

Evaluation of Urban Form in Historic Cores of War Affected Cities: Warsaw, Dezful, Mostar, Beirut Cases.

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Abstract : at the present time, the people of many cities are fighting and displaced from conflict. The war has once again entered the cities, the living space of everyday life and the private realms of the houses and the towns have become the military occupation. It is the unusual and exceptional status that has disrupted the intrinsic the identity and pattern of the city. The purpose of the thesis is to focus on patterns and physical configuration of historic cores, comparing the urban pattern of a historic city center before and after a war, and understand how much the physical form and urban tissues of a historic city center changed. And also identify how much physical changes are compatible with historic heritage. The hypothesis of this study is, the war affected cities are compatible with the past as the result of applying a convenient reconstruction program and a strong strategic framework, to preserving the identity and historical context of the city. The study examines the different approaches and different strategies of the reconstruction plans that reshaped the pattern of the historical city cores, after complete devastation. Most rebuilt cities seeking for different forms and patterns, with following approaches that lead to new and functional towns, while some trying to keep the identity and historical continuity with reshaping exactly what is it was before. In this study, three type of maps used for urban pattern analyzes, in different periods pre-destruction, after destruction, and the reconstruction maps. Briefly, all analyzes are urban regeneration, approaches urban pattern, Trancik. To understand the rebuilding process, aims, models, strong and weak points of it, the urban reconstruction program of the case studies examined. The thesis focuses on the reconstruction plans of four war-damaged cities Warsaw, Mostar, and Beirut, Dezful. According to the hypothesis of the study, and the archived results from the comparison of four historic cities from different cultures and different reconstruction plans. The war affected cities are compatible with the past if a convenient reconstruction program and a strong strategic framework apply. The convenient reconstruction plan through attention to important elements such as time, economic, documentation and education could be possible. The most important factor here is the local people demands and desires.

Keywords: War affected cities, urban forms, urban reconstruction plans, and strategies.

Introduction

Throughout history most of cities transforms gradually over time, which differs from changes after a disaster like war. Amount of transformation depends on the amount of the destruction. Sometimes changes flourish the city but the same time could ruin the city. Cities that harmed by unconscious disasters like war have undergone rigid transformations, that includes a wide range of physical changes.

The footprint of the war on the physical configuration of the city is different from the effects of natural disaster destruction. The difference can felt in different strategies of reconstruction and plans that prepared for reshaping cities. There are different strategies which performed by the governments and architectures to reconstruct a city after disaster like war, some who are successful and some are not , the urban reconstruction strategies of the war-damaged cities differ due to culture, political, social and other potentials of each city. In reconstruction programs, two ideas considered, on the one hand, the exact reconstruction of the city is being proposed, which reconstructs the city's image or shape similar to the past and the old shape of the city. The aim of such scheme is to return the past identity and character to the distracted historic urban quarter. On the other side, the complete transformation of the city's form and texture take place, the new pattern of the city emerges on a white page with new city forms. The purpose is to make the city work, to relive the damaged tissue. The new plan consider post-war urban reconstruction as an opportunistic approach, means known as an opportunity to create a new and functional place, to develop a new city. It is impossible to ignore historical value, and importance of the identity and character of the historic city. Whereas the contemporary human needs changed day by day, and the new technologies and techniques of planning lead designers and architects to new ideas for design a city. The question of the study is whether urban reconstruction after a disaster like war is an opportunity for reshaping the city, or a plan to erase the identity and historical structure of a city? The Answer is to follow one of these approaches or to integrate both? In a strong framework how much change is compatible with the legacy of the past? Consider that potentials and conditions differ from country to country and of course a city to another city. Whilst the reconstruction programs and strategies will vary also. The study examines historic cities which were engaged in war before, the old town of Warsaw, the Solidere Beirut, the Stari Mostar, and the old town of Dezful.

II. PROCEDURE FOR METHODOLOGY

According to the study objectives, the approaches and decisions of reconstruction process of each city are reviewed and compared. Each of the studied cities is re-formed in a different approach from the other. The study focused on the physical changes of the city's historical core. The study consist of a comparison of some postwar reconstructions, to identify urban patterns and physical factors before and after the war. Maps of the historical city centers before and after the war compare, the streets, plots, lots, buildings considered in case studies. The maps are compared according to the Nasr (1997) map system [1]:

Pre-destruction maps: That the plan and the status of the destroyed historical texture which are most recent versions close to the date of destruction, and used as the base maps. Maps after destruction: In this map, the extent of damage on physical body estimated according to the location of critical areas and important buildings. Reconstruction maps: The design and implementation stages take years. It is hardly possible to name these plans the final maps, some reconstruction projects will change over time and with the project process, and even today it is not possible to say that the last plan entirely was done.

As stated, changes occur in the city in different contexts, to better understand the transformation process and of the changes in physical aspects of a town, a hierarchy of features defined. A general analysis of the urban pattern of the cities before and after the disaster have done, the urban spaces examined by Trancik theory of figure-ground [2]. For analyzing urban pattern the study zoomed on block patterns, lots patterns and street patterns to reveal the alterations. Figure ground maps of Roger Trancik [2], used to show the solids and voids, built and unbuilt areas. Streets also classified as: street system before the war, postwar street system, and street system after reconstruction plan. Whilst comparing street systems of different period of time show the alteration in streets which removed or added or modified and unchanged. The used techniques for these analyses are in the most straightforward way that maps are put side by side to compare before and after war maps, and another way is overlapping the before and after war maps. For using overlap method should use original maps and all in the same scale, so in this study the side by side technique used.

Generally the process of analyzes in the study is as follows

Regeneration: Public private partnerships, visions and strategies, principles of frameworks, model and type of approaches, weakness and strong points.

Approaches: The urbanistic approaches and strategies linked to the new methods and the old methods.

Urban pattern: urban pattern recognizes basic components of a city's form which are street patterns, blocks patterns, and building patterns.

Trancik: analyzes of figure-ground, which reveal the built and unbuilt environments.

A. Theoretical reviews in urban fabrics analyze in relation to urban changes after disasters

According to expressed methodology for analyzing the urban form of a city after disaster, the Trancik theory discussed briefly. At first started with understanding the urban pattern.

1) Brief of the urban tissue (urban pattern) for war damaged cities

The urban texture is a synthesis of all components of the physical body. The Urban texture is an organic whole that can be seen at distinctly distinct levels. At the general level, tissue can be described as the organization of streets and blocks [8]. In summary, the urban fabric can be considered as different neighboring states and filled and empty spaces in different compositions, as well as determination of the plot of land [9].

2) Roger Trancik's theory of figure-ground

The figure-ground theory helps to analyze the urban form and understand the relations between built and unbuilt areas means the contrast of buildings volume and the open spaces. Or is a theory which presents the pattern of urban tissue [2].

III. THE LITERATURE REVIEW OF THE WAR DAMAGED CITIES

With observation in the reconstruction of war-damaged cities documents limitation of the subject appeared. And in other point of view, most documents related to the European cities involved in the Second World War and various aspects of the program for the reconstruction of these cities. And it should be noted that World War II was a clash between countries, which is very different from the civil war in the Third World countries, and the Middle East, especially in African countries. The reconstruction plan of bombed cities after the Second World War led to great deal of research in this field. Including (Diefendorf, 1990, 1993) (Hsegawa, 1992) (Larkham, 2001) (Nasr, 2003) (Johnson-Marshall, 1966) (Gilliland, 2003).

Diefendorf in his book in the wake of the war, the reconstruction of Germany cities after World War II (1993) describes the full history of the reconstruction of Eastern Germany. The book is the most precise description of the history of reconstruction in English. And also another book of Jeffry M. Diefendorf is the Rebuilding Europe's Bombed Cities, 1990 [3]. The book is the best collection on post-war reconstruction experiences, which consists of papers of a conference in Italy. The book is a sampling of post-World

War II cases, so introduction and conclusion parts only mentioned in this book. Joseph Louis Nasr's dissertation, reconstructing or constructing cities? Stability and change in urban form in post-world war in Germany and France (1997).

Urban morphology journal volume 7 (2003), Joe Nasr, Jeffry M.Diefendorf, Peter J.Larkham, Jason Gilliland, each published an article about the morphology of urban disaster. Morphology of disaster: challenge for research written by Nasr (2003).discusses about concept of stability and change of urban form after a disaster. Nasr show some methodological difficulties which appear when analyzing the change in physical environments within a study of post-conflict rebuilding. Diefendorf (2003) added an article about at ground level. And discuss that the historian must be involved with complex obstacles that prevent the implementation of idea plans and constructions.

IV. VIEWPOINTS OF THE URBAN RECONSTRUCTION PLAN AFTER A WAR

The purpose of an ideal reconstruction program is to rebuild the damaged city with a higher standard than the pre-disaster. With an attempt to return the city to normal. For achieving all of the purposes cultural, historical, economic and political approaches need to be considered. For post-disaster reconstruction plans, three perspectives take place: The view that reconstruction means rebuilding what existed before the disaster in the city. A vision that believes that major changes in society and the city of distress will occur during the reconstruction process. The third view is a combination of the two previous views [3].

Reconstruction can be a concept beyond the precise reorganization of what has damaged or what it looked before. The opposite of the above point is the idea that reconstruction is meant to bring about fundamental changes and promote the level of economic and social development of the region to improve the social and physical and economic structures [4]. Between the two viewpoints, one theory is argued, the urban reconstruction plan is not merely an exact rebuild of the same conditions as it previously existed. Nor did it bring about a fundamental change in the disaster zone, but reconstruction is the repair of the disaster caused by accident, and in parallel, it corrects previous failures of the environment However, this modification of inadequacies does not mean a basic change in the level of regional development. But the elimination of previous failures that can easily achieve during the reconstruction of the city. And on this basis, the reconstruction has opened up an opportunity to address these deficiencies [5].An ideal reconstruction program should have three elements as follows:

Comprehensiveness: Means not focus only on one part of the city or one aspect of the city. Or means to consider all aspects, social, economic, cultural and political dimensions. Flexibility: Another important principle in urban planning programs is the flexibility and adaptability of the program with future and changed conditions. The importance of the reconstructing planning is because the plans confronted with degraded living cores, which condition and future situation are mostly ambiguous. Ambiguity as to how much population will return to the city where it will be rebuilt.

Continuity: Planning is a continuous process, a continuous activity that is not limited to a specific period of time. The importance of the continuation of the reconstruction of the war-torn cities is because the reconstruction plans are not a short-term task, but a continuous and long-term one. Until the town completely rebuilds the ruins [6].

Regarding the mentioned views points, goals, and elements of the urban reconstruction plans an ideal reconstruction process is usually defined by the following actions: Demolition, Clearance, The estimation of damages, Ownership and land use, Economic recovery, modifying the deficiencies of previous, the potential of the city and the historic city center, Demands of local people, Preservation the identity of the war-damaged cities.

According to the aims and hypothesis, the study focused on Preservation the identity of the war-damaged cities. Preserving the identity of the city means maintaining historical continuity and linking the city with its past, preserving the personality, characteristics, and an image of the city during the rebuilding. In fact, urban reconstruction is restoring the spirit of the city to it. One of the points that must consider in the reconstruction plan is to preserve the identity of the city. So, with a glance at the city, can be said that this is the former city that was reconstructed and not the new city. Otherwise, it will remain the only name of that city. And there will be no guarantee of the return of the people. In each city, it is different to find out what buildings are of historical and cultural value and which represent the identity of the city. These structures must be identified before reconstruction .The methods of preserving the identity of the city are as follows: In embedding the city, Reconstruction and maintenance of old networks, simulating the city center, the plaza, the main squares, and crossroads, Simulating the heritage and valuable buildings and ancient works with the city's identity [7].

One of the perspectives that come to mind during the urban reconstruction plan of the war affected cities is the movement of the city in front of the settlement. This viewpoint was considered to solve the environmental problems. However, such plans are not successful in the long term from the viewpoint of popular satisfaction, for some of the reasons: The cultural, symbolic and historical values of the destroyed land for its inhabitants cannot easily be transmitted to the new land. The dependence on the land, the type of neighborhood patterns, and the proximity of relatives and relatives to housing security is more important for residents [3].

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V. THE RECONSTRUCTION PLAN OF WARSAW AFTER THE SECOND WORLD WAR

The reconstruction program of Warsaw is widely known in the world as a symbol of invincible city and urban resilience. Because of the vast scale of destructions and high human casualties, modifications and changes in politics and governments, the reconstruction plan of the city was supported by the regime to fill the gap with the past [10].

Two crucial decisions affected the reconstruction plan of Warsaw and made the project become key national and heroic project: first Warsaw remained as capital, second People's spontaneous back. Participated centers in preparation of the master plan and reconstruction plan of Warsaw were: Planning department of the Warsaw municipal council, the architectural faculty of Warsaw technical university Studio of Architects and town planning center.

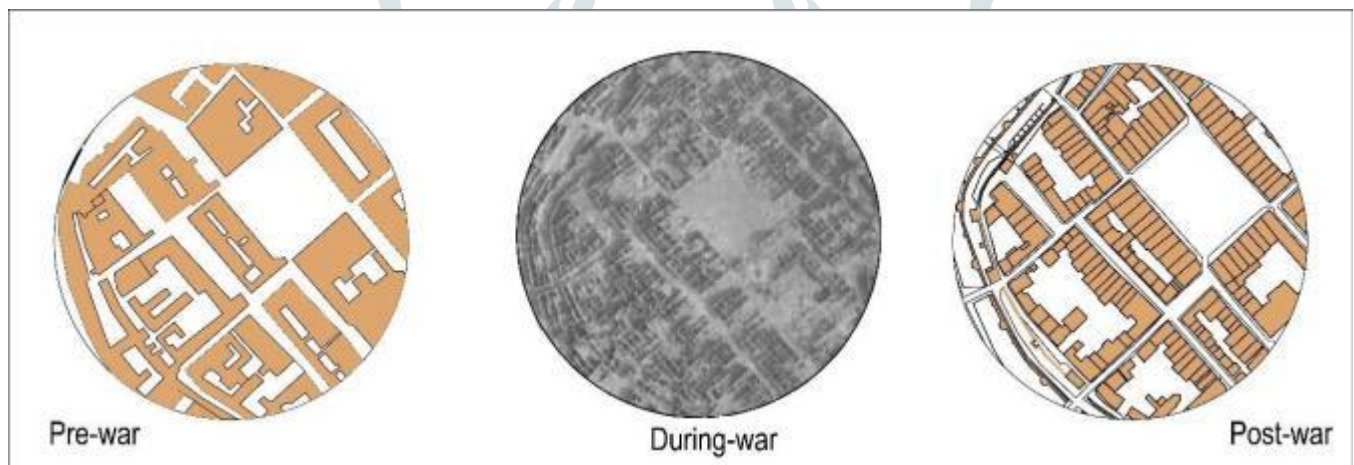


Fig 1: Urban pattern map of Market square Warsaw.

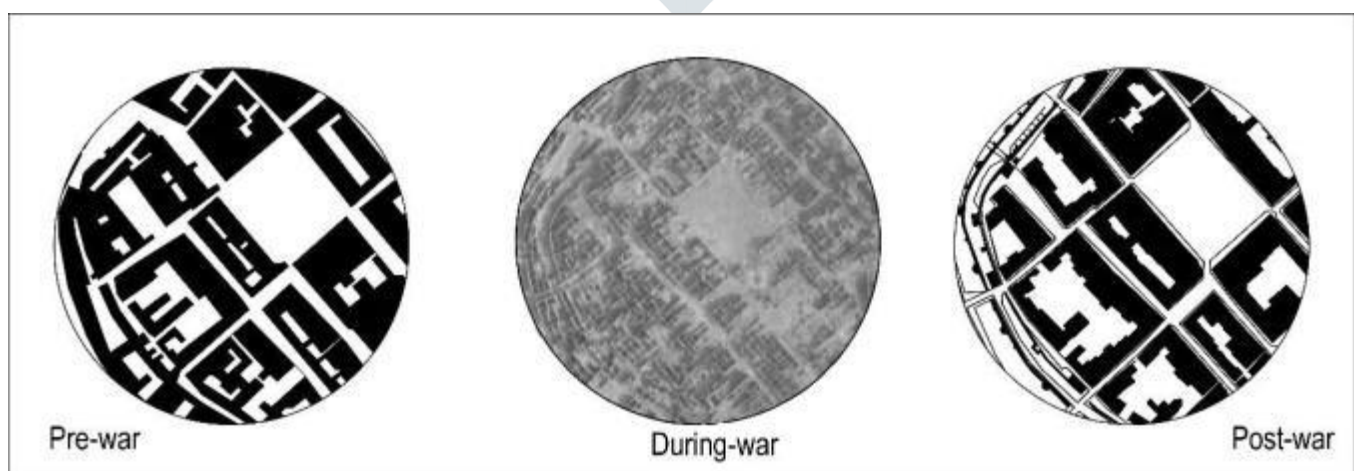


Fig 2: Figure-ground map of Market square Warsaw.

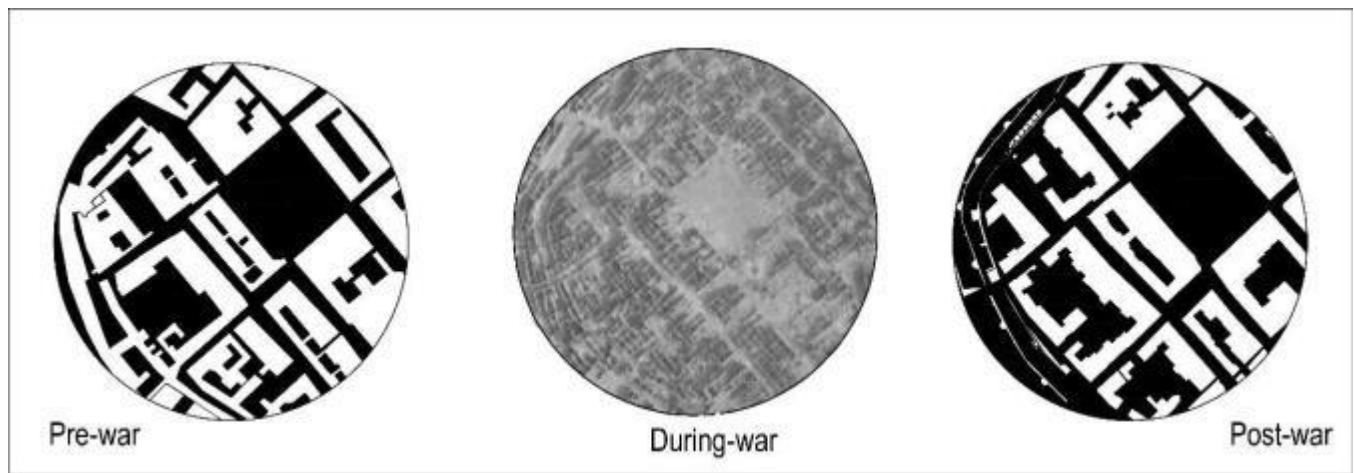


Fig:3:Ground-figure map of the market square Warsaw.

Planning department of the Warsaw municipal council, the architectural faculty of Warsaw technical university Studio of Architects and town planning center. Goals of the reconstruction plan of the old town Warsaw are the old town should be better than its pre-war period and the old town shouldn't be lamentable memorize of war destroyed town for the poles but a symbol of poles endurance. Financial resources of the reconstruction plan supported by the government and \$ 1.4 million which was popular donations.

In analyzing the Warsaw old town study focused on the market square which located on the center of the old town, with the colorful buildings that depict the old architecture and the past urban life. As noted, side by side comparison of prewar, during war and post-war maps have done. Fig 1, reveal the urban pattern of the market square. All the building reconstructed similar to the original. Fig 2, Fig 3 show contrast of built and unbuilt area in the Market square. The pattern of the streets and blocks are not changed remarkably.

VI. THE RECONSTRUCTION PLAN OF DEZFUL AFTER IRAN-IRAQ WAR

In sep1979, the Iran-Iraq war broke out with the Iraqi invasion of major cities of Iran. By a report of the United Nations, damages announced about 97 billion dollars. During the war, the city of Dezful, due to its strategic position was as a military base and the gate from north to south of the country. In Dezful, about 15,000 units were damaged, it can be said that half of the old texture of the Mahaleh Ghaleh was destroyed.

Reconstruction in Dezful was launched simultaneously with the war. The simultaneous reconstruction was due to the importance of the city from the political dimension. Because the city drained as a supply base, and also reconstruction was socially important to keep the morale of the local people and failure to evacuate the city. Reconstruction plan started after first attacks of Iraq (1979) and ended in 1987.

A high speed reconstruction operation took place. Which was logically unsatisfactory because the main purpose was to normalize the flow of life in the city. The reconstruction team in Dezful consisted of four groups: Top government officials, Mediator officials in the province, Dezful Department of restoration, Local people. The financial facilities of the reconstruction of the Dezful supplied by the long-term loans of the government of Iran. Goals of the reconstruction plan of Dezful are to normalize the flow of life in the city during the war time, to indicate the local people's resistance, and failure to evacuate the city.

The Mahaleh Qaleh of Dezful is selected due to the historical background of the site. The Mahaleh Qaleh during the war severally bombed. Many historical houses with unique architectures placed here. Comparing the maps of pre-war and post-war side by side (Fig 4) shows that, how much the structures and pattern of the site changed after the disaster. The street patterns were the irregular system, but the reconstruction project disturbed the street system and also the lots significantly. The pattern of the parcels changed from tiny grains and irregular forms to large grains and regular once Narrow paths, the winding alleys, the unexpected dead-ends related to defensive issues of the city before and after the reconstruction of the Mahaleh Qaleh changed (fig 5, fig 6).

VII. THE RECONSTRUCTION PLAN OF MOSTAR AFTER BOSNIAN WAR

Mostar known as a multicultural city where several religions lived together. The Old Bridge Stari most was built in 16th as a symbol of this multi-cultural city .The urban form has the characters of an Ottoman city, which includes commercial (Bazaar) and residential (Mahaleh) areas. Bosnian war started on 6 April 1992. The war ended on 14 December 1995. Thousands left their homes or were killed. Many historic buildings were severely damaged in the old city, including many of the mosques in the city [11]. In 1992 a team of Bosnian and Croatian architects published a collection which named Mostar22-Urbicide (Urbicide means deliberate destruction of the urban and what is symbolized) that include complete details of historical development and characteristics of the city, and also cover damages caused by war [12].

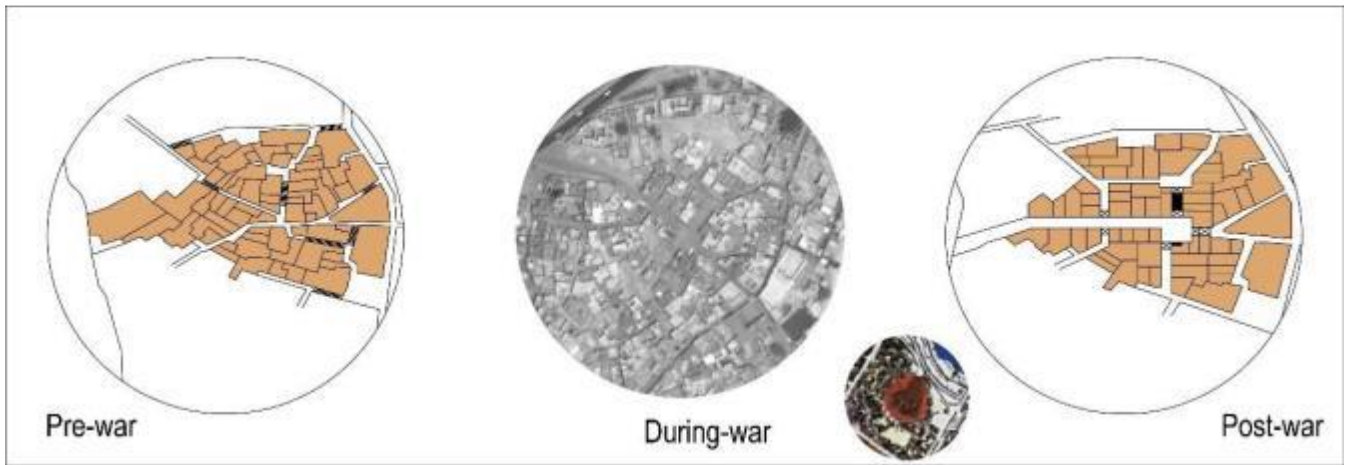


Fig 4: Urban pattern map of The Mahaleh Qaleh of Dezful.

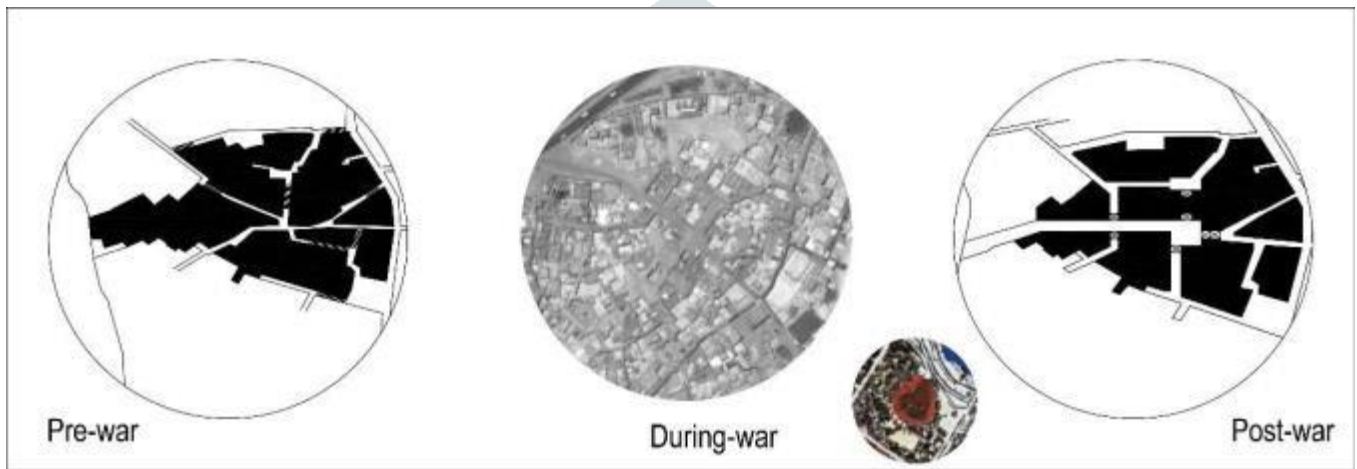


Fig 5: Dezful figure-ground map of Mahaleh Qaleh.



Fig 6: Dezful ground-figure of Mahaleh Qaleh map.

In 1994 city divided into two parts, the boulevard was the frontline between Muslims and Croats, all Serbs left the city. The city lost its multi-character feature. It was no longer multiethnic, multi-religious, and multi-cultural like before the war [13]. The reconstruction process aims to create new Bosnian identity and negotiating peace in the city through bringing back multicultural concept or reconciliation of cultural and religious differences (reconciling nations).

The goal of the project is to modify local urban management and to stimulate occupation in the area with the severe economic downturn. Efforts have been made to reclaim local identity in the city and to reconcile with Bosnians and The reconstruction will attract the attention of the international communities and the international investments [14]. Reconstruction program and plan of Mostar was the group of national and international (researchers, preparatory teams, faculties, and design office, which worked to achieve a successful reconstruction plan for Mostar) [13].The World Bank lent a loan of \$ 4 million over a 30year period. It was a

capital for Bosnia's stabilization. And owned by the Bosnian government, with the hope of reviving economic privatization and the incentive for international economic intervention in the future [15].

For Mostar the selected area is the Stari most bridge and surroundings of the west part. Because of the important strategic position of the bridge and also the surrounding area is the primary core of the city. Comparing the pre-war and post war maps of urban pattern reveal that the dimension of the parcels changed with little differences. The pattern of the texture were tiny gains and after the war reconstruction still remained tiny gains parcels. The main elements and landmarks tried to be reconstructed what they looked like before. The pattern of the texture is irregular in both era (pre-war and post-war). Some difference of parcels seen around the towers. It's about parcels classification, two or three pieces were combined together and a relatively larger piece shaped (fig 7). With focusing on the maps of figure-ground it's clear that the street patterns and block patterns hadn't major changes during the reconstruction plan. The pattern of the blocks have some transformation (fig 8, fig 9). The rare transformation of the parcels could be the reason of this changes. The narrow and irregular streets with commercial use, still serve the area.

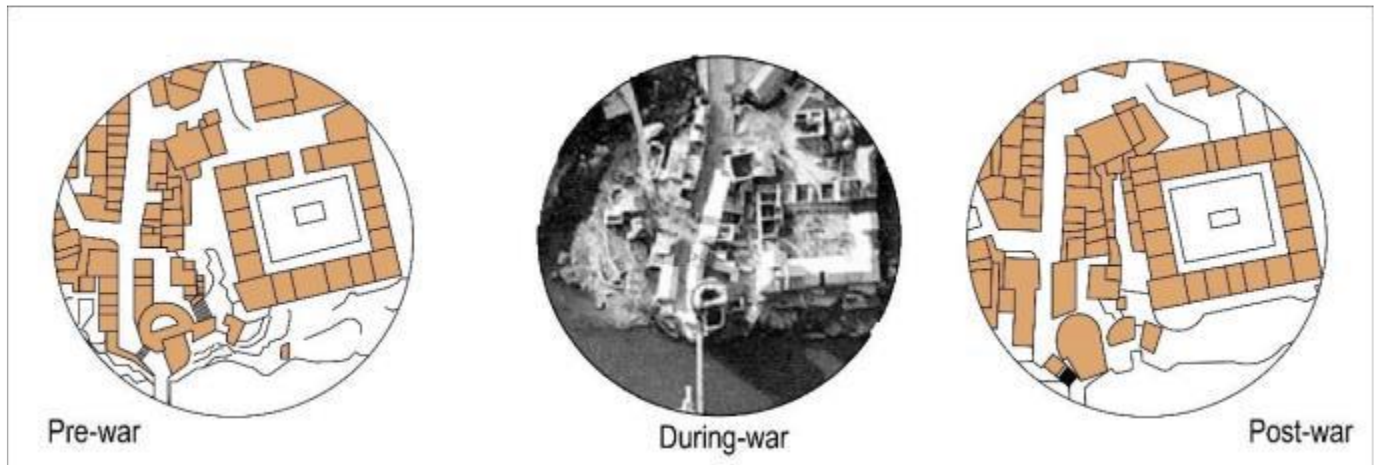


Fig 7: urban pattern of the west part of the Stari most bridge.



Fig 8: Figure-ground plan of the west part of the Stari Most.

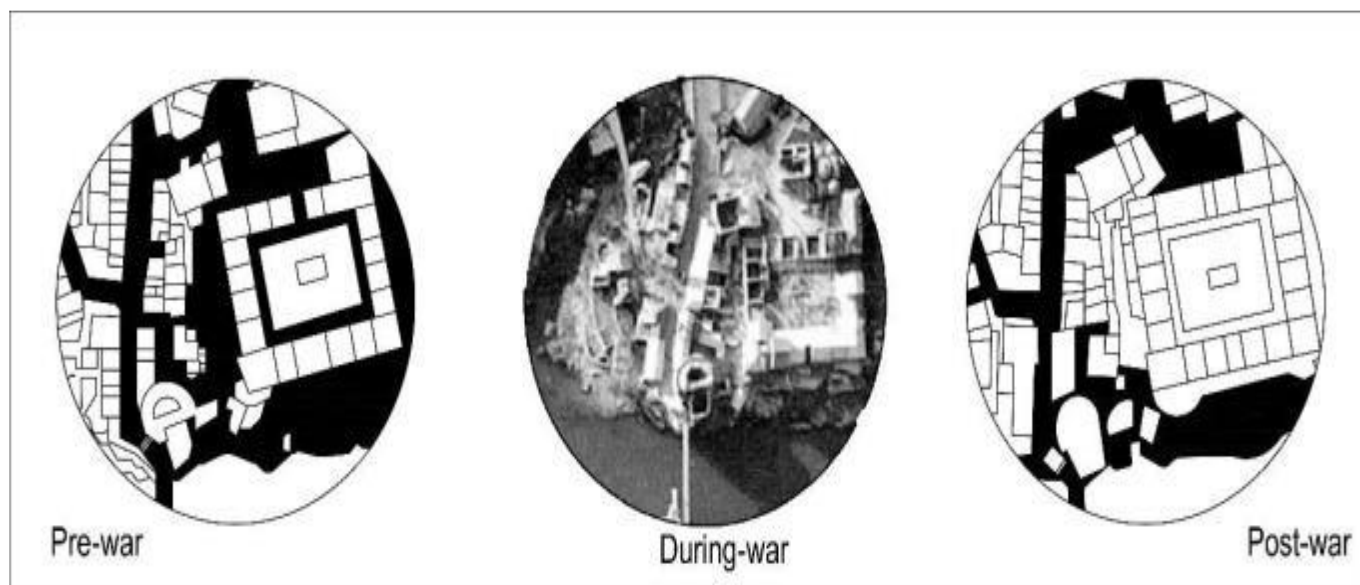


Fig 9: Ground-figure plan of the west part of the Stari Most.

VIII. THE RECONSTRUCTION PLAN OF BEIRUT AFTER CIVIL WAR

The war broke out in the mid-1975 and quickly moved to the central core of the city. Beirut gradually demolished and even city divided over the course of 16 years. Most of the inhabitants migrated to suburbs or left the city, which severely affected the morphology of the city [15]. The project was a symbol of revitalization after the national war. Goals are to be better than other Arabian cities (Dubai, Doha), to getting back Beirut's prosperity, attract Arab capitalist as a motivation for reconstruction plan, wealthy Lebanese and Arabs as a target population, Attract old investors and old citizens because the government resources were limited, and also illustrate national unity and multi-religions community[16].

The selected area is located at central part of the city. As mention the central part of Beirut was heart of commercial activities during the history. So this part of Beirut was as a gate for the Arabian countries to the Europe. Comparing two maps from pre-war and post-war of Beirut reveal the transformation of the building pattern. The lots or parcels separated. The classification of the buildings changed. Some buildings removed and open spaces replaced in the parcel. During the excavation, old roman ancient sites were discovered, and the site kept as a museum, no construction was done on them.



Fig 11: Figure-ground plan of the down town Beirut.

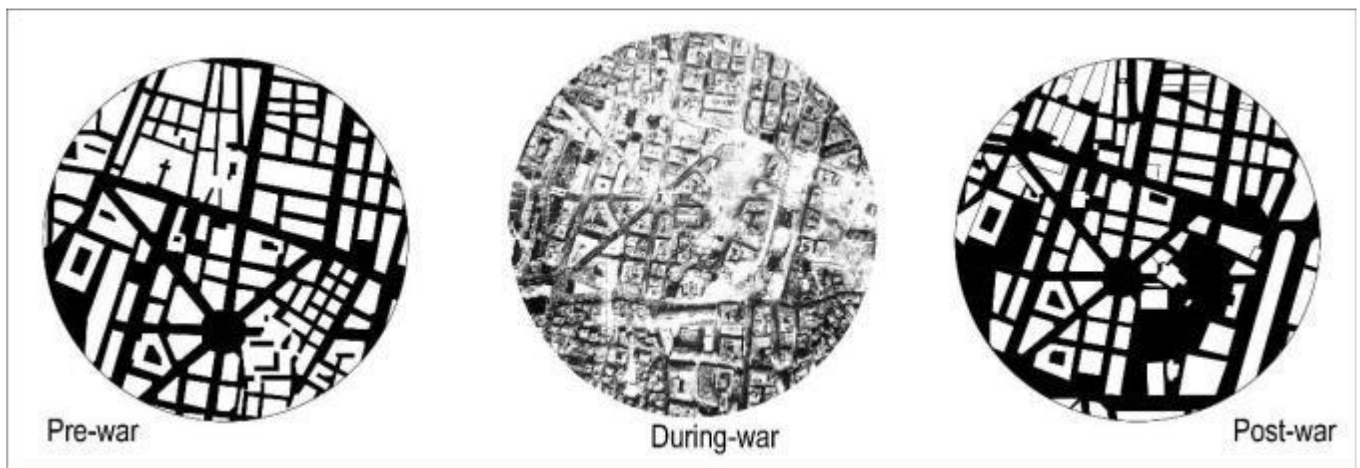


Fig 12: Ground-figure plan of the down town Beirut.



Fig 13: Urban pattern of the down town Beirut.

In the plan preferred to use exist street system and Infrastructure. The distinction is on the built and unbuilt areas. Built areas reduced and unbuilt raised. The radical street pattern of the down town in both maps can be seen.

CONCLUSION

According to the dissuasions of the reconstruction plans of each case studies cities and analyzes of physical configurations of the cities before and after the war. The following table 1, table 2 set up for better comparison the post-war cities reconstruction plan and urban form transformations of each town and also for understand distinct between each city. Time period in the table means the time which the planning started until implementation of the project ended. The partnership here checked in three categories public private partnership (PPP), public sector and private sector.

Table I: Comparison of the reconstruction plans.

City	Partnership	Economic investments	Time period	Goal
Warsaw	PPP(Public, Private Partnership)	National	25 years	A symbol of endurance
Dezful	Public sector	National	8 years	Prevent the migration of residents
Mostar	PPP	International	10 years	Reclaiming nations
Beirut	PPP	National International	Up 25 years	Back to the golden age of the past

Table II: Comparison of the physical configuration.

City	Urban pattern	Trancik
Warsaw	Absolute similar	Almost Similar
Dezful	Changed	Changed
Mostar	Almost similar	Almost similar
Beirut	More a less similar	Almost similar

This study considered different reconstruction plans of the historic city centers. Challenge to understand the methods to achieve plans which are compatible with vernacular urban plans. Consider that potentials and conditions differ from country to country and of course a town to another town. Whilst the reconstruction programs and strategies will vary also. According to the hypothesis of the study, and the archived results from the comparison of four historic cities from different cultures and different reconstruction plans. The war affected cities are compatible with the past if a convenient reconstruction program and a strong strategic framework apply. The convenient reconstruction plan through attention to important elements such as time, economic, accurate political strategies, documentation and education of the plans and essential techniques (past methods of construction) could be possible. The concept of time here means the period which the reconstruction planning started, until the end of the implementation of the program. So according to the results which achieved from the programs examinations and also analyzes of the physical configuration, illustrated that the quick rate and vacancy rate of reconstruction process couldn't lead to a successful urban reconstruction plan. The second is the factor of economics and capital. In this way, capital and financial resources are needed to reconstruct. Most of the countries involved in the conflict are in the economic crisis and a recession. Third, documents and education. Reconstructions by existing documents are immediately reviewed and launched, like as Warsaw reconstruction plan. In Mostar documentation of the maps and photos have done after the war and during the reconstruction plan. But in Dezful no documents or maps and photos were available and also no education is done to reconstruct the old urban layout of the city and the details of the buildings facades which are important elements of the city. Another important factor here is the local people demands and desires. People are the users and owners of the city. The image of the city should give the sense of belongings and reveal the characters which shape the city. Means that urban forms and physical configuration must be integrated with the past image of the city. This could be a form or material a monument or a symbol

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