pillaged and burnt twice, first on the hands of the Mongols, second on the hands of Tamerlaine in 804 AH/1401AD. The city was restored in 1516 AD by the

Mamluk Sultan al-Mu'ayyad Sheikh. After the Mamluks came, the Ottomans and the city were kept under their rule until 1831, the Governor of Egypt took the town. However, the Ottomans re-ruled the city in 1840 due to the Awkaf system. In this period, the religious and civil constructions grew, such as consulates of western countries, the arrival of French, English, and Dutch business to Aleppo. The city became under the French Mandate in 1920 after WWI and regained its independence on 17 April 1946. Overall, these civilizations left their signatures on every perspective of the city. Aleppo has witnessed many conflicts, either manmade (successive wars) or natural (earthquakes). Every corner contains history inherited by the ancestors who left behind many valuable achievements and structures, such as mosques, Churches, the citadel, hospitals, schools, public baths, and fountains (Hadjar, 2000).

One of the most important and distinguished monuments is The Citadel of Aleppo; its history is integrated with the city's history. An oval-shaped citadel located in the center of Aleppo, in an area 38 m higher than the rest of the city, shaped an acropolis to the town. The fort is surrounded by a 22 m deep and 30 m wide moat, which was loaded with water. There were no deep excavations to unearth its ancient history. However, a Hittite temple was discovered there that dates back to the 9th century BC. In addition, the citadel's towers and ramparts are in the style of the typical Arabian, which goes back to the 13th and 16th centuries. The fortress was renovated and restored several times throughout history, especially in 1139 and 1157 AD, when two major earthquakes hit the city and turned a considerable number of its buildings into the wreckage (Figure 41) (Hadjar, 2000).

Figure 41: The citadel of Aleppo, a part from unfinished painting by Albert Poche (1842-1929). Source: Abdallah Hdjar. Date: 2000.

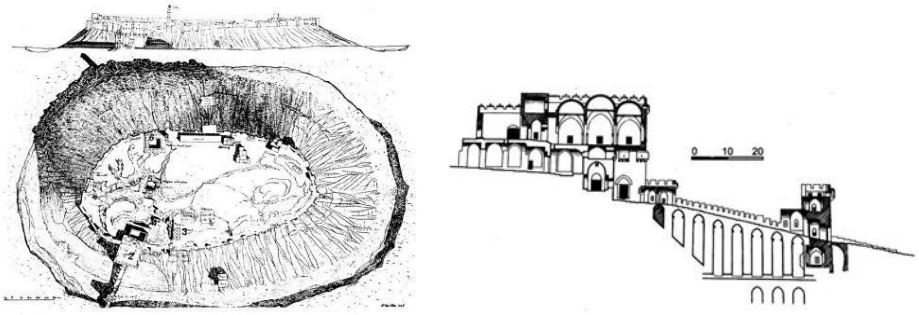


Figure 42: Plan and cross-section of the Citadel of Aleppo. Source: Harzfeld

Aleppo was characterized by the presence of a fenced wall surrounding it from all sides; it was made to ensure protection for the city during wars. The wall was established in the Ayyubid period; its shape and size transformed during the chronological ages that passed through Aleppo, such as building new walls, doors, and towers. In addition, some parts were destroyed due to the expansion of the city. This wall used to have fifteen gates, some of which disappeared in the past; only five gates were left: *Bab Antaki, Bab Qansreen, Bab al-Hadid, Bab al-Nasr, Bab al-Maqam*. These doors are a source of connection of the city's past with its present (Figure 43).

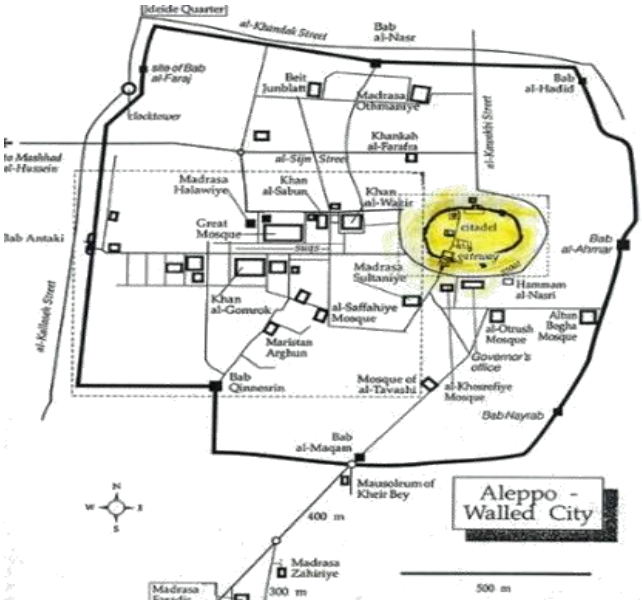


Figure 43: Citadel of Aleppo. Source: galenfrysinger.com

The first municipality in Aleppo was built in the European style in 1868. In fact, there was a significant architectural influence by the European style. In other words, the courtyard disappeared from the houses, and the openings were located on the street façade instead of the interior open space. As well as, the structures were built in the form of two floors instead of one. By that time, there was no actual plan drawn for the city of Aleppo. The latter was the first responsibility for the new municipality to create and organize the urban plan and determine which urban system to follow. In 1882, the German engineer Yung was hired by the Ottoman government to make the first organizational plan for Aleppo and to develop the new city's neighborhoods in the west area (Figure 44). The plan followed the European way of wide streets and chess layout. Indeed, The *Bab-Al Faraj* zone linked the commercial area (the markets) and the new residential areas in the north and west. Additionally, The *Bustan Kol Aap* zone became a center for trade offices, banks, and hotels. In 1890, the clock tower was established in *BaB Al-Faraj*; this area connects the new areas and the old city. In 1906 The Sham station was built, followed by the Baghdad station in 1912.

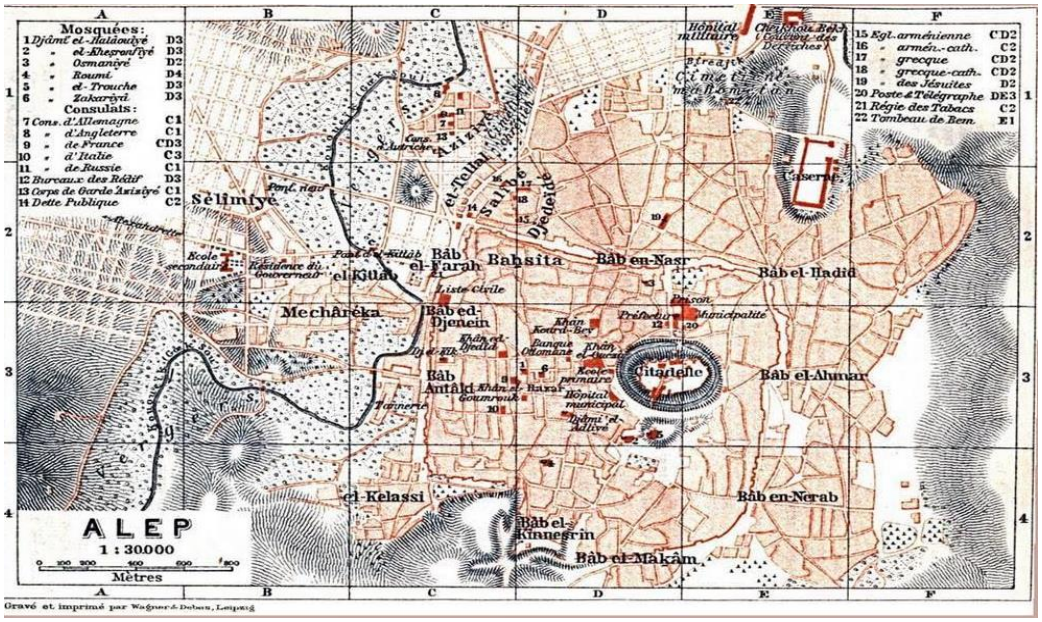


Figure 44: First organizational plan for Aleppo 1912, Source: The Palestine and Syria Handbook by Baedeker, 5th edition.

Furthermore, in 1931, after the French mandate controlled Aleppo, the Municipality of Aleppo hired the researcher John Sauvaget to calculate and document the important Islamic monuments in the city. In addition, he created six plans that show the development of the city-based during six periods (Figure 45). The following plans show how Aleppo developed and expanded during the classical periods first, then the Arab-Islamic periods, which came after. In addition, it shows how the wall was modified and the urban monuments that were kept during these periods. For example, it shows the dominant urban layout for the city during the Seleucid rule was also the chess layout (Hippodamus layout). The dwelling areas were located around the citadel, inside square-shaped walls that limited the housing inside. In addition to the direct street "via recta" connects *Bab Antaki* in the western wall and the west of the citadel. Besides this street, the temple and the agora (the public market) were located. The dwelling blocks were distributed in parallel and perpendicular to this street from both sides. It also presents The Umayyad Mosque that was built in the 13th century, and *Al-Halawiyya* Madrasa that used to be a great Byzantine cathedral, and the transformation of the straight street and its surroundings into the city's markets and its industrial and commercial center. Then in the Ayyubid period, from the 13th to 15th century, where the city witnessed significant urban development inside and outside of the fenced walls, such as strengthening the wall, fortifying the castle, and building schools, Khans, and mosques. The city's expansion during the Ayyubid and Mamluk periods resulted in a conversion in the orientation of the streets from the chess layout to an angle of 23 and 32 degrees Celsius clockwise, which also resulted in the inclination of the citadel entrance.

Furthermore, in the 16th to 17th century, Aleppo was ruled by the Ottomans. The city also expanded during their period, and the trading prospered, which assisted in revitalizing the urban movement; new schools, mosques, shops, khans, and public baths (*Hammam*). The residential areas were expanded in the eastern suburb. The northern suburb, called "*Al-Jadida*," was inhabited mainly by Christians, where their traditional churches and homes (Liwān House) were located. However, urban planning also expanded to southern and western suburbs after the massive earthquake in 1822 that tore down two-thirds of Aleppo

and killed 20,000 of its inhabitants. In 1860 AD, the *Aziziyah* neighborhood (*Jabal al-Nahr*) was established; it was the first time the city roads took a straight and regular shape. In 1882, the city expanded to the west and established the "*Al-Jamiliya*" neighborhood. In 1887 "*Al-Hamidiyah*" and "*Al-Jabriya*" neighborhoods were established, and in the following year, the "*Sulaimaniyah*" neighborhood. After which, there was an appearance of a modern city center to the west of *Bab Al-Faraj* in the "*Kol August*" orchard, up to Baron Street. Appealing houses with ornate façade were constructed in *Al-Khandaq* Street, *Al-Aziziya*, *Al-Jamila* neighborhoods during the French Mandate period (1920-1946).

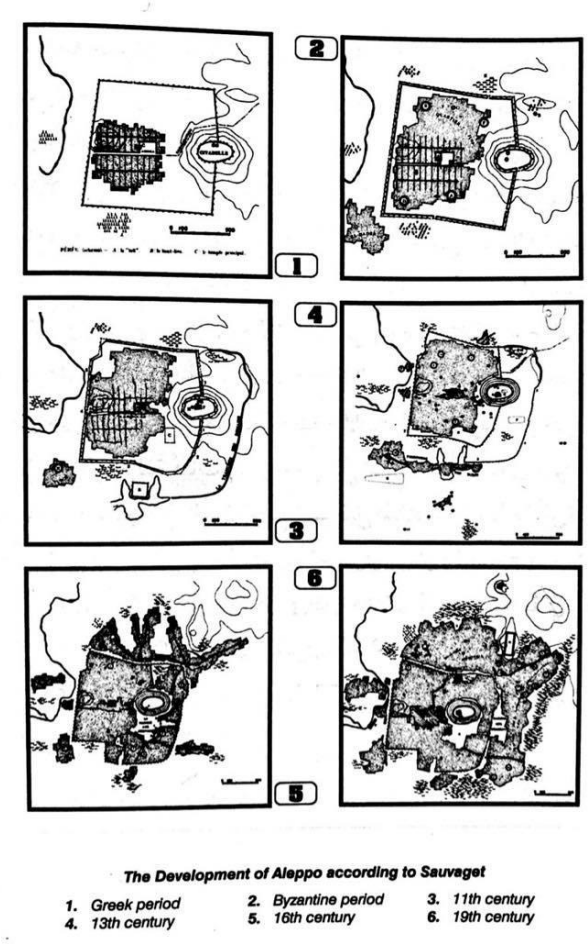


Figure 45:The development of Aleppo according to Sauvaget. Source: Abdallah Hadjar.Date:2000

Following Yung's organizational plan for Aleppo came the Ekochar and Dange plan in 1936, the Gotun plan in 1954, and the Benchoya plan in 1974. However, the latter plan noted intersected streets that destroyed the urban fabric, as well the creation of the Bab Al-Faraj project that approved on high layers of constructions. These factors made UNESCO and the expert Stefano Bianca write two reports in 1979 and 1980 to protect the old city and reform the Bab Al-Faraj project to be similar to the ancient city structures. Following these events, the Ministry of Culture formed The Committee for Protecting Old Aleppo in 1978. In addition to the International Symposium for the Protection of Old Aleppo that was held 1983, that resulted in recommendations such as the replacement of high layers of the Bab Al-Faraj project to different plans that is consistent with the urban fabric of the old city and does not exceed the three floors high. In addition to removing the intersecting streets that were previously mentioned. By the end of 1986, UNESCO registered the old city of Aleppo as a world heritage in danger and established a committee for protecting the heritage and the Old City Office(Figure 46).

Figure 46: Banshoya.s Master Plan for the city of Aleppo. Source: Banshoya ,G. and David,J-C.Date:1973.

The total area of the old city is 355 hectares (185 hectares within the walls, and 170 hectares of the northern neighborhood, Benkossa the eastern suburb, and Al Basha) (Figure 47). The old city used to contain 10,000 housing properties; only 60% of them were citizens. However, the rest of the properties were converted into warehouses and small and often harmful industrial workshops.

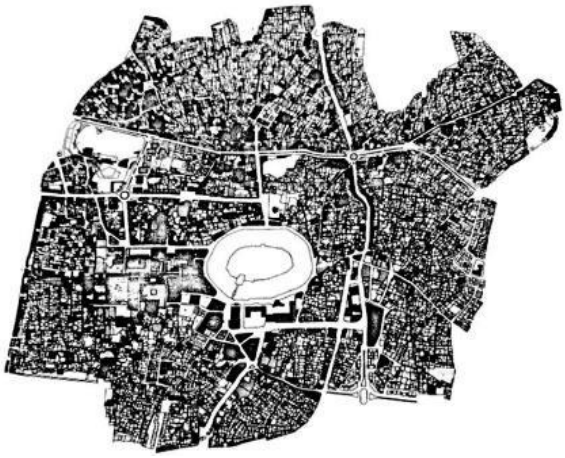


Figure 47: plan of the historical city of Aleppo, inside and outside the old city walls.Source: GTZ.

In 1992, the Ministry of Housing and Utilities authorized a particular temporary urban system defined for this old city. In this system, restoration work is the only process allowed under specific conditions. As well, the reconstruction within a height of / 8 / m and two floors only and to preserve and respect the property courtyard. In other words, any process within this area should be presented to a specific committee that either accepts or rejects it. After which, in 1993, a project called “Revitalizing Old Aleppo'' was implemented and funded by the German Aid Agency and the Kuwaiti Social Development Bank, that worked on documenting and creating cadastral and social studies of buildings and population, in addition to the traffic, land use and infrastructure in the old city. The initial project was the typical reforming process starting with the infrastructure in the Bab Qansreen neighborhood. In 2007, the Minister of Local Administration and Environment issued the permanent building control system in the old city after 15

years from the issuance of the temporary system. The latter paralyzed the urban movement of the old town because it directed all the urban matters to the Committee for the Protection of Old Aleppo. By that time, Aleppo was protected from the unconscious builders who didn't value the cultural heritage and the city's living and homogeneous fabric (Hadjar, 2000). The Aleppean Engineer Abdalla Hadjar mentioned that (2000):

> "Now, after more than ten years have passed since the start of the Old Aleppo Revival Project, the Aleppan citizen, who lives in the old city and visits it from time to time, has sensed the qualitative development that took place in the areas of the neighborhoods that were treated in Bab Qansreen, Al-Jadida, Al-Qusaylah, and others." (p.23)

One of the projects made to rehabilitate and develop the heritage was the Aleppo Citadel Perimeter project. The project idea began in 1999 with The Aga Khan Trust for Culture(AKTC) and the Directorate General of Antiquities and Museums of Syria (DGAM). Their goal was to conserve all the Syrian citadels. Aleppo citadel was one of these projects, the funders reviewed and carried out this project from 2004 to 2010 (UNITAR and UNESCO, 2018) (Figure 48).

Figure 48: Aleppo Citadel Perimeter Project. Source: AKTC.Date:2003.

However, within this broad context and the tremendous efforts to develop and preserve the urban heritage that Aleppo had all vanished when the Syrian war started in March 2011 between the Syrian government and insurgents who were against it, which affected all the Syrian cities with different damage portions. As for Aleppo, the city that has witnessed many wars throughout history relived a crucial battle within its walls from 2012 to 2016. The war in Aleppo started with some protests, then by the beginning of 2012, insurgents dominated the rural areas in the northwest part of the city. The conflict escalated with the primal weapon shots in July 2012, where the conflict was located in the old town and cost a massively damaged heritage-covered market. In addition, the insurgents could take control of some eastern territories. In 2013, insurgents cut the highway that connects Aleppo with the capital Damascus, resulting in a total siege on the western sector controlled by the government. Still, the latter could return it and regain control.

Furthermore, in April 2013, an archaeological disaster befell when a fierce struggle collapsed the 1,000-years-old minaret of The Great Umayyad Mosque. The conflict continued to emerge until February 2016, when the government could control the direct link between Turkey and the east where the insurgents were located. They could also stop the siege that was in the northwest sectors. By the 27th of July, the government could surround the eastern part of Aleppo, and the fighting continued between the two parts to control the whole city. Many hospitals, facilities, and infrastructure were damaged after the intense bombardment. By December, almost the entire town was re-controlled by the government. The insurgents were transferred after the ceasefire agreement to Idlib city located southwest of Aleppo, and it is under their control (Reuters, 2016). In January 2017, the city became partially accessible, and UNESCO could enter and do an emergency assessment. By March, the UNESCO, in coordination with Syrian institutions, held the first international coordination gathering; it has concurred that UNESCO is responsible for producing the recovery structure of all culture-related recovery in Aleppo. The damage following assessment calculations was made by the available commercial satellites; it was only in specific

boundary sites, where the world heritage site of the old city is located (UNITAR and UNESCO, 2018) (Figure 49).

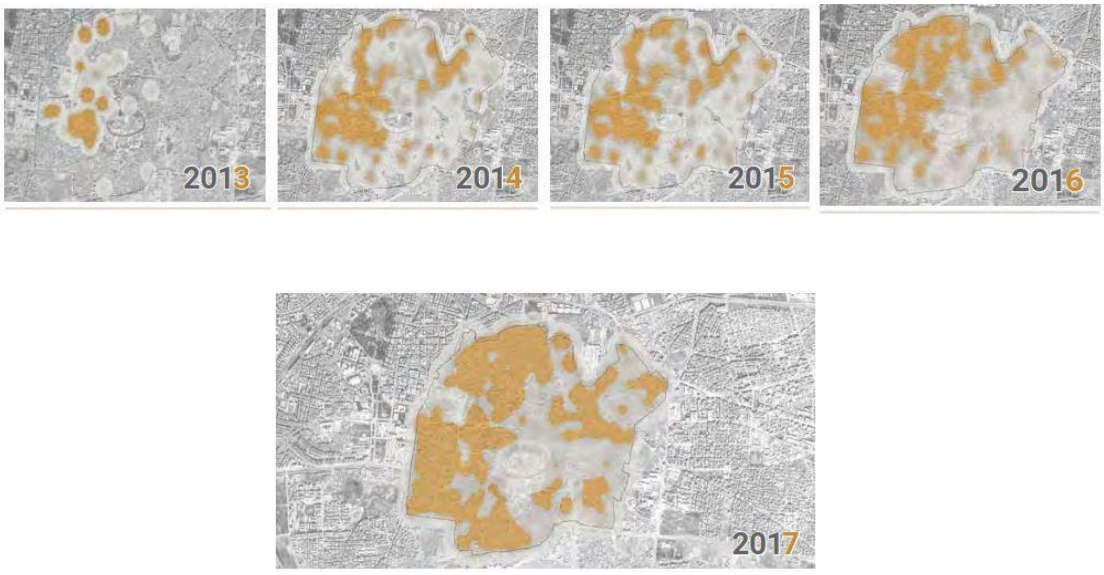


Figure 49: Five years of destruction overview(2013-2017). Source: UNITAR-UNESCO.Date: 2018.

Since 2013, UNESCO has published one report each year about the state of conservation in the ancient city of Aleppo. In 2013, the report mentioned that the city had faced one of the most critical wars due to explosions, bombardments, and fires that caused significant damage. A considerable number of historical monuments were destroyed such as the Aleppo citadel that was damaged from a line of fire, the 17th-century market, which was burnt and destroyed in September 2012. As well as the extensive damage in the 12th century Umayyad mosque that is located nearby the historical covered market. During the conflict years, many inhabitants were forced to leave their houses for safety reasons and because many fighters occupied their spaces. In 2014, the armed conflict escalated, and the citadel was used for military purposes. The report stated that around 121 historical structures were severe. The Great Umayyad Mosque 11th century minaret collapsed. Many sites have been robbed, such as the wooden *Minbar* in the Great Umayyad Mosque, artifacts from the Aleppo museum and the Museum of Popular Traditions (*Beit*

Ashiq-bash), decorative elements from the historic house *Beit Ghazaleh*, as well as unauthorized excavation and looting at archaeological sites. The *Waqifiyya* Library was wholly burnt, and all its valuable data was gone. The remains of the historic wall that surrounded the city were damaged, and some of its valuable gates such as *Bab al-Nasr, Bab Qinnasrin, Bab al-Hadid and, Bab Antakya*. The significant structures with Islamic architecture were also destroyed, including *Khan al-Saboun, Khan Al-Wazeer, Hammam Bab al-Hadid*, and *Hammam al-Sarraj*. In March, the European Union sponsored a project called "Emergency Safeguarding of Syrian Cultural Heritage '' in cooperation with ICCROM and ICOMOS to guard by raising awareness of the movable and built heritage. In addition, the DGAM in Aleppo could enter the Museum of Folk Arts (*Atchiqbach* House), they archived all the available data in digital form. In 2015, the crucial conflicts and explosions continued and affected the north zone where residential dwellings are located in the old town. The latter damaged areas are; *Bustan al-Qasr district, al-Farafra district, Akyol area, al-Hamidieh district, Bab al-Neirab, al-Awamid* area, and *Qustul Harami* district. In addition to other destruction in the old market areas and other historical religious buildings (15 Mosques, 6 Madrasa, 4 Churches). The ancient city and the citadel were located in the middle of the conflict; it was the war zone. The specialists stated in the report that around 70% of its main site was in a high level of destruction, and they compared it with World War II in Warsaw and Berlin. In other words, many significant and historical monuments have vanished from the map (Unesco, 2013).

Figure 50: The destruction of Aleppo historical city-center. Source: UNESCO

4-2 The rehabilitation in the Old City of Aleppo by the Aga Khan Trust for Culture (AKTC) after the war.

The Aga Khan Trust for Culture (AKTC) is a non-profitable international development agency that concentrates on the revival of the communities in all its aspects, the cultural, physical, economic, and social. This agency has projects related to architecture, such as the Aga Khan Historic Cities Program (AKHCP). As mentioned above, the latter program focuses on the rehabilitation and improvement of the physical, historical monuments such as the Aleppo Citadel Perimeter project and implementing new projects that improve and develop the historical areas such as parks and landmarks (AKF, 2020). From October 2017 until December, the AKTC managed to create a damage assessment plan in three pilot conservation areas in the old city of Aleppo (*Citadel, Souks & Bab al-Ahmar /al-Bayyada*) (Figure 51)(AKTC, 2017). In addition, the agency held many meetings with the sponsors and project partners to define the main criteria that should be followed and to point out the priority of specific monuments that need to be studied and direct intervention.

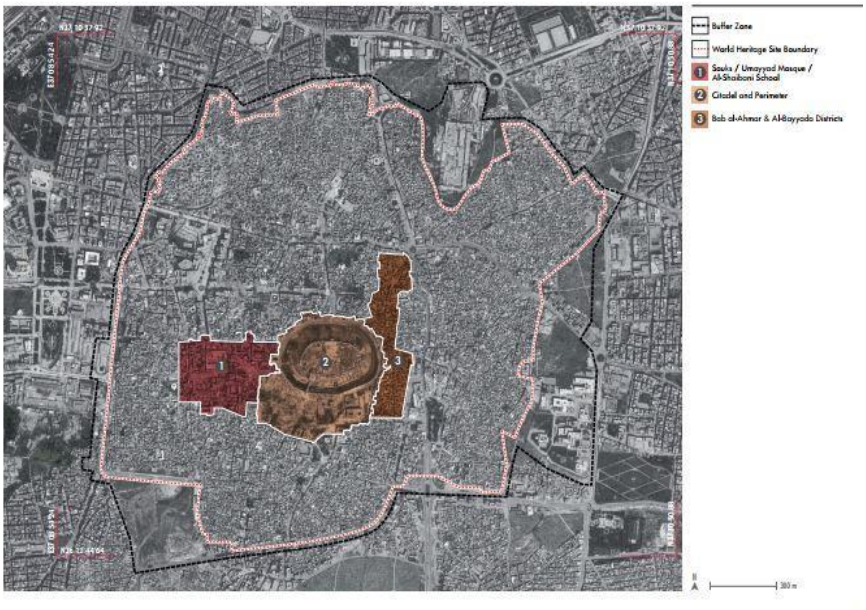
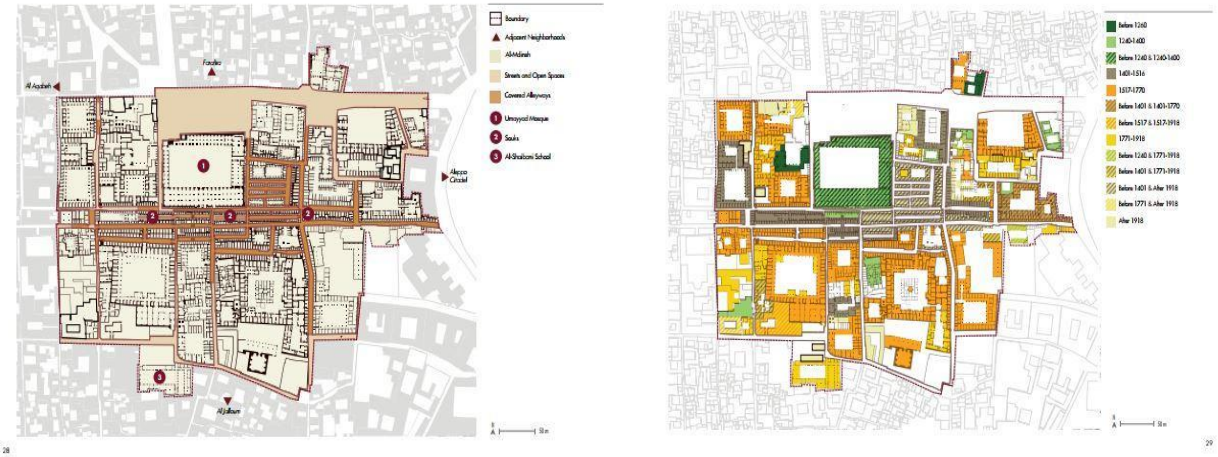


Figure 51: Map of Aleppo old city-center indicating the three conservation areas, Source: AKTC. Date:2017.

The first conservation area is the Old Souks that contains mostly covered markets and khans designed over foundations that date back between the 16th to 18th centuries when the Ottomans were under control. However, some older foundations go back to the eighth century, which is the Umayyad Mosque. The total area is around thirteen hectares, and it mainly follows an orthogonal grid system founded in the Hellenistic period, as previously mentioned. The damage assessment plan shows that about 15,000 sq. m were lost during the war. The urban fabric of the Souks was damaged with various levels of destruction. However, the southeast area nearby Citadel from the south was the most damaged. Indeed, one of the significant losses is the 45 m minaret of the Umayyad Mosque. Based on the plan analysis, it indicates that the percentage of structures that are severely destructed or lost is over forty percent. The latter buildings require either partial or complete reconstruction. The other 60 percent of the structures are either limited or partial destruction. The AKTC estimated a reconstruction cost for this area which is between USD 50.2 and USD 71.9 million based on the following plans (Figure 52).



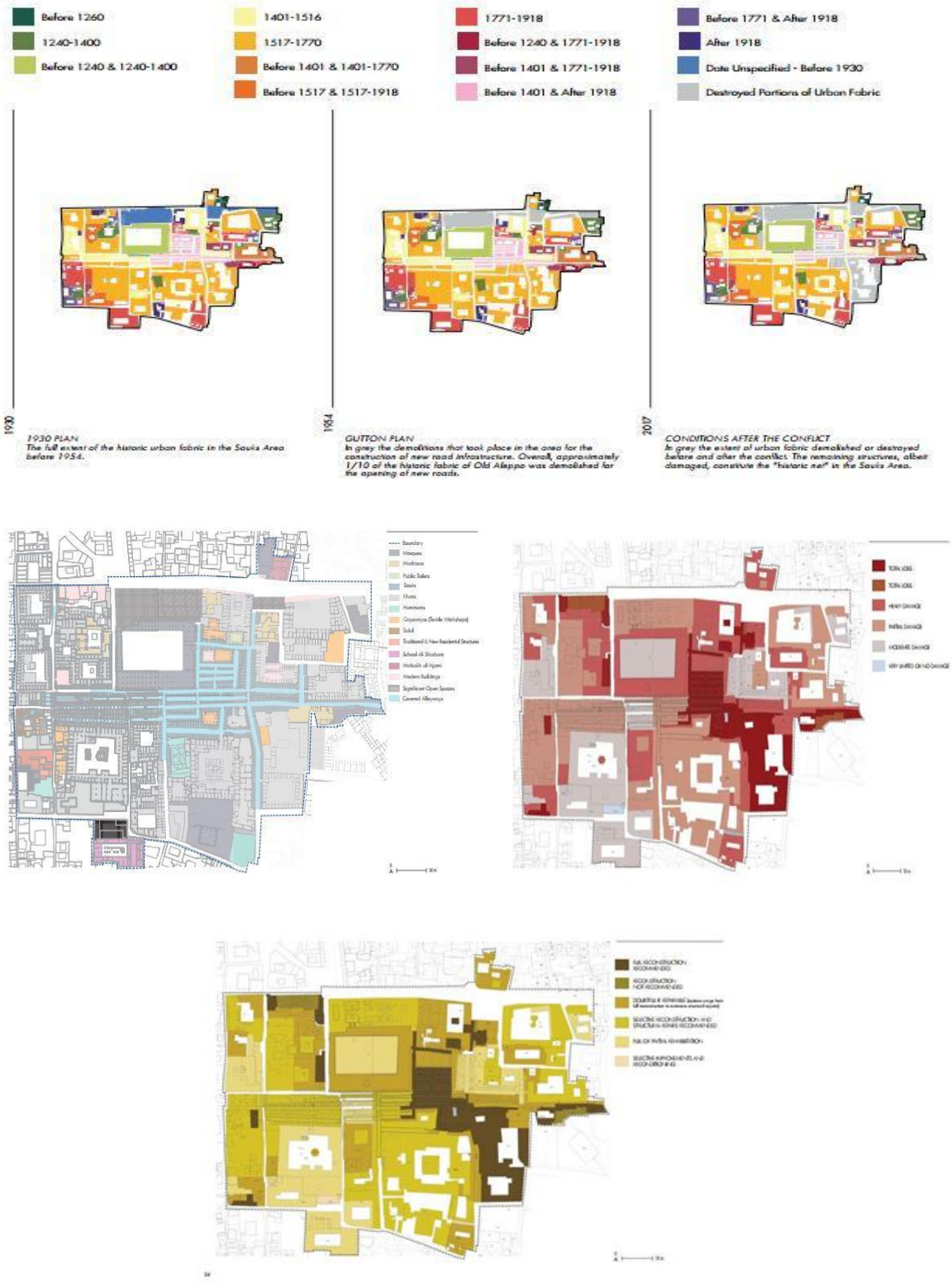
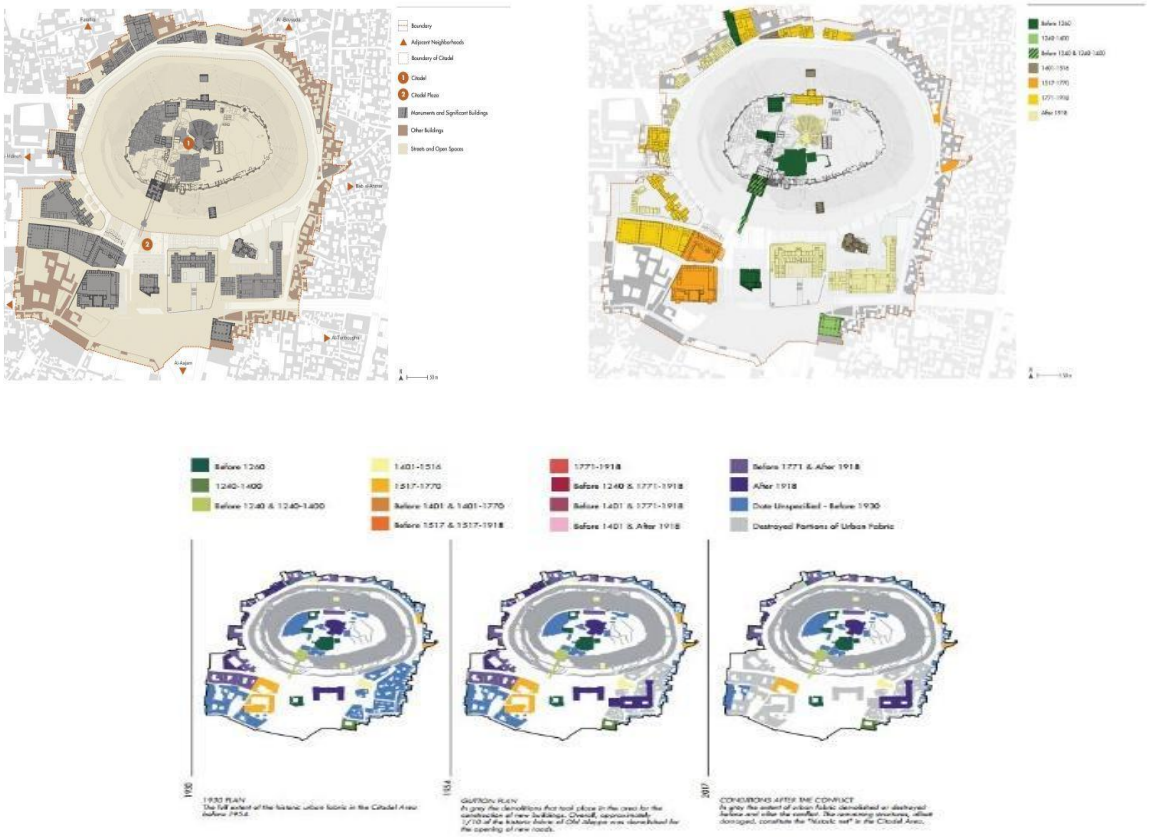


Figure 52: Plans of the historical souks in the damage assessment process .Source: AKTC. Date:2017

The second conservation area is Aleppo Citadel and the buildings surrounding it, which occupies an area of 27 hectares (Figure 53). The most apparent damages during the war were in the southeast area where the Al- Utrush Mosque and Al-Sultaniyya Madrasa are located. However, most of the interior spaces in the Citadel were not harmed during the war, only partial damages in the walls and the south towers that were directly exposed to the conflict fire attacks. The damage assessment plan shows that over 52 percent of the surrounding buildings are in total loss or severely damaged. While the other destructions were limited or partial, around 66 structures, 42 of them were dwelling structures. However, within the perimeter of the Citadel, there were no significant damages in the historic fabric, only ten structures that range from heavily destructed around one/third to moderate destructed. Depending on the available conservation materials and elements, the estimated cost for reconstruction ranges between USD 69.7 to 98.0 USD million.



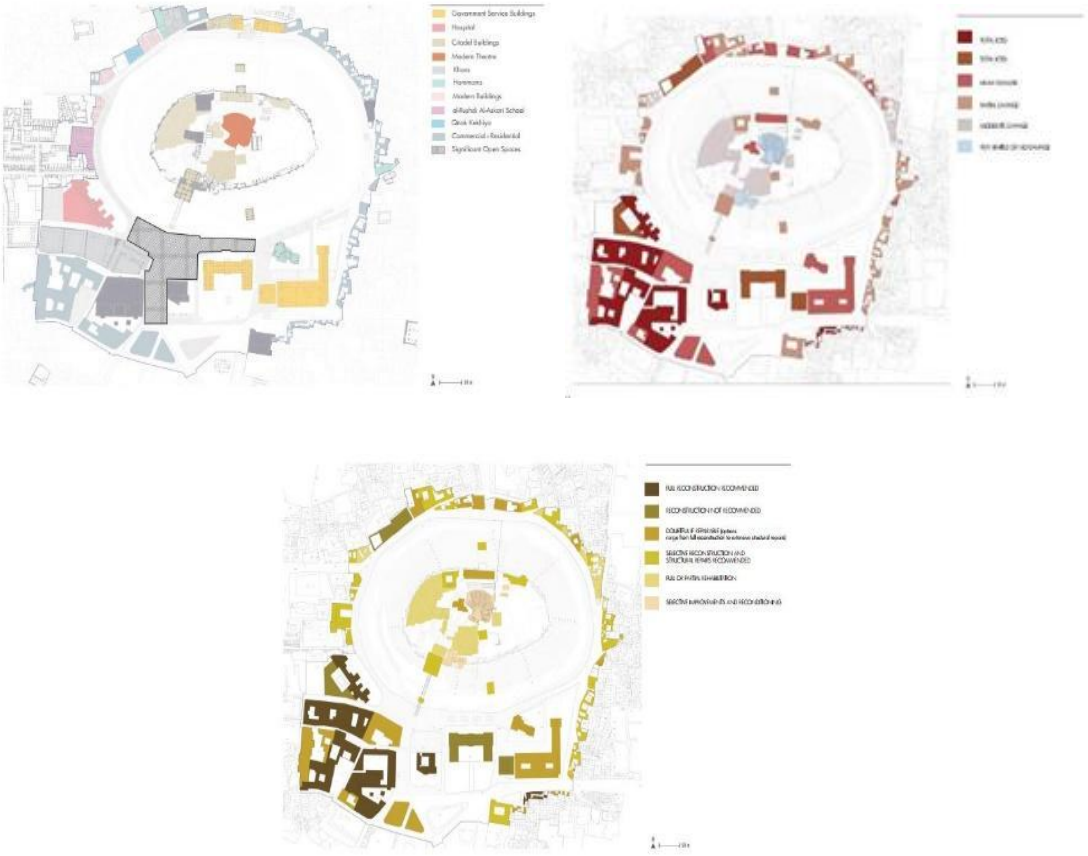


Figure 53: Plans of the citadel in the damage assessment process .Source: AKTC. Date:2017

The third conservation area is the residential districts (*Bab al-Ahmar & al-Bayyada*) (Figure 54). Both districts are located to the east of the Citadel. Both neighborhoods are used as dwelling zones and occupy an area of around ten hectares. Al-Bayyada neighborhood was the main road connecting the Madrasahs, Mosques, Hammams, and other important structures built in significant thoroughfares. In addition, it contains a chain of side streets with a width of three meters, which connects the main roads with the residential buildings. The residential units in these two neighborhoods have been changing throughout the past fifty years due to the changes in family needs; new materials and styles were added that are not similar to the old city identity. However, before the conflict, there were still traditional residential

buildings in these two neighborhoods. Indeed, the traditional dwellings are low-rise and built with stone, and have a flat roof, as previously mentioned.

Furthermore, the sizes of the house indicate the financial state of the honors. Based on the damage assessment plan and comparing with the latter conservation areas, it shows that these neighborhoods' severe damage was less than the Citadel and Souks with 20 percent. The partial damage was 21 percent, and the light or moderate destruction was 59.7 percent. Indeed, 572 out of 588 damaged structures are residential. The estimated reconstruction cost ranges between 35 million and 51.0 million USD (AKTC, 2017).

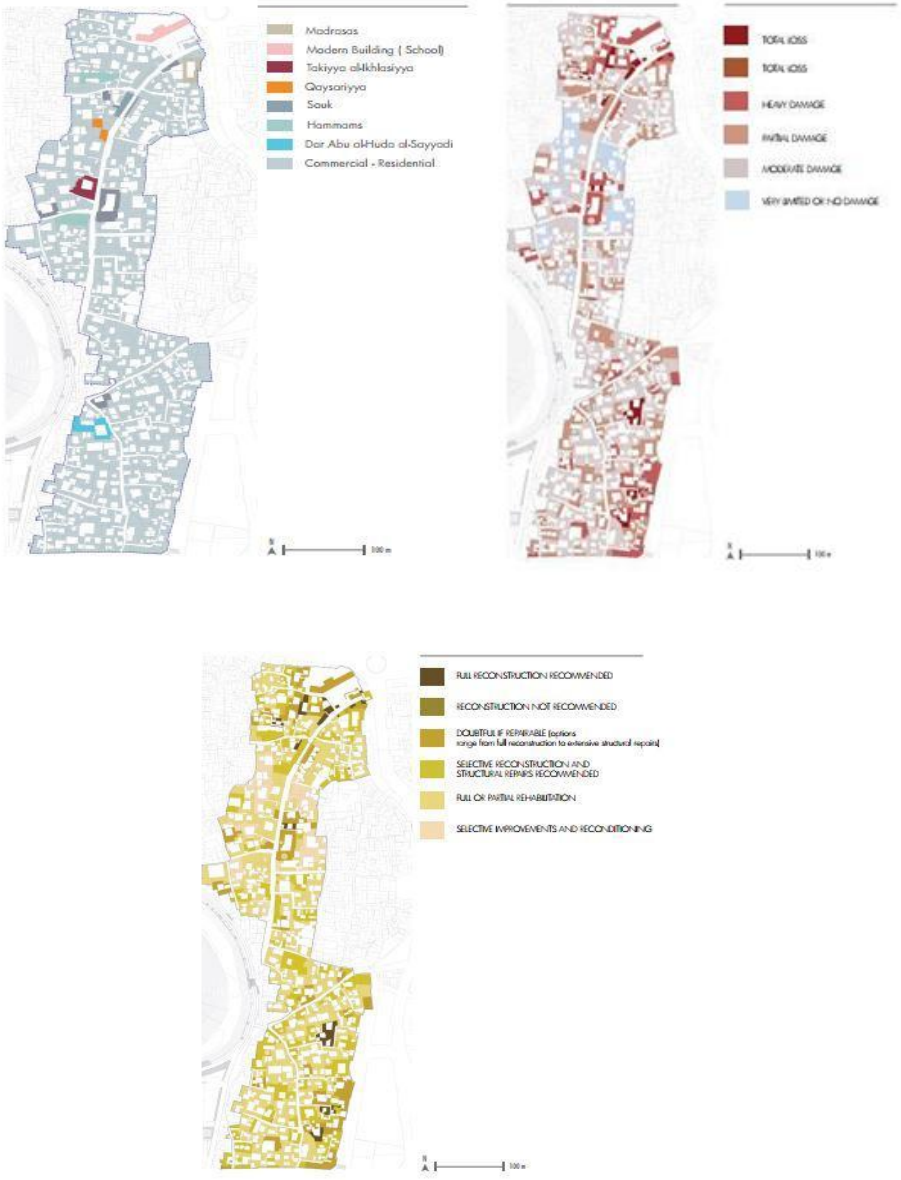


Figure 54: the residential districts (Bab al-Ahmar & al-Bayyada). Source: AKTC.Date:2017.

4-3 Post- conflict situation and the underway projects.

In December 2016, after the government re-controlled Aleppo. The above-mentioned damage assessment started, and awareness was raised for the local communities in order to avoid unsuitable interventions that may harm the heritage. In addition, the Directorate of Antiquities in Aleppo, along with the Aleppo City Council, began to remove the wreckage from the roads since around 75% of the city could not be accessed because of the building instability and mines. The removal of the debris started from the streets that led to the Great Mosque. Indeed, they sorted the ruins, collected and numbered the stones that could be reused in their specific place, especially if the stone was related to a historical monument (UNESCO, 2016) (Figure 55).

Figure 55: The historical stones, labeled and preserved for the reconstruction process in Ummayad Mosque. Source: Monia Faraj. Date:2018.

Furthermore, in 2017 when the people started going back to their city, they began rebuilding their own houses and shops without any authority for these works since there was no specific coordination and no staff to monitor. In addition, the residents reconstructed using the accessible materials different from the original one and distorted the historic urban fabric. Furthermore, due to the massive immigration since the war, there was a shortcut in labor who inherited the traditional building methods from their ancestors. Therefore, UNESCO and the AKTC held workshops related to these industries, such as “A Vocational Training Workshop in Stone Masonry Carving/Cutting,” which trained 30 builders in a practical and

theoretical seminar. However, during that time, UNESCO reported that some stones and structures collapsed every day since there were no emergency consolidation actions. The 2019 report mentioned that some reconstruction process has started since 2017. Still, it was at a slow pace because of the massive levels of damages that resulted in the wreckage and the high cost of the rebuild process, especially in the old city that requires unavailable traditional materials. Indeed, many structures collapsed in winter because of the difficult weather situation. On the other side, many ruins were removed, around 70% of the old city main roads reopened, further rehabilitation works started, and 335 permits were given, rebuilding simple reconstruction works for commercial and residential structures. The last updated report published in 2021 mentioned that the recovery process is continuing despite the difficulties in the reconstruction process.

Within this broad context, there were many rehabilitation processes underway since the end of the conflict. The Great Umayyad Mosque reconstruction process was established in December 2016 which was financed by the Republic of Chechnya in coordination with the University of Aleppo (USD 1.4 million). The AKTC and the DGAM restored two markets and one square; *Souk Al-Saqatiyya, Souk Khan Al-Harir and Al Fustuk square*(Figure 56, Figure 57, Figure 58, Figure 59). The government has reconstructed many schools located in the old city. The Ministry of Awkaf that was sponsored by International organizations has rehabilitated several mosques and churches. In addition, several conservation and rebuilding processes have been done by local NGOs in the area of Bab al Faraj and Clock tower. As well as, cultural activities and rehabilitation works that have been carried out in the Citadel (UNESCO, 2016).

Figure 56: Souk Al-Saqqatiya after the war ended. Source: EnabBaladi

Figure 57: Al Saqqatiya Souk after the reconstruction process. Source: The author. Date:2020

Figure 58: Khan-Al Harir Souk before and after the reconstruction process. Source: AKTC

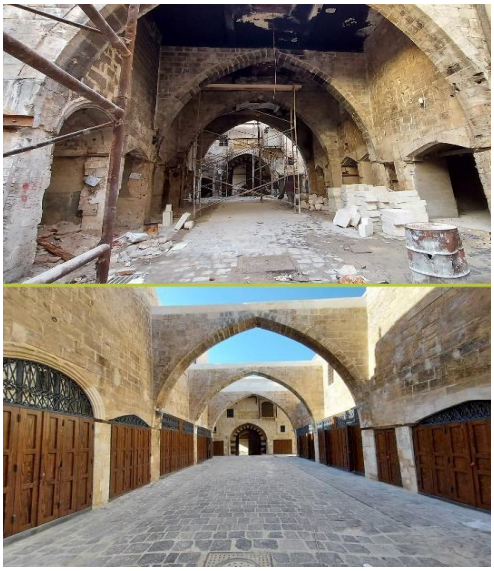


Figure 59: Al-Fustuk Square, before and after the reconstruction process. Source: AKTC

Chapter Five: The Proposed Strategy for Reconstruction in Aleppo

5-1 Strategy analysis.

5-1-1 Sarajevo and Aleppo

There are many similarities between Sarajevo and Aleppo in terms of the historic urban fabric, ethnic division, and the civil war that has happened within their lands. Both cities have lived under siege during the war, which caused a tremendous effect on the inhabitants as well as the severe destruction of the city's structures. Sarajevo's war has lasted around four years. Since it ended in 1995, the reconstruction process began, which is a living example of what the damaged city of Aleppo could benefit from in its upcoming rehabilitation process.

First, the optimal goal in the rebuilding stages was only focused on the physical terms for both entities, the local and the international sponsors. Their main concerns were establishing economic activities that could revive the city depending on local resources, which was accomplished with success in terms of material and the GDP that have grown since the war times. However, by looking at the current situation of Sarajevo, it's clear that some of the reconstruction plans of the past are now seen as obstacles even twenty-six years after the war. Such reconstructions could be avoided in the rebuilding process of Aleppo. In particular, the unemployment and refugees' problems. This indeed follows the main aspects of reconstruction after a tremendous event, to concern both human and physical needs which Sarajevo planners did not prioritize. In Aleppo, it is essential to concern the human recovery in a higher importance level than the stone. Both cities inhabitants who maintained during the war have seen much torture. They have lacked the necessary living elements such as water and food, which affects their physical health but most certainly their mental health. To avoid such problems, previous planning and organizing should concern the local inhabitants, who are an essential part of the recovery process. Their basic needs, such as finding housing and involving them in the recovery process, will give positive incomes.

Second, after Sarajevo's war was the division of the city into two zones (the Republika Srpska (RS) and the Federation of Bosnia and Herzegovina (FBiH)), which is irrelevant to the pre-war city-state. In addition, the ethnic diversity has transformed from 20% Croats, 40% Muslims, 30% Serbs, and 10%other into 84% Muslims and only 16% others (Figure 60). These primary elements are used to represent Sarajevo as the metropolitan capital with ethnic diversity. It had a reputation with tolerance and good treatment of citizens despite their ethnic origin. Even during the war, they maintained their habits, and they survived together by all means. Unfortunately, this diversity disappeared after the war, and the government, that Muslims led, took over the houses of the actual inhabitants who moved to other areas since the war, most of them were Serbs, Croats, and some Muslims. The government gave houses to Muslim refugees coming from other areas. This act is against the Dayton peace agreement, because its main goal was to ban the other ethnic parties from returning to their houses, which was established by the governments army

Consequently, many original inhabitants did not return because their houses were inhabited by other Muslims who were supported by the local entities or worked in the government's army. Therefore, Sarajevo's ethnic fabric was severely transformed through the government that applied this ethnic cleansing. Within this broad context, it is essential to concern the ethnic diversity that Aleppo had before the war. The inhabitants were similar to the Sarajevo pre-war case. This tolerance and ethnic diversity will re-attach the bond that Aleppo used to have.

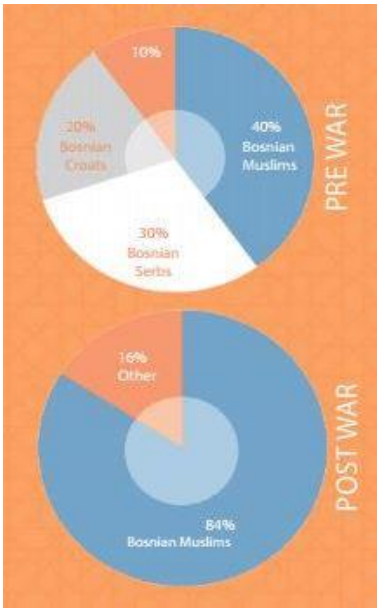


Figure 60: Ethnic composition in Sarajevo before and after the war. Source: Galen Lamphete-Englund. Date:2015.

Third, as known the educational system has a significant role in reforming the city at cultural, social, and economic levels.

After the war ended in BiH, the country was divided into ten cantons, following the Dayton system. The latter strategy did not include any approaches regarding education. Indeed, each canton thought about their instructional measures separately, which elaborated split-poor curriculum. The overall educational plan became enclosed by inflexible systems, ethnic considerations, and uneven access. Such acts should be avoided in Aleppo's rehabilitation plan which is an important note that should be considered when generating a rehabilitation plan for Aleppo. Although the educational system in Syria is controlled by the current ruled government. One of the main problems that appeared is the changed curriculum after the war, which lacks any educational value or importance. Educational institutions were forced to modify the curriculum twice, and it is still insufficient. The main objective for this transformation was to be up-to-date with the significant changes in the nature of life and all the technological and scientific

developments, but the lack of the required cadre to develop and teach this curriculum made it difficult for this program to proceed (Dhalli, 2021).

Another obstacle is the major transformation in the demographic structure of the areas due to the internal migration, which resulted in a large number of residents gathering in limited areas and negatively affecting the absorption capacity of schools. These students are from different social and educational environments, some of them were forced to continue their education due to the war, and the new educational strategy did not concern this significant problem.

Within this broad context, one of the reforming essences of the city of Aleppo is to raise great awareness regarding education accessibility and to redevelop the curriculum. These institutions positively assist in creating societal peace that has been disrupted by war, such as rebalancing the inequality by obtaining an equal level of education. In addition, it is important to create workshops that train new cadres and qualify them scientifically and educationally to teach the new generation, especially after the internal migration that has resulted in a state of chaos and lack of moral and educational discipline in schools.

Fourth, In Sarajevo, the immediate goal after the war was to restore the basic infrastructure. The war has resulted in severe damage to the city's roads, electricity supply, telecommunications, and water network. In 1999 almost all the infrastructures were restored. The latter destruction is comparable to the one in Aleppo. As previously mentioned, more than fifty percent of the infrastructure, wholly or partially destroyed due to the massive explosions and fires. The electricity plants, irrigation systems, oil fields, refineries, and bridges were all damaged in various degrees. All this led to the disruption of essential services and the poor condition of the roads. Since the war started, the whole region has suffered from a significant water and electricity crisis, and this problem has increased at a tremendous rate. Nowadays, the government imposes a strict water rationing program, as it only arrives once a week for each neighborhood. The electricity company is increasing the cut-off hours with the increase in pressure on

consumption, whether during the winter or the summer season. Within this context, it is necessary to consider these problems as a priority in the reconstruction plans similar to what was done in Sarajevo. Indeed, investing in long-term infrastructure makes society more resilient and promotes sustainable development. Interventions in this sector require significant funding and planning, as previously seen in Sarajevo. However, as the leader of FL Resilience Practice, Jason Bird (2021) described resilience infrastructure:

> Reducing risk, enhancing reliability, and maintaining operational continuity in the face of all shocks and stressors the asset/system may face over the life of the asset. Planning for tomorrow, today.

The investment in infrastructure contributes to achieving economic growth in the city, leading to the introduction of advanced services, distinctive projects, and unique industries. Strong infrastructure and qualitative investments could be established when there is a developed strategy with access to innovation, especially with the significant development that the technologies have reached nowadays.

Sixth, Sarajevo's reconstruction plan follows unsustainable urban growth that supports the liberal vision on account of unprotected population and inclusive expansion. The main problem is the nonexistence of a specific master plan for the restoration, which led to an increase in the informal grey areas. This problem was due to the control of politicians and legal offices in this process without involving real officials such as the urbanists or the architects. Inexperienced leaders took control of the destruction and urbanization of the public spaces. In addition to the authorization, they gave for massive shopping centers and buildings and unsustainable illegal housing patterns in hills without any justification.

Furthermore, the division of six municipalities inside Sarajevo, each one of them has its chief architect who makes decisions for his zone without any cooperation with other chiefs. Indeed, it is essential to consider this massive problem that happened in Sarajevo when dealing with the ancient city of Aleppo. Creating a coordination committee is essential in Aleppo, which will be responsible for organizing and

providing all the essential needs for each reconstruction process, whether sponsored by the government, NGOs, or private sectors. In addition, this committee must include experts in the reconstruction fields, especially when dealing with the valuable heritage in the city. Decisions should be authorized and approved only by experts who prioritize the main rules of the city's reconstruction plan.

Seventh, the revival of the city by reopening its historical landmarks. Sarajevo city hall and library (Vijecnica) was reconstructed after 22 years from its destruction during the Bosnian war. This pseudo-Moorish building serves as an important landmark for the city with its multicultural architecture that gathers between east and west. The main goal was to bring back this structure as it was before the war. Therefore, the architects took a great time to find and document the original plans in Vienna and Zagreb which assisted widely in rebuilding to the original shape. In fact, it took around one year to re-paint the 2,000 square meters of arabesques on walls and ceilings. In 2014 after the library reopened it added a new symbol to its historical value which is what Sarajevans called "*urbicide*" which is a metaphor that describes the invaders who demolish cultural achievements. Although the reconstruction process took a great time to be accomplished due to bureaucratic reasons, this reopening has revived the collective memory of how the city was before the war. It also represents victory and continuity of the city's multi-ethnic identity. The restoration of Aleppo's historical landmarks will associate in bringing back the collective memory of the inhabitants and it will preserve its historical importance and identity. This is applicable in Aleppo since there is prior, accurate and comprehensive documentation of some important landmarks before the destruction.

Eighth, The preservation of vernacular residential structures. In Sarajevo, the Svrzina kuća is a complex of structures, courtyards and greenery areas (Figure 61). It is the only surviving example of Sarajevo's vernacular residential architecture of the 17th century. The complex is characterized by high stone walls that surround the entire place, and is entered through a wide double wooden entrance gate. Svrzina kuća consists of four residential buildings and two courtyards are paved with cobblestones, each one specified

for either men or women. Unfortunately, the house was damaged during World War II, but it was rehabilitated during the 1950s and it was open for the public as a museum in the 1960s. In the 1990s the house was repaired again after being damaged during the siege of Sarajevo and it was reopened as a museum in 1997. This complex is the only living example of Sarajevo residential architecture during the Ottoman empire, it was affected by both Sarajevo vernacular architecture and the Ottoman architectural vision. The latter vision as previously mentioned is the main architectural character in the Sarajevo city-center. The initiative of acquiring this complex by the Museum of the City, is a great example of how to represent typical vernacular architecture for the public. Opening this complex as a museum is a window that looks into the past that reminds the new generation how their ancestors used to live (Balkan architecture, 2008). Such an initiative could be projected in Aleppo since it contains many residential vernacular architectures. For example, the previously mentioned Dar Zamaraya, one of the remarkable examples that describes a Liwan house in Aleppo. This house is a representation of traditional architecture implemented with sustainable ideas. The house was built using local construction materials that were capable to withstand all the environmental and social changes that accrued since it was constructed. Unfortunately, this house was also destroyed due to the Syrian war in 2011, the results were tremendous on Dar Zamaraya, which was keen to destroy a significant part of its heritage. Reconstructing this house should be one of the important processes in the city. This house used to be open for the public as a hotel, and it was a strong representation of the city's identity of how a traditional house in Aleppo looked. Now it's important to revive this house and to re-open it for the public such as Svrzina kuća in order to maintain its essential job as gate to history.

Figure 61:Svrzina kuća complex in Sarajevo, Bosnia. Source: balkanarchitecture.org

5-1-2 Berlin and Aleppo

Berlin and Aleppo have some similarities regarding the important geographical location and being an industrial city. In addition, Berlin has witnessed WWII that severely damaged its urban fabric, then the International leaders divided the city into West and East. This could be comparable to what happened in Aleppo during the brutal civil war; the city was divided between east and west, each zone was controlled by a specific party. However, this similarity could be only tangible in one perspective: the city's inaccessibility between its east and west. Aleppo division was only during the four years of war, and then it became entirely accessible since the Syrian government re-controls the whole city. As for Berlin, it was more affected by this division since it started after the war when each area was controlled by a different leader and became more apparent when the Berlin Wall was constructed. This wall has separated families and banned the inhabitants from moving freely inside their city for the twenty-eight-years duration. Indeed, after the war, Berlin was reconstructed three times during different timelines; the end of war first restoring actions, the split between East and West, and the remold. The rehabilitation vision for Berlin and the tremendous efforts that were done holds within valuable lessons for the injured Aleppo:

First, Berlin wreckage removal and its recycling. After the war, the destruction was around 80% in the city center, around one-third of the city's dwellings, and 40% of its rooms were unlivable. The latter resulted in around 55 million cubic meters of rubbles, and the city was covered with wreckage. The post debris collection was the primal recovery intervention done by the local inhabitants who were mainly women. This debris was collected in the city parks and formed mountains, then they were yielded and used in new constructions. The latter intervention, in addition to some reachable resources used for general repairments for some of the damaged buildings, has provided dwellings for inhabitants who lost their houses during the war. Berlin could prove that it was characterized by resilience. The local inhabitants showed their capability and wellness of reviving the city from the wreckage and the following methodology of reusing the rubbles. The latter processes were essential before starting any reconstruction plan that considerably improved the housing shortage and its quality. In Aleppo, the wreckage removal is done only in specific areas such as the old city; as previously mentioned, the historical stones are collected and numbered by local inhabitants supervised by experts, but there is no fixed plan for the non-historical wreckage. Therefore, it is necessary to develop a clearing rubble plan for the whole city, especially for the residential areas, since Aleppo is suffering from a similar problem of dwelling zones after the destruction and the internal migration. This plan should be supervised by experts familiar with this field and should also include the local inhabitants who can assess in safe zones.

Second, the importance of memorials for the city's identity and continuity. Berlin has established war memorials, which is one of the essential considerations after any severe event. These memorials connect the city with its history, such as the 1998 Berlin Wall Memorial. This latter was established to remain a memorial event that can be seen in reality. The construction of the wall and its removal is an eternal memory in the hearts of all Berlin inhabitants. On the one hand, it symbolizes the rupture between German families and the blood of dozens of people who tried to cross it. On the other hand, in 1989, when the wall was demolished, it represented the reunification of the city's east and west sides. During any

reconstruction plan after a tremendous event such as civil wars, the restoration of the fragmented societal memory should be accumulated with rebuilding memory and social identity on new foundations. These new foundations should consider the sociological effect of the memorials on the inhabitants and visitors. Indeed, Aleppo's history is filled with battles and significant events that should be highlighted through memorials, exhibitions, and museums. For example, the old city of Aleppo has witnessed many memorial events, and the last one was the tremendous destruction after the civil war. Many people lost their lives between its walls, and it’s important to preserve their memory for the future generations and visitors. Building similar memorials and exhibitions as the Berlin Wall will allow visitors to have actual knowledge about this event and how it healed after it.

Third, the ruling party. As previously mentioned, Berlin was under the rule of the Nazis for twelve years which unconditionally surrendered for the Allied forces in 1945. Those four forces have free Berlin from one rule and put it under the control of their visionary. Their goal was to build their vision in the lands of Berlin, which have affected the city's urban fabric tremendously even after the reunion. Berlin suffers from a loss in its identity due to the twenty-eight years of control that have caused massive damage in its culture which is nearly akin to the damage resulting from the war itself. On the other hand, Aleppo, the oldest inhabited metropolis in ancient history, was classified by UNESCO as a city that ages 12,200 years old. Aleppo was destroyed several times within this ancient history, such as the Crusader's invasion, the devastating earthquake, and the Mongols invasion. The latter disasters have ruined and destroyed significant parts of the city. However, it always managed to revive and flourish from any extraordinary event. Indeed, Aleppo history should continue with this successful revival, especially because and unlike Berlin after the war, Aleppo is now under the control of one main party, the Syrian government. In other words, Aleppo remained Syrian, and the war failed to separate Aleppo from its identity. This latter success should be preserved and be appreciated. In other words, although the destruction has damaged the city's cultural identity and its ancient stones, it failed to put Aleppo under any foreign control.

Fourth, the Hansa Quarter (*Hansaviertel*), a post-war modern architecture project. In 1957 the Senate of West Berlin organized a grand International Architectural Exhibition Interbau. The purpose of this exhibition was to highlight the importance of reconstructing the *Hansaviertel* and Berlin in a democratic urban design as visualized from a western ideology. The Senate idea was to bring back the attention for the city after many difficulties since WWII such as the major damage that caused a shortage in housing. In addition to the cut offs and leaves of companies, sales markets and suppliers due to instability of political situation. These difficulties were a threat to the economic, cultural and political situation of the city and the Interbau exhibition came as a solution to bring back the city's national and international influence as well as its economic prosperity and growth. The main highlighted project was the revival of the *Hansaviertel* since it was the most severely damaged zone (Albert Wischek, 1953). The *Hansaviertel* redevelopment process was in two phases; first the determination of the ground plan then the invitation of international architects by a directional committee to design individual buildings. The idea of its urban planning was taken from Le Corbusier's Athens Charter that dates back to 1933; the separation of the urban activities such as transportation, working, living and recreation by wide pedestrian spaces. The main plan resulted in a total demolishing for all the area's prewar structures and the agreed model is a loosely-arranged and subdivided city. Furthermore, the final results of this district were large-scale modern structures which developed new measures in social housing construction and became an outstanding estate. The pre-war solid row houses transformed into a loose array of constructions with vast green areas. These beliefs and visions are paralleled and engaged with Berlin's previous spirit as a metropolitan city. This inherited spirit of being a word city as well as a capital of Germany was successfully revived (Urban, 2004). Indeed, this could be projected on Aleppo when analyzing the residential area of the old city-center *Bab al-Ahmar* and *Al-Bayyada* districts. Within these areas there are many traditional houses of old Aleppo mainly made of stone and covered with flat roofs with a courtyard surrounded by the house rooms. However, a considerable number of these houses changed in the last fifteen years due to the

changing resident requirements and aspirations. These alterations have resulted in new styles and materials that usually odds the building identity of Aleppo. Furthermore, the previously mentioned damage assessment has shown that total loss is 20 percent, the partial damage is 21 percent and 59.7 percent moderately or slightly damaged. The latter factors in addition to problems in the infrastructure and the shortage of residential areas shows that it's important to integrate modern solutions to these areas, and in some cases to transform the odd houses into residential areas that reattach Aleppo with its identity (AKTC, 2017). For example, the vernacular Arab houses were dominant during the Ottoman period in Aleppo. The houses are organized in an overlapping pattern to protect the house from sand, storms and sharp sunlight. The interior of the house consists of a courtyard and corridors that divides the house into three main parts, one functions as food storage, the other includes guest rooms, living rooms and the kitchen, and the last part contains the bedrooms and balconies. Then, there was a huge influence from the western style that changed the urban planning of the city's residential areas such as the multi-story apartments. Indeed, when reconstructing the city, it's important to highlight that the revival of the prior traditional houses assists in preservation of the urban identity as well as it achieves energy efficiency. Indeed, the correctly orientated open and semi-open spaces are more effective in ventilation and natural lighting. These vernacular houses adapt to any climate condition and they are able to achieve modern social and environmental requirements and integrate modern technologies to the traditional concepts (Ajaj & Pugnaloni, 2014).

Fifth, the motivational role of modern architects in the sustainable development of Berlin. The post-modernist architects who worked during the rebuilding period of Berlin could identify the city essence of classic architecture and reform it in a new model characterized with sustainability. For example, the German parliament (Reichstag) that was severely damaged after the war was reconstructed by Norman Foster. This building is one of the city's identities and the architect was able to redefine it in a new-classical

design. Foster restored the dome in a way that could represent its own identity, he succeeded in restoring the dome by keeping its function and ethnicity, connecting its history and evolving it in a sustainable way. The dome transformed into a glass dome which is a source of ventilation and ample light, the dome mechanism is fitted to track the sun movement and block the direct sun glaze keeping it comfortable. One of the main characteristics is that the parliament runs on renewable bio-fuel and refined vegetable oil which is more sustainable than fossil fuels. The glass dome represents a new identity for the parliament that is sustainably developed (Aslam, 2021). Foster's dome is a life example of how tradition is connected with modernity, the dome preserved its traditional shape but with modern materials that provided a ventilated, naturally lighted ambience. This link is a sub-concept that formalizes vernacular architecture. Indeed, the necessity of connecting the past with the present is important because historical architecture is the gate of history that represents continuity and could be revived with modern interventions. Such examples could be projected on Aleppo of how a sustainable solution could be introduced to historical structure without any apprehensions regarding demines of the historical identity. In the historically covered Souks of Aleppo, the damage assessment analysis shows that over forty percent of the structures are either lost or severely damaged and it requires full or partial reconstruction. For example, *Souk Al Attarin* contains around 80 shops used to sell different types of goods such as spices, medicinal herbs, soaps, oils and other perfume materials. Indeed, after the war damage, the East part of the souk is in a total collapse of its vertical and horizontal structure (Figure 62, Figure 63), by which there is a possibility to create a sustainable structure that is comfortable, functional and integrates with the cultural heritage surroundings. A proposed solution is the integration of Geodesic domes, solar panels and green roofs. These solutions are essential during the post-war period since the infrastructure is severely damaged and there is no electricity or water within these markets. Providing similar solutions as the Foster dome to Aleppo markets is a sustainable solution that connects the history in modern form (Figure 64) (AKTC, 2017).

Figure 62: Detailed damage assesment of Souk Al-Attarin and its surronding. Source: AKTC. Date: 2017.

Figure 63: Souk Al-Attarin after the civil war. Source: The author. Date: 2020

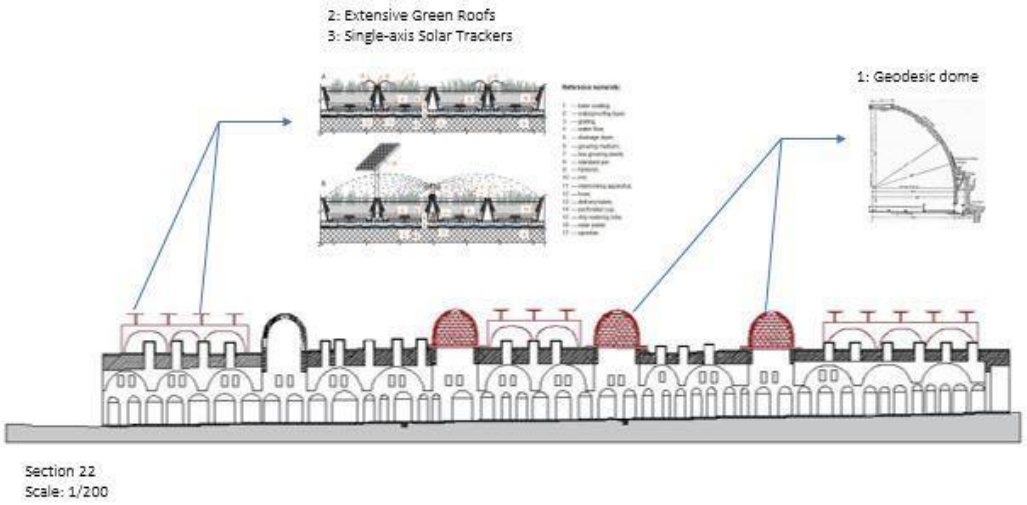


Figure 64: Proposal for introducing the Geodesic domes, Extensive green roofs and solar panels to the future reconstruction process of the fully damaged areas in Souk Al-Attarin. Source:The author. Date:2020

5-1-3Beirut and Aleppo:

Aleppo and Lebanon have a great historical link that is memorized now with a famous Syrian song called "*Al Rozana*," which dates back to WWI 1914-1918. The song held a great appreciation from the Lebanese to the Aleppean during the major famine in the Levant lands. This war caused the death of thousands of lives due to starvation. Indeed, many people died in Lebanon because of the scarcity of wheat, and others suffered from a real famine. It caused a massive depression in their goods, especially after the Ottoman ship "*Rozana*" arrived in Lebanon loaded with grapes and apples to sell instead of the Lebanese farmers' production. During this challenging time, the merchants of Aleppo came and backed the Lebanese by buying all their crops, which saved them from poverty and destitution.

Furthermore, Beirut and Aleppo have remarkable similarities, such as the ethnic diversity in both lands and the important commercial hub that both cities represented. Beirut, with its important port and strategic location on the Mediterranean that links the east and west and Aleppo with its important location that also links between East and West and the meeting point for trade caravans and trade exchanges between the two parties. In addition to the French mandate that controlled both cities during the aftermath of WWI, which also left some changes in the urban style, especially in the residential areas that are still apparent until this moment. Moreover, the similarities extend to the unfortunate civil war that appeared on both lands in a different timeline which has cost great destruction in the urban fabric as well as the loss of many civilians and the significant immigration of its population. During the civil war, both cities were divided between east and west. The city center was the middle battlefield that separated both areas, and it was transformed from the beating heart of the cities into a destructed area.

The reconstruction process in Beirut center has affected both negatively and positively on the future of the city that we could still observe until this moment;

First, there was an inclusive criteria of the old buildings that need to be reconstructed. The initial number of the building was one thousand and fifty-one buildings at risk and in need of protection; this number was obtained by a survey done by a specialized committee called the Association for the Protection of Sites and Ancient Dwellings in Lebanon (APSAD). However, the SOLIDER project decreased that number to two hundred and nine buildings, which greatly lost the preservation of the traditional and vernacular structures. The overall architectural environment in Beirut mostly dates back to the Ottoman Empire and the period of French Colonization, and it is characterized by a facade with three arches and red tile roofs; the rooms are around a central hall, and some of them are built of sandstone. Beside the houses, the old squares, such as Martyrs, the square represented the Lebanese culture by having a set of buildings that dates back to a different timeline. It was surrounded by buildings from the nineteenth century, the French Colonization era, and modernity. Furthermore, what is clearly observed is that when SOLIDER controlled

the reconstruction process, they did not take into consideration this previous diversity since it has decreased the number of historical buildings significantly. The project's main goal was to put the interests of investors above the needs of society and make room for profitable projects. With regard to the urban fabric presented by their master plan, it shows that it does not respect the morphology of the historical area, and the planning approach is superficial since their solution for preserving heritage is by roofing all modern buildings that will be built with red tiles. In addition, the proposed urban organization isolates the center from the rest of the city, either through the transportation system or by turning the area into an island that serves only the upper classes. This results in the dispersal of the center into various circles across the city so that each region has its own center. Even the previously mentioned Martyr square with its new reconstructed face did not reflect the Lebanese identity since the SOLIDER decision was to demolish the whole square and vanished all its previous history within it. The project did not take into account the interests of society as well from its massive designs, the type of housing and economic activities planned for it, and its disregard for the issue of public transportation. Since the political situation in Lebanon is still at the edge of a civil war, the contribution of this planning to the exacerbation of the social fragmentation that contributed to the outbreak of the war rather than treating it. This previous discussion could be projected on Aleppo by several dimensions, such as the salvageable historical building survey should consider its age, type, era, and current situation. This scanning should be accurate and must meet the international standards of reconstructing the heritage structures. The AKF and UNESCO have presented some suggestions for the highest priority buildings that should be reconstructed as soon as possible based on their current situation. Whether this plan implementation will be done by the government, private sector, or non-profitable organization, it should always be under the national legislation umbrella reinforced by laws. These lows will be sure to include all the buildings that certainly need to be considered in the rehabilitation plan. The unfortunate isolation in the downtown area of Beirut could be avoided in Aleppo if the upcoming reconstruction plan respected the community diversity and

preserved the main identity of Aleppo as a commercial hub that welcomes different layers of society. To revive this area, it must facilitate accessibility by providing an effective infrastructure for a transporting system that connects the historic city center to the rest of the city, protecting the historical urban fabric yet it serves the citizens in their economic and social activities. Following the accessibility, the commercial areas should contain dynamic and diverse facilities enough to attract all classes of society. This was a success in Beirut Souks reconstruction project that Beirut downtown failed to achieve. The latter was built on the ruins of the old market of Beirut. It managed to combine shopping and entertainment, embodying the city's vitality. Beirut Souks became one of the favorite destinations for the Lebanese, as it is an open-air public space that includes a range of retail stores that satisfy the tastes of all layers of Lebanese society. One of the good examples that could be highlighted is the southern area of Souk designed by the Spanish architect Rafael Moneo from 1996 until 2009. Moneo's project could reflect the area's previous history but with a modern vision that could guarantee a lasting future. He brought back history by following the same previous Hellenistic grid and preserving the original street name, and he also preserved the concept of arcaded alleys, while his modern touch was through the introduction of natural light by implementing skylights along the alleys (Figure 65) (Ella Comberg, 2018). Moneo's design achieved apparent modernity with a historical background; his design respected and mimicked the previous structure in its palette, scale, and fluent circulation between indoor and outdoor. With this broad context, the significant commercial area in Aleppo's old city-center is the old Souks that could be comparable to Beirut Souks. Moneo's vision for a commercial district was successful, especially since he could find the balance between memory and a resilient future. His vision revived the area and attracted all investors to be a part of the economic flourishing of this vital part in Beirut. This balance in his vision is essential to be applied in Aleppo Souks since they share similar goals and require maintaining the commercial hub they previously had. This is now applicable to Aleppo Souks since, as previously seen in the damage assessment surveys, some markets are entirely destroyed, and it is recommended to be demolished and built again. This

opportunity of rebuilding a market that could have a similar balance and serves the needs of all Aleppo visitors and residents, such as International retail shops, sustainable energy resources, and disabled access. However, Aleppo Souks has its own identity and memory that played an essential role in being well-known; all Souks visitors enjoy the traditional markets that introduce local handmade industries and traditional crafts inherited by many generations. This identity should be considered in any preservation or reconstruction plans to avoid the loss of these exotic industries that Beirut Souks now do not have.

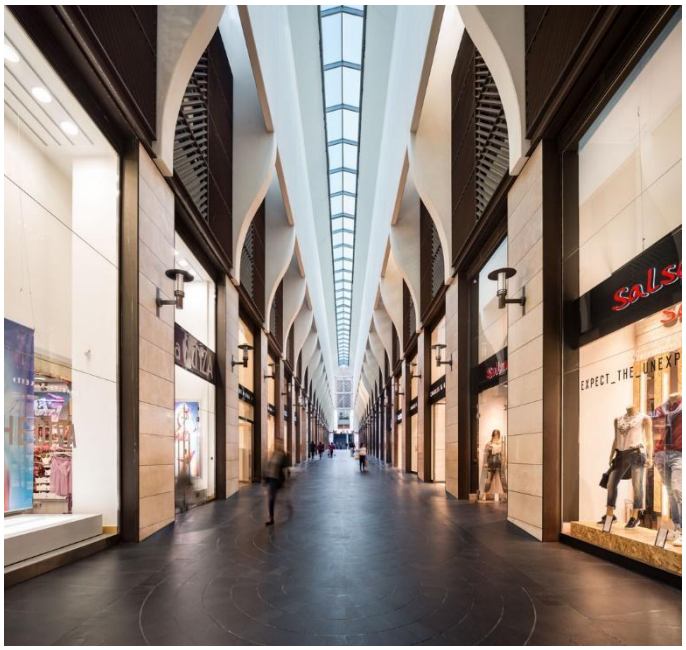


Figure 65:Beirut Souks after renewal by the architect Moneo. Source: Afasia

5-2 Private sector integration.

The private sector investments are defined as a part of the country's national economy, managed by private individuals and companies. The main reason for its establishment is to gain private profits, which distinguish it from the public and voluntary sectors that are controlled by the state and non-profit associations. Although the government does not possess the private sector, they do set specific rules and regulations for its legalizations which will assist in the development of the host city. The introduction of the private sector to the post-war reconstruction programs has clearly shown its essential role and its significant effects in the above-discussed cities (Sarajevo, Beirut, Berlin). The policies followed were different from one city to another, and it left either negative or positive effects on the future of each city (Designing Buildings, 2021).

In Sarajevo, the regulations were mainly eased for private companies to come and invest in the city. The main reason was to enhance the economy and elaborate internal income for the reconstruction plan instead of being dependent on donor funds to rebuild the city. However, due to unclear reconstruction plans and the government bureaucracy, the city is now still suffering from ethnic division, corruption, and a high unemployment rate. The International investors took permission from the inexperienced leaders to build massive shopping centers and buildings without consideration for the urban fabric. This latter act and the lack of cooperation between the responsible government, International donors, and non-profitable organizations have caused unsustainable urban growth that led to an increase of the informal grey areas. In Sarajevo, the introduction of the private sector was unorganized by an experienced party, which later affected the city's identity and sustainability. In this case, the private sector failed in reducing the effect of the disaster. Instead, it increased the division and the corruption risk due to a vulnerable control system. These negative results are also seen in the reconstruction of Downtown Beirut. During this process, the private sector was controlled entirely by the renewal process; it determined the

demolished and preserved buildings, created a new reconstruction methodology and imposed fixed rules for any rebuilding process within the downtown area. Although the project manager Rafik Al-Hariri was originally from Lebanon, his aimed vision was to transform the city center into a zone similar to the Gulf region urban pattern, who were the prominent investors and donors in this project. The reconstruction strategy ignored the city's architectural history, where it isolated the historic city center from the surroundings and transformed it into a commercial center that only attracted wealthy visitors. It also abundant the concept of collective memory since it demolished a vast number of historical buildings and imposed a new urban landscape. Despite the previously mentioned Beirut Souks intervention, the private sector's new downtown vision came with failure regarding the social division. The isolation preserved this separation, and now this area embodies the split of Lebanese society. This case shows that any private sector intervention should be accompanied by the involvement of the local community since it is more knowledgeable about the city's culture, material, and needs. This, in turn, will assist in preserving the historical identity of the city. The latter could be observed in the West Berlin case during the Allies' control. The main idea was to bring back the attention of the city by promoting it through a grand exhibition. The main message was to reintroduce the city as its previous reputation, national and international capital, and its economic prosperity and growth. This solution came with success since it has attracted investors and international architects to come to the city. The most important part is that the reconstruction of Berlin was accomplished with a previous planning and futuristic methodology accompanied with identity and resilience. The post-war modern project Hansaviertel is a successful example that achieved its goals and developed social housing construction. Although the final determination was to demolish a significant part of the area, the main reason was to recover the city's essence as a metropolitan city. The inherited spirit of being a world city and the capital of Germany was successfully revived. From this point of view, it shows that the involvement of both the local and private sector with previous reconstruction planning will prosper resilient outcomes that preserve the identity in a different methodology. In addition, it

succeeds in overcoming the economic and cultural threats that would have left the city wounded and unstable.

Conclusion

Man-made disasters, such as wars and armed conflicts, lead to a significant imbalance in the ordinary conditions of life. Its negative consequences will remain in the long-term, even after the crisis ends. These negative results affect directly and indirectly on all the city's inhabitants. The main losses are humaneness in addition to urban and social damages. The writer and her family have witnessed an example of such a disaster in Syria that has lasted for around ten years. Even though the bloody war has ended, people are still suffering in getting their everyday life back. This could be clearly seen in the examined city, which is the industrial capital of Syria. Aleppo, the historical city that has been exhausted by the Syrian civil war, has turned into a city with a distorted identity and features. Aleppo, one of the oldest inhabitant cities with an urban history engraved by all civilizations that passed by it, is now suffering from the lack of a well-thought-out plan for the reconstruction process. The main identified problem of this research is the absence of guidelines for the reconstruction and restoration of the city, especially in the old city-center of Aleppo. This site has suffered from the effects of bombing and shelling, which caused significant damage to around 70% of its structure. The damage ranged between partial and complete demolition, which has led to severe destruction in its heritage and cultural identity. In order to achieve the preservation of the civilizational and the city's cultural role, in addition to reducing the disruption between the city's historical fabric and modern construction as much as possible, I did a comparable analysis and evaluation for a set of previous reconstruction experiences from Berlin, Sarajevo, and Beirut.These cities have witnessed armed conflict at various levels of destruction and in different periods. This analysis has highlighted good and bad practices that could be projected on Aleppo's reconstruction strategy. The post-war reconstruction system needs to be accompanied by specific theories and concepts that can assist in the determination of the future vision for the city. It must combine the ability to adapt to the situation with the most negligible losses possible and provide a system that can handle the external changes

without missing its structure, functions, or identity. Thereby, three main concepts were projected on the discussed cities. The discussion showed the reconstruction process through three main perspectives; Identity was presented by Vernacular Architecture, the city's renewal by resilient cities, and rehabilitation by rubble recycling. Analyzing these concepts on the reconstruction plan followed for each city (Sarajevo, Berlin, Beirut) was the key point that answered the two main research questions and hypothesis.

Concerning the first question that investigated to which extent the previous reconstruction operations can assist in preserving the main heritage characters of Aleppo city during the implementation of the post-war reconstruction plan. The analysis shows that previous regional and local experiences could assist to a considerable degree in preparing the theoretical principles that should be taken into consideration followed by starting the practical side of the reconstruction process. The question of cultural identity was presented through vernacular architecture due to its essential role in building culture and traditions. In the old historical neighborhoods of Aleppo, vernacular architecture was the expressive method for the Aleppean society to represent their dwelling needs through constructing residential structures influenced by their ancestors. Throughout the years, the latter homes and their evolution became a representation of the traditional house in Aleppo. These houses, along with the historical souks and other important monuments, are a significant part of the Aleppean cultural identity. The city's comparison with Aleppo shows that the revival of such houses reinforces the main heritage since it was built based on the inhabitant's activities, social rituals, and their available building materials. In addition, their way of construction and distribution are sustainable solutions for the difficult time Aleppo is passing through after the war. The historical souks also play the same critical role in cultural preservation. However, Beirut souks show that tradition could be linked with modernity without the concerns about losing its historical characteristics. Applying sustainable developed solutions to the total damage areas in the souk represents continuity and accumulation. Solutions such as Geodesic domes, green roofs, solar panels, and developed construction materials should be designed in a way that balances between the valuable past and the

evolution of the future to ensure that one side does not prevail over the other. The analysis also sheds light on the importance of vernacular architecture as a living example that takes its visitor back into its establishment era. Such a structure was seen in Sarajevo as a museum displaying how their ancestors constructed their houses. Presenting vernacular structures as facilities for the public in one of the oldest inhabitant cities, such as Aleppo, will be a living representation of all the previous civilizations that have built its history. Indeed, the analysis also presented how vernacular architecture contains resilience capacity within its structures. Indeed, the core of a resilient system is not only confined to continuity and to re-use. It is also related to the flexibility for changes or innovations and to adapt to them. Resilience in a city is a process, and the evolution of urban resilience is related to culture, economy, and history. Thereby, in a resilient city, all parties should function as a group to obtain a sense of coherence and community resilience. The comparison shows that investing in the damaged infrastructure and educational facilities results in sustainable outcomes, such as the case of Sarajevo.

Furthermore, involving the inhabitants in the rebuilding process, paying attention to the intuitional facilities, and preserving the ethnic diversity fabric are essential aspects to obtain resilience. The latter points were reflected negatively on Sarajevo's results since the city did not concern itself with this matter in its reconstruction plan. Resilience also relies on the city's economy, which was an important point in the rebuilding process of Berlin. The city regained its reputation by promoting itself through International exhibitions. This came with success, and Berlin brought back its essence as capital and a metropolitan city. This, in turn, enhanced its economy, which is necessary nowadays in Aleppo. The latter city was the industrial capital of Syria, and promoting its history and revival of its traditional industries will assist the revival of its economy. Furthermore, the post-war rubble recycling concept is also connected to the city's resilience by using the correct solutions to reproduce this rubble in new materials that could be used for further construction purposes. It is also a way to preserve the environment and provide a sustainable

community. The city's comparison shows that the case of Berlin is an important example for Aleppo on how rubble could be used in new constructions.

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Appendix

Type: Interview carried out by the author with the architect Thierry Grandin, Restoration expert and consultant to the Aga Khan Foundation.

Time and date: Aleppo, 2020

Author: Why the AKF chose Al-Saqqatiya Souk among all the other markets for starting up the reconstruction process in the old historical city-center?

We have several criteria, it wasn't a discussion of one souk it is how to proceed and develop all the souks. We have chosen several souks as potential projects. Why were the first choices? We wanted to improve the committee that it was possible to work in Aleppo. In this case you don't restore that with few simple shops. It's a long tunnel.

We have chosen several souks that are impressive as first choices because they have interesting architectural elements (domes, arches). the second thing was the social approach. We did not want to restore the shops of people who were selling for example gold. *Souk Al-Saqqatiya* it used to sell meat, vegetables, it was the daily market. It was very interesting. But because it was the daily market it was hard to reopen because people need the daily frequentation or exchange. But the choice was logical. And the architecture was very beautiful pieces, and we didn't want a souk that was completely destroyed. Like *Souk al Alyabieh* Because this need at least two years to meet with the people to understand how it was. Or how it could have been like *Souk Al-Atareen*. Because no one has the complete set of photos of how it has been. Before the war even if I wanted to visit the souk, I have to go on Friday because of people you cannot see anything. You can only see the interaction. You can see the life. What I want to say, by chosen

a Souk that was not completely destructed, we can control the reconstruction of all the missing parts, which was a lot, but we could re-use the old stone. The next step was to find a strategy for the conservation, we say what is the tangible heritage of the historical part the wall the roof, that the war destroyed, this should be a part of a traditional project. The pavements that was new that have been changed 15 years ago or like the lightings or the telephone lines, it was not the original ones. Here it was complex, to know where is our limit. This city has been very damaged, and the people don't accept what they might have accepted before the events, you should not touch anymore stone. It's all about the approach. I think the people want to save the remains of their heritage. There was a real problem about using only the local techniques to reconstruct such as stone cleaning. In addition to the immigration of the good workers who were experienced with these historical elements.

Author: what were the main strategies followed to maintain the cultural identity of these markets, because they have their own spirt? Were there any elements they thought they should maintain to keep this spirit alive?

-We have made training and seminars, I think the restoration by itself is not the main goal, that's why we use generally this word rehabilitation it's because, first conservation of this tangible heritage is only possible through preservation of intangible patches which is restoration of facilities, so it was done as a training and for several projects. Now here, it's also the same. In fact, we spent a lot of time with the contractor. There is no complete strategy in Aleppo, we have tried to make seminars, trainings, and workshops, there is nothing. You can bring twenty people and they'll come with twenty strategies, but no one has anything. Including us, I wouldn't say we don't know anything, but we cannot say we can control this process 100 percent, at least we are testing a lot more equations. We hesitate and come back.

We try to develop, as you know there are fifty souks. The Idea is to complete the reconstruction at least in this duration (2025) to make the connection between the souks or al Babs (the gates of the souk) after that we should go the south of the old city which is destroyed area but it's a little far from the heart of the souks. We cannot work other than that. IT's a city with a lot of inhabitants. There 120 thousand people before the war or even less now there is 40. It's a long process but we should begin and be patient. Our wok has a lot of conservation, the strategy is limited and not included in our work but it is not our responsibility.

Author: So, it is always related to the situation. It does not about create the perfect strategy that we have to apply. We must consider other elements…

- You have to decide yourself. There are cities with 1 million inhabitants and others with 40 thousand and here you have a city with 2 million and 200 thousand inhabitants. So you have to decide where does your priority lies. I think conservation is a luxury. It's a necessity but it is still luxury.

Author: The AKF engineers told me how they treated the stones, so among all the special treatments that are available for the stones, on which base it was chosen. Since the stones were burned. Were there any kind of discussions or experiments regarding this treatment?

-There are consolidations, for example if I have to move myself from France I have to declare that, today Lebanon is possible, might work in Iraq. So, we are using other materials, some traditional technics. We were using cancerous which is technically only lime water. It works perfectly on reconciliation. And second, there is the cleaning. The less destructive technic is the cleaning.

We have no money. It's very complicated. We are still waiting, as you see, we are not an official organization. For example, a statue that must be moved, we cannot move, because we don't have the decision. And it's always like that.

Author: In your new rehabilitation project Al-Fustuk square, which roofed with un-original concrete ceiling. What are the approaches for using instead of concrete to bring back its original shape?

- we have only mamlouk structure that is conserved based on black and white photos. It is a project of the 14th century.

Author: Were there any pictures to recognize its original shape?

-no there isn't any. This concrete is from the 50s 60s. we can use old painting maybe but photos we don't have. It might have been a wooden roof, but we cannot use a wooden roof therefore we use traditional scrapable, but we don't have the money to do it, this is our problem. If the stone was okay according to our budget. This iss one solution and there might be the light solution. I cannot say this is how it was! This could have been a very logical solution. For example, this is the stone and the wood on top of it that was use. But we don't have this wood anymore so we cannot reconstruct it. So, we have to change some materials and its forms to rebuild the city. It's an interesting process. The philosophy and strategy should always be developed by other people. That is why it is might be helpful to read new researches such as your dissertation.

Author: Are there any upcoming plans regarding the fully damaged areas of the souks?

-No, we have only one employment survey is to this section of the old city el medina which damage assessment. We have seen 75 exterior of buildings that could be restored which are mainly, but this is not necessary monuments. We ask the people here about important building to be restored which are not necessary but it's important for them. Now there are only us and few UNDB and several schools and UNICEF one school or two, and the rest are for the mosques.