

Post-Conflict Urban Heritage Reconstruction: The Case of Historic Mosul, Iraq

Chawan Osman M. Rasheed

Submitted to the
Institute of Graduate Studies and Research
in partial fulfillment of the requirements for the degree of

Master of Science
in
Urban Design

Eastern Mediterranean University
December 2021
Gazimağusa, North Cyprus

Approval of the Institute of Graduate Studies and Research

Prof. Dr. Ali Hakan Ulusoy
Director

I certify that this thesis satisfies all the requirements as a thesis for the degree of Master of Science in Urban Design.

Prof. Dr. Resmiye Alpar Atun
Chair, Department of Architecture

We certify that we have read this thesis and that in our opinion it is fully adequate in scope and quality as a thesis for the degree of Master of Science in Urban Design.

Prof. Dr. Şebnem Hoşkara
Supervisor

Examining Committee

1. Prof. Dr. Naciye Doratli

2. Prof. Dr. İhsan Fethi

3. Prof. Dr. Şebnem Hoşkara

ABSTRACT

During wars, historic towns have been systematically and deliberately destroyed. One of the main reasons for these systematic attacks is to make cities lose their identity and defeat citizens feeling of belonging. It is also the main reason motivating the related authorities to rebuild what has been lost during the conflict. The reconstructing process presents a different path in each example according to their special circumstances. This research discusses the post-conflict strategies for reconstructing the old city of Mosul, one of the oldest cities in the world, heavily destroyed during the rule of the Islamic State in 2014 and the liberation in 2017. Accordingly, this research used qualitative research methods throughout comparing and analyzing reconstructed cities and outlining their reconstruction methods. In the research, ten destroyed cities by war have been analyzed to examine different approaches regarding reconstruction to be implemented later in the old city of Mosul city. Then six cases have been studied in detail to direct the reconstruction process in Mosul. The cases are of Mostar, Coventry, Warsaw, Dresden, Beirut and Aleppo, that had been rebuilt or are still under reconstruction by different actors utilizing various methods. The selected cases are studied and analyzed in depth through research about their history, destruction, and rebuilding strategy. Each case gave us a different method and lesson that have been employed to propose strategies for rebuilding Mosul's old city. As a result, a paradigm has been presented considering the reconstruction facts and ground rules related to Mosul city.

Keywords: Urban heritage, reconstruction, post-conflict, Mosul.

ÖZ

Savaşlar sırasında, kentsel miras genellikle sistematik ve kasıtlı olarak yok edilmektedir. Hedefli saldırıların ana sebeplerinden biri, insanlara, aidiyet duyguları yok olsun diye kimliklerinin hedef alındığını hissettirmektir. Savaşlar sırasında yok edilen veya tahrip edilen kentsel miras, aynı zamanda, yetkili kurum ve kişileri, kaybedilen değerleri yeniden inşa etmeye de motive eder. Yıkılmış, yok edilmiş kentsel mirası yeniden yapılandırma işlemi, her vakanın özel durumlarına göre her durumda farklı bir yol izlemeyi gerektirir. Bu araştırma, dünyanın en eski şehirlerinden biri olan ve IŞİD'in 2014'teki rolü ve 2017'deki kurtuluş sürecinde yıkılan eski Musul kentinin yeniden inşası için çatışma sonrası kentsel mirasın yeniden yapılandırılma stratejilerini ele almaktadır. Buna göre araştırma, öncelikle savaş sonrası yeniden inşa edilmiş olan benzer kentleri karşılaştırmalı olarak analiz etmiş ve yeniden inşa yöntemlerini nitel araştırma yöntemlerini kullanarak incelemiştir. Bu çalışmada, öncelikle dünyanın farklı coğrafyalarında savaş nedeniyle yok edilen 10 farklı kent çalışılmış ve daha sonra Musul şehri ile karşılaştırıp ve 6 kent - Mostar, Coventry, Warsaw, Dresden, Beirut and Aleppo - seçilerek ayrıntılı olarak analiz edilmiştir. Söz konusu örnekler, tarihsel geçmişleri, savaş dolayısıyla yıkımları ve yeniden inşa stratejileri bağlamında incelenmiştir. Bu karşılaştırmalı incelemelerden edinilen öğretiler, araştırmanın asıl vakası olan Musul'un eski kent dokusunu yeniden inşa etmek için stratejiler önermek için kullanılmıştır. Sonuç olarak, Musul kentine özgü yeniden yapılanma gerçekleri ve temel kurallar göz önünde bulundurularak bir paradigma sunulmuştur.

Anahtar Kelimeler: Kentsel miras, çatışma sonrası yeniden inşaat, Musul

TABLE OF CONTENTS

ABSTRACT	iii
ÖZ	iv
LIST OF TABLES	viii
LIST OF FIGURES	ix
1 INTRODUCTION	1
1.1 Problem Statement	1
1.2 Research Aim, Questions and Objectives	2
1.3 Research Methodology.....	3
2 REVIEW OF LITERATURE ON POST-CONFLICT RECOVERY OF URBAN HERITAGE.....	4
2.1 Conceptual Framework on Urban Heritage	4
2.2 Framework for Implementation of Urban Heritage Recovery	8
2.3 Approaches and Practices of Post-Conflict Urban Heritage Recovery.....	14
2.4 International Documents on Reconstruction of Urban Heritage.....	22
2.5 Chapter Summary.....	26
3 REVIEW OF RECONSTRUCTION STRATEGIES IN CONFLICT CITIES	27
3.1 Wars and Urban Heritage.....	27
3.2 Methodology for Selection and Analysis of Examples	29
3.3 Study of the Selected Examples	34
3.3.1 Mostar City - Bosnia and Herzegovina	36
3.3.2 Warsaw - Poland.....	42
3.3.3 Coventry - United Kingdom.....	47
3.3.4 Dresden - Germany.....	54

3.3.5 Beirut - Lebanon.....	58
3.3.6 Aleppo - Syria.....	66
3.4 Systematizing the Reconstruction Strategies: Learning from Examples	74
3.5 Chapter Summary.....	77
4 CASE STUDY: THE OLD CITY OF MOSUL.....	80
4.1 Methodological Approach.....	80
4.2 The City of Mosul	80
4.2.1 Historic Development.....	81
4.2.2 Socio-political and Economical Characteristics	87
4.2.3 Physical and Functional Characteristics	89
4.3 Urban Heritage of the Old city of Mosul	95
4.4 Architectural Heritage of the Old City of Mosul	102
4.4.1 Mosques and Tombs.....	105
4.4.2 Churches and Monasteries/ Der.....	108
4.4.3 Private Traditional Houses	110
4.4.4 Others.....	114
4.5 Chapter Summary.....	115
5 THE DESTRUCTION AND RECONSTRUCTION OF THE OLD CITY OF MOSUL.....	116
5.1 Mosul Urban Heritage Intentional Destruction.....	116
5.2 Mosul Postwar Urban heritage	125
5.3 Debate on Reconstruction Process of the Urban Heritage in Mosul.....	130
5.3.1 Main Actors in Recovering the Old city of Mosul.....	132
5.3.2 UNESCO and UN HABITAT’s Project: Initial Planning Framework for the Reconstruction of Mosul	133

5.3.3 UNESCO’s project: Revive the Spirit of Mosul	135
5.3.4 Current efforts toward the Old City of Mosul recovery	138
5.3.5 Role of the Local Community in the Recovery Process.....	142
5.4 Future Directions and Proposals for the Reconstruction of the Urban Heritage in Mosul.....	147
5.5 Chapter Summary.....	148
6 CONCLUSION	149
6.1 Findings and Recommendations for the Reconstruction of Historic Mosul ...	149
6.2 Recommendations for Future Research on Post-conflict Reconstruction.....	159
REFERENCES.....	161
APPENDICES	175
Appendix A: Mosul - Iraq	176
Appendix B: Mostar City - Bosnia and Herzegovina	178
Appendix C: Elblag - Poland	180
Appendix D: Coventry - United Kingdom.....	182
Appendix E: Middelburg - The Netherlands.....	184
Appendix F: Beirut - Lebanon	186
Appendix G: Dresden - Germany.....	188
Appendix H: Warsaw - Poland.....	190
Appendix I: Aleppo- Syria	192
Appendix J: Hiroshima - Japan	194

LIST OF TABLES

Table 1: Related notions to conservation with a differentiation in their action	13
Table 2: International convections dealing with reconstruction	25
Table 3: Comparison of ten cities that went through conflict and devastation	32
Table 4: Comparison between the examined case studies and Mosul	35
Table 5: Case studies rebuilding strategies	79
Table 6: List of the destroyed Old Mosques in the Old City of Mosul.....	107
Table 7: List of the main destroyed Churches and Monasteries/Der in the Old City of Mosul	109
Table 8: List of destroyed Traditional Houses in the Old City of Mosul	113
Table 9: List of Other Historic Properties	115
Table 10: Number of the destroyed heritage monuments in the old city of Mosul .	126
Table 11: Situation of the heritage monuments of the old city of Mosul	139
Table 12: Case studies' strategy comparation.....	146

LIST OF FIGURES

Figure 1: Mostar City location map and aerial photo	37
Figure 2: Destroyed Mostar City	38
Figure 3: Reconstructed Mostar City	40
Figure 4: Mostar City Map from 1993-2016.....	41
Figure 5: Warsaw location and city map	43
Figure 6: Warsaw map from 1944 to 1965	45
Figure 7: Reconstructed facades after the war-Warsaw.....	46
Figure 8: Warsaw Old Town pre-post the war.....	47
Figure 9: Coventry Location and the aerial view of the city 1946.....	48
Figure 10: Damaged pictures of Coventry City	49
Figure 11: Coventry proposed plan-1945	52
Figure 12: Coventry, re-erected medieval buildings and section of town wall at the end of Spon Street.....	53
Figure 13: Coventry aerial photo- 2015	54
Figure 14: Dresden location map and the city map that illustrates its urban fabric...	55
Figure 15: Dresden pre-post-war image.....	56
Figure 16: Dresden before and after reconstruction.....	57
Figure 17: Beirut location and its district map.....	59
Figure 18: Beirut city center 1962	60
Figure 19: Photo of Martyr's square pre-post the civil war	62
Figure 20: Beirut City Center after reconstruction	65
Figure 21: Foch Street building facades.....	66
Figure 22: The growth of Aleppo city through time till the 19th century.....	67

Figure 23: Typologies of Aleppo old city’s-built environment	68
Figure 24: The Great Umayyad Mosque in Aleppo.....	69
Figure 25: Map of damaged Aleppo Old city	70
Figure 26: The ancient markets in Old Aleppo pre-post reconstruction.....	73
Figure 27: Iraq and Nineveh governorate location and Mosul municipality division map.....	81
Figure 28: Nineveh Street in Mosul.....	85
Figure 29: Historical development of Mosul	86
Figure 30: Distinctive cityscape of Mosul pre-ISIS.....	87
Figure 31: Population density of Mosul city before ISIS	88
Figure 32: Pre-destruction Clock tower of the Dominican church with al-Hadba in the skyline of Mosul.....	90
Figure 33: The uniqueness of the local stone and brick.....	90
Figure 34: Circulation in the old city of Mosul	92
Figure 35: Qanatir in the Old City of Mosul (Archways).....	94
Figure 36: Land Use Map of Mosul city	95
Figure 37: The citadel of Bashtabia which still standing as evidence of architectural heritage from 12 Century	96
Figure 38: An old map of Mosul.....	98
Figure 39: Old Map of Mosul in 1920	99
Figure 40: The unique urban fabric of the city of Mosul.....	100
Figure 41: Homes overlooking the river in the old Mosul.....	101
Figure 42: The network of streets, and alleyways of Old Mosul.....	101
Figure 43: Old Mosul urban fabric	102
Figure 44: Al-Mujahidi (Al-Khidr) Mosque	103

Figure 45: Entrance influences.....	104
Figure 49: Samples of traditional entrance windows, contracts, and decorations ...	105
Figure 47: Old maps of the old city of Mosul illustrating the Mosques	106
Figure 48: Examples of traditional houses in old city of Mosul- exterior	111
Figure 49: Examples of traditional houses in old city of Mosul- interior.....	112
Figure 50: Abduni House and Tutinchi House	114
Figure 54: Mosul city-damaged building.....	118
Figure 52: Old Mosul with architectural monuments deliberately destroyed by ISIS (June 2014–July 2017)	119
Figure 53: Heritage buildings destroyed or severely damaged during the liberation	122
Figure 54: The Destruction of old city of Mosul	123
Figure 55: Clearing the rubble randomly	124
Figure 59: The panorama of the old city of Mosul before and after the war.	124
Figure 60: Al- Nuri Mosque Pre-Post Destruction	126
Figure 58: Demolished old city market after the liberation	129
Figure 59: Reconstructed hoses in old Mosul	130
Figure 60: Neglecting the standardization of architectural heritage elements.....	130
Figure 61: Community awareness event.....	137
Figure 62: The preserved and secured original material.....	141
Figure 63: Barud khana after reconstruction.....	142
Figure 64: Mosques under reconstruction in the old city of Mosul.....	143
Figure 65: Rebuilding the Mosques in the old city of Mosul valuing the original elements.....	144
Figure 66: The reconstruction involvement sector tree.....	156

Chapter 1

INTRODUCTION

This chapter represents an introductory part of this research. It covers the problem statement, aims, questions, methodologies, objectives, and limitations of the research.

1.1 Problem Statement

During wars, cities have been destroyed and heritage has often been attacked systematically targeting the identity, memory and feeling of belonging. On the one hand, the great value of heritage to the citizen is a reason for the harmful attack which results in its damage. through this, the enemy ensures the extermination of city identity. On the other hand, it is also the primary motivation for reconstruction post conflicts. various approaches and points of view serve the recovery process after the war. Hence, the reconstruction process presents a different path in every post destruction example based on their unique conditions. For the city of Mosul, which suffered dramatically after the war, approximately 20,000 buildings were either damaged or destroyed (UNESCO, 2019). The reconstruction project is an ongoing process through many organizations, investors and funders. However, the initial planning framework containing basic information, regulation and recommendation related to various sectors, and the Revive the Spirit of Mosul project to reconstruct several valuable properties that was implemented by UNESCO is considered as an essential and meaningful effort to have a deep and positive impact on the recovery process and next generations. However, according to Isakhan (2019) (Benjamin Isakhan, 2019), UNESCO failed to understand the local community's opinion on their need and value,

they failed to create a continuing dialogue with the local population and experts, every stage of the current reconstruction project illustrates how the heritage value and experts' notions have been sidelined in favor of development and funders' wonder. Accordingly, this research is to outline a tailored strategy for reconstructing the old city of Mosul.

1.2 Research Aim, Questions and Objectives

This research aims to understand the ways and methods of recovery of the urban heritage in conflict zones and then propose a reconstruction strategy for the post-conflict city of Mosul.

In order to achieve this primary aim, the main research question of this study is defined as:

- What should be the main strategies for the reconstruction of the destructed urban heritage of the old city of Mosul?

In order to answer the main research question, the following sub-questions have been defined:

- What are the concerns of international documents on the reconstruction of urban heritage in conflict cities?
- What are the alternative strategies for reconstructing destructed urban heritages in post-war cities?

Accordingly, the research will follow a systematic approach to reach the following objectives to be able to answer its main and sub-questions:

- Understanding urban heritage, its destruction and conservation processes in conflict cities.

- Understanding international conventions regarding urban heritage reconstruction.
- Understanding the relationship between the urban heritage in conflict and the recovery process.
- Framing urban heritage reconstruction strategies for the Old City of Mosul based on completed projects or reports.

1.3 Research Methodology

This research is a historical and case study research. It will use qualitative research methods based on analyzing existing examples, including literature review. The first part presents a conceptual framework of urban heritage, plus the impacts of conflict on the urban heritage within the implementation processes considering the international conventions.

The second part introduces the reconstruction strategies in conflict cities by investigating, evaluating, and analyzing the post-conflict urban heritage' methods. Accordingly, archival studies of urban heritage, the destruction of conflict, and the strategy of reconstructing are carried out and put forward. Then lessons are drawn from each case study and implemented to design a different framework for a new reconstruction strategy. New strategies are to be applied to Mosul city in Iraq, taking into account the city's specific circumstances and the conflict, after a thorough literature review on the tangible urban heritage of the city. Finally, some recommendations will be presented considering the current situation in the city.

The research will be limited to the reconstruction strategies in post-conflict urban heritage areas in Mosul.

Chapter 2

REVIEW OF LITERATURE ON POST-CONFLICT RECOVERY OF URBAN HERITAGE

This chapter sets out to understand urban heritage reconstruction in the light of past and recent literature. First, some key subjects that are related to cultural and urban heritage will be defined, then the causes of urban heritage destruction will be determined. Later, different conventions and approaches of urban heritage recovery will be illustrated. Finally, this chapter concludes some essential notions about the optimum and challenging urban heritage recovery processes that have been examined in the historic sites after conflict. this chapter aims to present an overview of previous research and papers on urban heritages reconstruction after conflict, coming out with some critical analysis for reconstructing urban heritage in the next two chapters.

2.1 Conceptual Framework on Urban Heritage

The term “Heritage” is defined as a property, something that is inherited, handed down from previous generations. Merriam Webster defines it as something transmitted by or acquired from a predecessor (Webster, 2021). While "Culture" is defined as the customary beliefs, social forms, and material traits of a racial, religious, or social group (Webster, 2021), it has been described as the outcomes of creation of human activities and human mind creations, such as beliefs, arts, and customs, and human knowledge (Franchi, 2014). Accordingly, in “cultural heritage,” the heritage consists of values and traditions; hence, cultural heritage implies a shared bond, our belonging to a

community. It represents our history and identity, our bond to the past, our present, and the future.

Cultural heritage is discursively ascribed to or constructed within a particular culture. So, it is from people to people. According to Article 1 from UNESCO convention, which had been adopted in November 1972, cultural heritage has been considered as the following” (Convention Concerning the Protection of the World Cultural and Natural Heritage, 1972)

- *Monuments*: includes any architectural works, monumental sculpture and painting, elements or structures of an archaeological nature, inscriptions, cave dwellings, and combinations of features that have a magnificent value from the point of view of history, art, or science.
- *Groups of buildings*: separate or connected buildings that have a universal value of their architecture, homogeneity, or place in the landscape.
- *Sites*: man work or the combined nature and man work, with areas including archaeological sites with a spectacular universal value from the historical, aesthetic, ethnological, or anthropological point of view.

Then the definition based on the broader aspect had been adopted by the Council Conclusions in May 2014 to consist of the resources (tangible, intangible, plus digital) inherited from the past in different forms and aspects as monuments, sites, skills, practices, knowledge and creativity. In addition, some collections have been preserved and managed by public and private bodies in the museums, libraries and archives. It generates from the interrelation between people and places within time (Union, 2014). Accordingly, we can say that cultural heritage first defined as comprising monuments, groups of buildings and sites. Then the definition had been broadened to include the

intangible heritage lie, practices, representations, expressions, knowledge, skills, plus the instruments, objects, and artefacts. Cultural heritage is described as a non-renewable resource that is unique, non-replaceable, or non-interchangeable. Later it has been confronted with critical challenges related to cultural, environmental, social, economic, and technological evolution that affect all aspects and elements of contemporary life.

In defining urban heritage, Steinberg (1996) derives a brief and full description; he mentions that “most of the urban planners and stakeholders interpret urban heritage as "monuments" like, temples, religious buildings, palaces, castles, fortresses, city walls and gates with other types of institutional buildings, and often eliminate historic residential areas and historic city centers that exactly represent the urban heritage. In addition, there may be non-tangible components of urban heritage that play a role in articulating space use and the built environment as customs and beliefs (Steinberg, 1996). Accordingly, in most of the towns and cities, urban heritage presents a rich cultural source from the tangible form as buildings, streetscapes, properties. to the intangible form as customs, rituals, events, even the traditional creative crafts and skills of artisans that produce cultural assets and services using historical production practices (Throsby, 2015).

In 1987, according to The Conservation of Historic Towns and Urban Areas Charter, the historic towns had been expressed by:

- Urban form as determined by lots and streets.
- The relation between open spaces, green areas and buildings.
- The formal interior and exterior appearance that is defined by scale, style, construction, colour, materials, and decoration.

- Relationship between the city, or urban area with its surrounding context, whether natural or man-made.
- The different functions that the city or urban area has obtained through time (ICOMOS, Charter for The Conservation of Historic Towns and Urban Areas, 1987).

Then in 2011, urban heritage became a term that constitutes a key source in improving the livability of an area and fosters its economic growth and social cohesion (UNESCO, 2011). Accordingly, urban heritage promotes the sense of community, cultural identity and the community's welfare if it has been conserved accurately.

According to a European Commission report in 2018, man-made risks such as armed conflicts, terrorism or environmental accidents had persistently placed the heritage under pressure. Besides, they menace the assets' social, cultural, historical and artistic values, citizens' security, and influence local economies and tourism, particularly in those sites that are going through conflicts (Commission, 2018). In case of conflict, it is hard to implement risk-mitigating procedures, hence many urban heritage areas, buildings, historical city centers have been damaged.

Historic cities illustrate endless samples of neglect in the modern world that manifests high rates of decline in their urban fabric. Historical city centers are connected to the specific historical layers of urban change, advanced, declined, and renovated over time. Cities that, for any reason, lack memory are away from their past, and do not preserve or neglect their heritage and identity, as Kabila mentioned, cannot build their future, which makes them vulnerable to damage and destruction (Hmood, 2019). In particular, while the world had witnessed all types of crises from war, natural

catastrophes, infrastructure projects, climate change to the pandemic, regardless of their root causes, each one had its profound impact on the historical city centers and urban heritages. Especially, the impacts of conflicts and wars are quite obvious affecting the infrastructure of land use, buildings, and streets.

As a result of studying conflicts and their impact on historical cities, Salah Haj Ismail (2014) presented five causes for heritage destruction in the conflict zones and how it consecutively affects people's psychology. The causes include; *Punishment*, punish the "enemies" by destroying their proper; *Accidental*, which happened mistakenly; *Symbolic*, destroying a symbolic figure, related to people's identity and their image about the city, to motivate them to act with or against those actions, expanding his third cause with two primary reasons, *Religious motivation*, which generate the war and create different groups with different ideologies, and; *History denial or rejection*, where one side tries to eliminate the city's history. Almost all the causes target the heritage in one way or another, in which they made people feel that their identity has been targeted, and systematic destruction has been conducted in their city and heritage to defeat their feeling of belonging (Salah Haj Ismail, 2014).

2.2 Framework for Implementation of Urban Heritage Recovery

Research and practices illustrated that urban heritage has an essential role in promoting the quality of life in cities, social cohesion and economic evolution, especially in conflict zones. Accordingly, urban heritage recovery lies as a crucial aspect of the urban planning process. Urban conservation, as Albrecht (2013) defined is the 'protecting and managing the valuable spaces and species in and around cities, beside the ecosystem services they supply' (Albrecht, 2013). In defining urban heritage, as it has been mentioned previously, it is defined as historic residential areas and historical

centers, which may be combined by intangible elements, such as customs and beliefs. (Steinberg, 1996). Based on their definitions, urban heritage conservation can be simply defined as protecting and managing valuable historic residential properties and historic centers within the intangible elements. The aim of conservation is to retain the valuable and unique urban heritage to serve as a constant reminder of the past and its early stages of development of any city (Lih, 2005).

over the last three decades urban conservation has become a fundamental element that aimed to promote the historical physical environment and ensure its continuity as an attractive place (Su, 2010). Puren and Jordaan (2014) suggest that the understanding of urban conservation has to change from heritage sources preservation towards a more integrated process where heritage resources are integrated with city improvement as well as its contemporary uses to enhance their continued existence (Jordaan, 2014). Accordingly, urban conservation will require the evaluation of historical areas including natural, architectural and urban heritage as a whole, through comprehensive spatial analyses and investigations. Conservation of urban heritage is a balance between preserving the special characters, quality, and significance of the historic sites in a way that sustains and transforms it into the future (Macdonald, 2011).

Urban heritage conservation first, had been seen, when in the late 80s the concern grew for the environment and situations of poverty in many countries, as well as disasters and armed conflicts, that was targeting heritage which caused the loss of heritage properties and value. Many challenges emerge in the conservation of built heritage, but as Al-Saffar mentioned, the main one was the complete devastation and the lack of clear conventions or awareness to lead the conservation process (Al-Saffar, 2018).

As Steinberg (1996) mentioned, urban heritage should attain the status of a preservable asset that can benefit the present and future of cities. This asset will not only be limited to the cultural perspectives but will become a good potential for economic exploitation. For instance, through tourism, for culturally-based image building of local economic improvement, or the promotion of corporate enterprises.

Within the understanding of urban heritage, its conservation is an issue to be concerned in all historic sites and cities Whereas urban heritage recovery and reconstruction is another issue that needs special attention in conflict zones. First, as Steinberg (1996) states, so in the conflict zones urban heritage recovery will direct heritage to a broader future (Steinberg, 1996). Second, the conservation of destructed heritage sites needs methods and inputs, authorities' vision, awareness and regulations for local communities and clarification for the World Heritage Committee, to assess potential impacts on site reconstruction and its integrity in a formal and objective way (Oers, 2010).

With these in mind, the related notions to conservation that protect the heritage value of an object or a historic place with differentiation in their action, condition, and time frame will be presented in the following lines. These are: *renewal*, *reconstruction*, *rehabilitation*, and *restoration*.

Renewal

Dictionaries define renewal as the act or process of renewing. Any action that renews, or revitalizes a place of cultural significance that may affect the physical pattern of the place. Renewal of an area or property may simply let it remain in use, which may or may not result in 'protective care' (LeBlanc, 2019). The term renewal architectural

conservation should mean the use of various types of conservation acts such as treatments/measures/interventions on architectural / built heritage. They can, in actual circumstances, be used in invariably different ratios (Lah, 2001). Accordingly, Rui (2008), according to Buissink (1985), defined renewal as an act of making destroyed places suitable for use again. Buissink (1985) defined six activities about urban heritage conservation and renewal: *maintenance, improvement, restoration, rehabilitation, reconstruction, and redevelopment* (Rui, 2008). Thus, the activities related to conflict destruction including restoration, rehabilitation, reconstruction will be examined.

Reconstruction

Merriam Webster dictionary defines reconstruction as the act or process of rebuilding, repairing, or restoring something. Sometimes, this term is used in a heritage context. And it is used interchangeably with rebuild when accurately applied to a building that has been partially or totally destroyed. The Riga Charter article 20 defined reconstruction as the “evocation, restoration, interpretation, or replication of a property to its previous style or pattern”, and differ from restoration through the implementation of modern and new material to displace the old-traditional material (when the old material is lost or destructed) to be considered as new work. Reconstruction is proper only where a place is incomplete through destruction or alteration, and only where there is enough evidence to recreate a fabric from an earlier state. The strategy can be appropriate as part of use or practice that preserves the cultural value of a place (Charter, 2014).

Reconstruction, according to Outstanding Universal Value (OUV), is applied to the objects and their material with the social structures (ICOMOS, Guidance on Post

Trauma Recovery, 2017). While in relation to the heritage discourse often implies ‘identical’ reconstruction, the re-building to a state as near as possible to the original. It is rarely achieved in practice, as the authenticity of the original materials and their historical value cannot be restored, and in many cases, evidence or documents cannot be found (ICOMOS, Guidance on Post Trauma Recovery, 2017).

Reconstruction is a conservation act whereby we establish, rebuild or otherwise renew destroyed or damaged parts by using old or new materials or their combination. It has to be based on documents, testimonies, or other proof and never on supposition (Lah, 2001).

Rehabilitation

Rehabilitation is the act that implies the renewal of a building to enable it for use. It will be accurate with more or less varied modernization acts like adaptations, changes. (Lah, 2001). It is usually used in an interchangeable way with renovation to describe the modification of an existing building. This strategy extends a historic place or an individual component’s life through repairs and alterations while preserving its important characters and attributes (Heritage Canada Foundation 1983).

Rehabilitation should always imply a more complex set of acts (intervention/measure/activity), by which the technical and spatial - design properties of an object (complex/settlement/quarter/area) are developed, but also the residential, social, cultural, and ecological conditions. Rehabilitation cannot be a sum of different technical conservation acts, or design creations (artistic / author) or achievements. Its contents include wide conceptualized endeavors.

Restoration

Restoration is an act with the intention to reproduce the original image of building legibility or architectural composition. It usually depends on (respect for original materials, archaeological testimony, original design, authentic documents) and never on supposition. Substituted missing or destroyed parts have to be harmonized with the whole in a manner of careful observation that enables their distinction from the original. This type of restoration is legitimate only if it is based on firm archaeological testimony and when it is possible to present the remains in a more understandable manner. The new parts functioning as supporting structures have to be distinctly different from the originals. The method is often used and legitimate for restoring buildings destroyed in earthquakes from structures whose materials can be identified, such as stone, wooden roofing.

Table 1: Related notions to conservation with a differentiation in their action

Terms	Definition	Purpose
Renewal	Partial or total demolition of the buildings or an area, that can be followed by new construction.	Making run-down and decayed areas again suitable for use.
Rehabilitation	An act of extending a historic place or an individual component's life through alterations and repairs while preserving its important architectural, historical and cultural attributes	It conducted to extend a historic place or an individual component and/or its economic viability

Reconstruction	It is a process of rebuilding a destroyed property by using the original material (if available) according to its previous condition or a new design.	Reconstruction is usually applied to a building that has been partially or totally destroyed or has deteriorated badly
Restoration	An act with the intention of recreating the original concept of property legibility or architectural composition	It is aim is to increase heritage properties life, without compromising their value and authenticity.

Accordingly, the above terms will be implemented based on their purposes in the next chapters.

2.3 Approaches and Practices of Post-Conflict Urban Heritage Recovery

Heritage is in serious danger because of the forces of war, terrorism, globalization, poor knowledge, uncontrolled investment, weak experience, and modernization which will lead to blurring the local identity (Ani, 2020). In recent years due to the raising of conflicts and urban heritage destruction, more and more researchers examine the topic of urban heritage as an essential topic to be covered and guided. The role of heritage in the post-conflict stage became essential, but how the recovery can be guided, and conservation of built heritage can promote processes of continuity in conflict zones. Researchers have noted that post-war scenarios involve a whole spectrum of activity from meeting humanitarian needs and physical reconstruction, economic regeneration, and dealing with reconciliation and trauma (Sultan Barakat, 2002). According to the

Burra Charter, which is one of the international documents dealing with reconstruction, the conservation process is a combination of understanding the significance, developing policy, and management (ICOMOS, Burra Charter: the Australia ICOMOS Charter for places of cultural significance, 2013), and the understanding depends on the gathered data about the physical condition plus its intangible value.

The historic cities are the most important cultural, commercial, and tourist assets. It gives all the city's residents a sense of ownership, belonging and cultural identity (Daldanise, 2016). So, in case of conflicts, pre-prepares, during-protection, and post-recovery are essential stages that require good understanding and awareness of the urban heritage's values, morphology, and typology (Fien, 2014). Despite the depressed physical and social situations in the historical areas, it remains the source of cultural inspiration for citizens, and people still prefer to go back and live in the traditional neighborhoods where they grew up (Salah Haj Ismail, 2014).

various approaches and points of view serve the recovery process after the war. Regarding time, the recovery process should take a long time to avoid failure as in a short time, the focus will be on the physical restoration only while an integrated component of development within protection that began during the conflict and remain during the recovery years should be obtained. Thus, the first step should be an integration plan related to the activities, tasks, stakeholders, funders involvement according to the project aim or goal to have a clear vision with the needs and wonders. Then understanding the tangible and intangible components arise. Consequently, the recovery process should recognize and value different communities' core beliefs that unites them (Barakat, 2020).

Later the phase of design and making the right decision start, the recovery activity can cover the design and (re)construction of buildings and the execution of temporary and intermediate measures. Depending on the vision of the conservation, developing the regulations needs a deep understanding of the specific morphology and typology of the destructed area.

Urban planning rules must be formulated to avoid any impairment or overhauling of the historical structure. The success of a reconstruction proposal or its failure, just like any other projects, depend on:

- The professionalism of the involved stakeholders (including architects, heritage experts, planners, designers, engineers, landscape architects, archaeologists, contractors, and trades to implement the work)
- The quality of the outcomes (depends on the authorities' vision) (Khalaf, 2016).
- The time that planning, implementation, and progress will take.

Accordingly, factors that need to be examined pre-planning and play a significant role in determining the appropriate solution in urban heritage recovery process are:

- The roots or causes of the damage (to estimate the situation)
- The degree of damage; from minor to major
- The vision or the aim of the project (that should be derived from local authorities, communities)
- The function and sort of the property/site
- The availability of original documentation before the damage
- The availability of funding, skilled labour, and appropriate materials

- Understanding of the local community's values that foster the recovery
- Understanding of the intangible components (which promote normality)

Preserving historical centers, and managing them for the benefit of current and future generations (Nijkamp, 2004). The social value of a historic area needs to be assessed; accordingly, it will affect the success of the urban heritage conservation project (Throsby, 2015).

Reconstruction is a keyword in the post-war reconstruction of war-ravaged communities, shared criteria for the reconstruction of the architectural heritage have been developed, with the awareness that the reconstruction of long-lost landmarks of cultural memory is a post-modern global phenomenon, and bearing in mind social needs, the value of the destroyed heritage system and the extent of destruction (Calame, 2005).

Even though various approaches and points of view deal with the recovery process after the war, heritage remains the main indicator. As Fethi mentioned, for many communities, heritage is a matter of life or death (Tedex, 2011). So, the recovery phase becomes essential when the heritage is targeted and destroyed. The recovery phase should not be planned immediately to be limited to the physical component only. A comprehensive plan from a deep understanding of intangible components should be conducted. The process should include the protection that began before a war (documenting), planning, awareness, consultation and mentoring after the conflict and sustained during the recovery period. Thus, planned actions and steps will be required. The plan should be adaptable to any change or challenge according to the range, type,

and level of integration showing the contextual diversity. Therefore, the planning phase should take a long time to design and implement tailored models.

Consequently, the recovery process and its planning period should recognize and value all the communities' beliefs, searching unites, not divides. A continuing thread of cultural behavior and traditions provides the basis for reconciliation and recovery (Barakat, 2020). Reconstruction after war usually contains many tensions between popular nostalgia and occupational ambition. Each of them thinks that its expectations are fit with the post-war situation. While both are needed to be considered when the recovery process is planned and implemented (Calame, 2005).

In general, conflicts need a rapid, large-scale response because of the disasters and destruction that are left behind. Hence post-conflict requires the immediate involvement of various actors and funders with permission of the governmental authority's approval. In addition, the most successful recovery plans should consider the local specialist's experience and knowledge with the involvement of local agencies and communities plus the deep understanding of the local value to conduct effective long-term projects.

Regarding reconstruction, on the one hand, some scholars prefer reconstructing according to new or modern design; for example, Khalaf (2016)'s argument based on heritage-related decisions that are not about the past or the future but the present. Hence, the reconstruction decisions should be taken considering the present need, since it is not about the past and the future is long far from the current generation. By this, she relates the city to the current generation, neglecting the past transition and future needs in relation to their past. this means the concern is about the present more

than the past or the future (Khalaf, 2016). Also, for Ruskin (1890), the idea is the same. He claimed that restoration and reconstruction are negative interferences. He claimed that reconstruction interferes in the natural cycle of aging accurately, as for Ruskin (1890) "The essential building glory is its age, the picturesque is sought in ruin, and stay even in its decay" (Khalaf, 2016, p. 7). In addition, while Salah (2014) presented some reconstruction strategies, one of his solutions for the post-conflict process was (designing), to create a new future, building it on the ruins of the lost, damaged heritage (Salah Haj Ismail, 2014). Moreover, for Hadzimuhamedovic (2011) from examining Bosnia and Herzegovina's experience, reconstruction can be a way of preserving heritage. However, it may also, simultaneously, be a way of falsifying history and of constructing a cultural memory dominated by simple, elemental, "desirable" identities (Hadzimuhamedovic, 2011). So, reconstruction has been addressed as a negative intervention, explaining that it interferes with the natural cycle of aging.

On the other hand, for other scholars, reconstruction regarding conservation is described, as a ritual making the process of transmission of a value from generation to generation. The reconstruction of urban heritage can promote continuity processes after a war and support the process of returning and a sense of belonging. They noted that post-war samples involve a whole spectrum of activity from meeting humanitarian needs and physical reconstruction, economic regeneration, and dealing with reconciliation to trauma overcoming (Sultan Barakat, 2002). Others claim that the pre-urban heritage and heritage property structure should serve as the focal point for implementing conservation strategies. The public city elements like squares, roads and paths, are to be made usable again. Additionally, individual private houses and properties with their rights related to the owner or residents must be respected and

secured (Recover Urban Heritage, 2018). Furthermore, for Salah (2014), (reconstructing strategy) is to overtake the past tragedy through a complete reconstruction of the symbols of the past (Salah Haj Ismail, 2014). Between these two notions, other scholars prefer mixing both strategies, to mix the conservation needs to the will of reinventing the heritage through new technologies, aiming by this to complete the demolished ruins with new materials showing the meeting of two styles and ages (Loughlin Kealy, 2011).

Concerning planning and its phases, according to Fien (2014), there are pre- during- post-conflict responses. For him, violence does not erupt from a minor problem or overnight (Fien, 2014). Accordingly, pre-preparation, documentation, and protection are essential. Developing the social bridges and bonds that decrease the disaster risk and impact, protecting documents and plans, securing valuable monuments or elements will enhance the post-conflict period. Notably, in relation to post-conflict, many immediate crises should be addressed; while the most important is reconstruction, the weak urban contract will result in future conflicts. In addition, trust (between former warring parties and between them and their city and national governments) has to be restored. Hence, reconstruction after a conflict or destruction needs to be considered a social process, a community development process, as Legnér has mentioned (Legnér, 2018).According to pre-conflict documentations, the reconstruction process should be implemented by participating in the local community and local craftsmen. In addition, according to Calame (2005), the phases have been defined as the emergency phase immediately after the crisis, the transitional phase when people go back to their normal live system and social relations with permanent repairs; and the reconstruction phase, in which the community and its environment are

conceived and accomplished (Calame, 2005). But more important is the pre-disaster preparation that allows urban planners and stakeholders to use the urban contract concept to reconstruct the community and the physical environment that will accurately direct the post-disaster.

Another aspect that is mostly affected by war is the economy. By its growth and support, the historic centers can be reused and restored, which work as an important step toward the recovery process. Generally, the historical centers are concentrations of local industries which is considered as the main source of traditional and cultural goods and services. Thus, they generate income and employment, raising internal and external tourism. As the final aspect, Al- Saffar (2018) mentioned sustainability, connecting between urban conservation processes and cities' abilities toward a sustainable future. Heritage and sustainability share the broadest common base since they are ongoing processes not an immediate product, and being people-centered rather than object-oriented (Al-Saffar, Urban Heritage and Conservation in the Historic Center of Baghdad, 2018).

The ideal reconstruction plan should depend on local heritage and preservation experts in hand with the local craftsmen. Foreign interested experts or researchers could be involved with the local reconstruction team to improve the quality of reconstruction efforts and achieve better outcomes through local institutes or agencies. Accordingly, the foreign researchers or heritage experts can support the local teams in rebuilding the old city of Mosul.

2.4 International Documents on Reconstruction of Urban Heritage

In general, the World Cultural and Natural Heritage committee dedicated many conventions to identify, protect, conserve, present, and transmit cultural and natural heritage throughout the world. As a result, the conventions must work as a focal point to protect, save, and conserve urban heritage despite the local efforts. The preservation and restoration of heritage should be admitted on an international basis, with each country responsible for applying the plan within the framework of its own culture and traditions.

As Cameron (2013) mentioned, “one of the positive notions about the conventions is the lack of definition of a universal text in the legal format. This lack of definition allows for a flexible and nuanced approach regarding its implementation” (Cameron R. a., 2013, p. 9). So, the negative aspect is the assumption of heritage that is considered a product, fabric, an object that is taken out of the local hands and considered professionalized practice (Harrison, 2013). As much as the scientific approach prevails over the heritage conservation, its result will dramatically change accordingly. Unfortunately, in many cases, heritage practice is limited to the physical elements considering the international conventions rather than the intangible components that increase the chance of rebuilding process success. Hence, the chance of collapse in the recovery process will increase by neglecting one of the components tangible or intangible, and the plan with many disagreements will fail (Cameron R. a., 2013).

One of the most debatable conservation subjects with minimum details is reconstruction. It is one of the main terms related to urban heritage conservation and

post-war recovery. As it has been presented, reconstruction intends to re-adapt the lost physical fabric in a post-disaster historic area. Reconstruction usually presents a message of continuity, a return to normal, with the affirmation of national cultural identity. It also encourages dispersed people by war to return. Among the conventions on conservation, the conventions that are related to post-conflict urban reconstruction are:

- The Hague Convention, UNESCO, 1954
- Venice Charter for the Conservation and Restoration of Monuments and Sites, ICOMOS, 1964
- Burra Charter - Charter for Places of Cultural Significance, Australia ICOMOS, 1979, revised in 1988 and 1999
- Washington Charter, Charter for the Conservation of Historic Towns and Urban Areas, ICOMOS, 1987
- Charter for the Conservation of Places with Cultural Heritage Value, ICOMOS New Zealand, 1992, revised in 2010
- The Nara Document, UNESCO, ICOMOS and ICCROM, 1994
- Krakow Charter, Bureau Krakow, 2000
- Riga Charter, ICCROM, Latvia, 2000

Hague Convention, directly related to safeguarding heritage property during conflicts, is about the protection of cultural property during wars (UNESCO, 1954); the Venice Charter for the Conservation and Restoration of Monuments and Sites (ICOMOS, 1964); Burra Charter (The Australia ICOMOS Charter for Places of Cultural Significance) (Australia ICOMOS, 1979, revised 1988 and 1999); it had pioneered the understanding of cultural heritage. It started with the definitions to give more guides

regarding the terms and actions related to conservation and heritage reconstruction. It focused on conservation as a process that starts from understanding, assessing cultural significance, identifying issues and developing policy and plan then implementing and monitoring them. Charter for the Conservation of Historic Towns and Urban Areas known as the Washington Charter (ICOMOS, 1987) established the principles and guidelines for the protection and conservation of historic towns. The Charter was conducted to accomplish the Venice Charter. It addressed the comprehensive relationship between preservation strategies, planning policies, qualities and quantities of heritage that should be preserved, the participation of residents, and the social and economic aspects of preserving the historic city (ICOMOS, Charter for the Conservation of Historic Towns and Urban Areas, 1987). Charter for the Conservation of Places with Cultural Heritage Value (ICOMOS New Zealand, 1992, revised 2010); reconstruction has been mentioned only in instruction number twenty, which defined reconstruction according to the function, integrity, and intangible value that is related to a place. The Nara Document about authenticity broadened the use of intangible heritage that will result in a stronger reconstruction case by (UNESCO, ICOMOS and ICCROM, in 1994). Krakow Charter defined principles for conservation and restoration of built heritage. Riga Charter on authenticity and cultural heritage. The charters that examine *Reconstruction*, *Places with Cultural Heritage*, *Heritage in Conflict* or *Protection and Conservation of Historic Towns* have been illustrated below:

Table 2: International conventions dealing with reconstruction

Convention	Year	Organization	Content- Aim	Issues related to reconstruction
Hague Convention	1954	UNESCO	Protection of cultural property in the case of armed conflict	Safeguarding heritage property during the conflict
Venice Charter	1964	ICCROM	Conservation and Restoration of Monuments and Sites	Conservation and restoration of historic sites according to traditional setting existence, respects of original material and authentic documents, archaeological and historical study
Burra Charter	1979, revised 1988, 1999	ICOMOS	Gave more guides regarding the terms and actions related to conservation and reconstruction	Reconstruction means returning a place as nearly as possible to a known state and is distinguished by the introduction of materials (new or old) into the fabric
Washington Charter	1987	ICOMOS	Bases and guidelines for the protection and conservation of historic cities	It addressed the integration of preservation into planning policies, qualities of historic cities that should be preserved, the involvement of citizens in the preservation; and the social and economic component of preserving process in a historic town
New Zealand Charter	1992, revised 2010	ICOMOS	Conservation of Places of Cultural Heritage Value	Defined reconstruction appropriation according to its function, integrity, intangible value, or understanding of a place
Charter of Krakow	2000	Bureau Krakow	Principles for Conservation and Restoration of Built Heritage	Reconstruction of whole or part of a building that have been destroyed by armed conflict or natural disaster, is only acceptable if there are exceptional social or cultural motives that are related to the identity and in case of the full documentation availability

As Christina Cameron (2017) stated, since the rise of conservation in the nineteenth century, new principles and guidelines have been added within each generation. A materials-based conservation doctrine is still part of our heritage. The Burra Charter made an essential movement towards values-based conservation by focusing on heritage and cultural values. While the Nara emphasizes cultural diversity and encourages heritage practitioners to interpret the Venice Charter. Hence, the additive

strategy is defined as a good starting point for directing the reconstruction process. However, the charters need to have space for new ideas and World Heritage tools require updating (Cameron C. , 2017).

2.5 Chapter Summary

This chapter has explained the importance of urban heritage for local communities, organizations, authorities, as well as the international committees. The general meaning of urban heritage was first presented. Then its importance and role have been examined. Later urban heritage destruction, destruction reasons, and post-conflict recovery processes have been presented by focusing on international charters.

The chapter concludes that many reasons lead to unsuccessful recovery projects, from the lack of clear vision and instructions, lack of planning, foreign organizations and funders involvement, and the weak governmental structure and political and economic issues. So, it is essential to focus on the recovery process as a package that considers the local people's requirements and needs, then link the need for development and the protection of the remaining traditional urban fabric to read the reconstructed area in one language. In addition, the success or failure of a reconstruction proposal depends on the co-working of various specialists like architects, heritage professionals, engineers, planners, archaeologists, contractors, and trades to plan, design, and implement the whole process. Therefore, heritage can be considered a process requiring interdisciplinary teams with various scientific and work-related experiences within the involvement of local community and handcrafts depending on the international charters and experiences.

Chapter 3

REVIEW OF RECONSTRUCTION STRATEGIES IN CONFLICT CITIES

This chapter draws on the analysis of ten example cities through prepared inventory forms as a basis for a comparison between ten post-war recovered cities. The selected ten cities represent the post-conflict reconstruction models of heavily destroyed cities "similar" to the case of Mosul and its old city in particular. The comparative analysis covered geographical context, size, population, type of conflict, years of conflict, demolition area, years of reconstruction, responsible body/bodies in the reconstruction, and availability of data and research. Following the analysis of ten examples, six cities - Warsaw (Poland), Coventry (United Kingdom), Mostar (Bosnia), and Dresden (Germany), Beirut (Lebanon), Aleppo (Syria)- have been selected and analyzed thoroughly considering the main aim and objectives of this research. First, the selected cities, the historical development, the degree of damage, the rebuilding strategy with the recovery phases are examined and discussed. Then their experience is analyzed, and their methods are studied to guide the Old city of Mosul recovery plan in the following chapters. All the example analysis is based on a documentary study using primary and secondary printed and internet sources.

3.1 Wars and Urban Heritage

Urban heritage areas are part of the history of a city and memory of a community, and it represents a unique model of the pattern and style of a city and the basic elements of the city structure and element (Wang, 2012). As it is considered, disaster affects a

city's social and physical circumstances. These disasters, mudslides, typhoons, fire, war, appear in different ways and their impacts vary accordingly.

According to a European Commission report in 2018, artificial risks such as armed conflicts, terrorism or environmental accidents had persistently placed the heritage under pressure. Besides, they menace the assets' social, cultural, historical and artistic values, citizens' security, and have an influence on local economies and tourism, particularly in those sites that are going through conflicts (Commission, 2018).

Most disasters, regardless of their root causes, have various effects on the targeted location; despite death, loss, and displacement, heritage is affected mostly. Since life and shelter come first to be assisted, heritage is usually neglected or left for a long time. In such cases, the recovery process takes a recognizable duration as heritage is the spirit of the city and gave the community a sense of belonging. In general, the period that directly follows a disaster is the emergency period, which is usually looking after the saving, critical repairs and assessment; then the next period is transitional when the displaced population returns to normality in life, social relations and work; the final phase involves reconstruction by returning of the community and reorganizing its built environment to be accomplished. Nevertheless, reconstruction should be considered just after the catastrophe, as before cleaning, citizens return, and citizen support, the recovery plan including detailed reconstruction strategies should be prepared. It is considered that; a single disaster can affect different communities at the same time and different figures of the same community in different ways. Hence the plan should depend on the community values and knowledge of pre-disaster conditions. The early consideration for heritage, and what local community values will foster the recovery process (Calame, 2005).

Since World War II, urban heritage areas have been through massive destruction, which has been devastating for both humans and the cultural heritage of humanity. Unfortunately, the historic urban areas became targeted in the recent and ongoing conflicts in the Middle East and North Africa, which increased the amount of loss and damage. Although, post the second World War, the response was not the same everywhere, each country presented a recovery model (Calame, 2005). For this study, some of these areas have been studied thoroughly to serve the main aim of this research.

3.2 Methodology for Selection and Analysis of Examples

In order to reach the main aim and objectives of this research and be able to learn from different examples for post-conflict urban heritage recovery and reconstruction, this study has based its methodology on comparative research, selecting ten example post-conflict recovered cities from different geographical locations and countries. Thus, the selected ten cities represent the post-conflict reconstruction model of massive, destructed cities similar to the enormous destruction in Mosul city, which is the actual case study of this research. These cities have been studied and compared through their *geographical context, size, population, type of conflict, years of conflict, demolition area, years of reconstruction, responsible body/bodies in the reconstruction, and availability of data* as shown in Table 4 below. In addition, for each example, primary and secondary literature and documents were reviewed; inventory forms were prepared; the city's destruction suffers, rebuilding strategies, and recovery phases were recorded and examined; their working methodologies and approaches for reconstructing were studied, and their weaknesses and strengths have been analyzed as a guide for the sake of this research. All this data is presented in the Appendix.

According to what the comparison covered, each case was selected from a different country with a different city center size and population. Then, the type of conflict (civil, world war, or ISIS) with their started years and duration have been defined. Additionally, the degree of damage and demolishment area with the reconstruction process period outlined, all the cities have been through a long reconstruction process that took about ten years and more, only in Hiroshima the city center has been rebuilt in four years only. Later responsible actors, and data availability have been considered in selecting the six case studies since the reconstruction vision and actor will directly affect the outcome of the process.

Based on this comparative analysis, six cities out of ten – Mostar, Coventry, Warsaw, Dresden, Beirut and Aleppo have been selected for a thorough analysis for the sake of this research. The selection was made according to the following criteria:

- *Availability of Information:* For all studied examples, the information was available and reachable.
- *Representing different geographical locations and countries:* Among these, Warsaw and Coventry are from Central Europe, Mostar is from the Balkans, Coventry is from Western Europe, Beirut and Aleppo are from the Middle East.
- *Representing a variety of stakeholders to be involved in the reconstruction process:* For most of the cases, international organizations and Governments have the main role in running and directing the recovery process, but for Beirut, only the private sector had the responsibility of reconstructing the city center. In addition, in most of the cases local community efforts clearly enhanced the reconstruction process.

- *Completion of reconstruction:* The intention was to select examples whose reconstruction process has been completed. Accordingly, Mostar, Coventry, Warsaw, Dresden and Beirut, which also fit to the previous selection criteria, have been noted. On the other hand, we have selected Aleppo representing the Middle East, although its reconstruction process is still ongoing (in addition to Beirut, whose reconstruction process is also over) because we also wanted to have a recent example, under similar conditions with a similar size, population and year of conflict.

Table 3: Comparison of ten cities that went through conflict and devastation

Compared categories	Cities									
	Mosul	Mostar	Coventry	Warsaw	Beirut	Middelburg	Elblag	Dresden	Aleppo	Hiroshima
Geographical Location	Middle East	Balkans	Western Europe	Central Europe	Middle East	Western Europe	Central Europe	Central Europe	Middle east	Eastern Asia
County	Iraq	Bosnia and Herzegovina	United Kingdom	Poland	Lebanon	Netherland	Northern Poland	Germany	Syria	Japan
Population	1.630 million	104.518	369.54	1.765 million	2.407 million	48.544	119.308	554.649	1.834 million	2,083 million
Type of Conflict	ISIS	Civil	Word War II	Word War II	Civil	Word War II	Word War II	Word War II	Civil	Word War II
Size of the old town/ sq km	4	0.076	0.71	0.44	0.12	1.3			3.5	
Year of conflict	2014-2017	1992-1995	1940	1939-1944	1975-1990	1940	1945	1945	2012-2016	1945
Year of reconstruction	2017-Ongoing	1995-2004	1950-1978	1946-1974	1990-2005	1945-1965	1979-1989	completely rebuilt 60 years after the war	Under Reconstruction	1946 to 1950
Responsible authority	International Organizat	UNESCO, Local expertise	Government, Local Engineers	Local People and	Private sector, Beirut's	Government, Local Private sector	Government	Government and citizen	International organization,	Government and citizen

	ion, Citizen	and agencies		Governm ent	Central District				Governme nt, Citizen	
Availabilit y of Informatio n	Available	Available	Available	Available	Available	Available	Available	Available	Available	Available
Affected area	About 85 percent of the old city destroyed. Including 48 mosques and 8 churches	Destroyed its bridge and the historic center	Around two- thirds of the city's buildings were damaged	Warsaw's urban architectu re loss estimated at 84%, with industrial infrastruc ture and historic monume nts destroyed at 90% and residentia l buildings at 72%		The city center almost entirely destroyed	Elblag was destroyed by the end of war completel y	Destroyed more than 6.5 km2 of the city center.	About 60 percent has been seriously damaged, with 30 percent completel y destroyed.	Over 90% of the city was destroyed

3.3 Study of the Selected Examples

The loss of historic urban areas required urgent responses to the devastation since World War II then underwent dramatic transformations in the postwar years. The response was not similar, and it varied everywhere. For example, in Warsaw and Poland, the response was a faithful reconstruction by using old documents, paintings, and photographs to recreate the historic center in detail. While in London and the big German cities, the response was to completely reconfigure the scale and layout according to the functionalist methods and theories of the modern strategy. Accordingly, the models have been chosen considering the postwar decision-making authority, planning speed, destruction level, and population. As for Mostar's postwar situation, which considers a complex model, it demonstrates the relative involvement and effectiveness of various institutional sectors during the process of recovery, starting from rebuilding the bridge as the city's landmark compared to Mosul's Minaret, Hadbaa. For Warsaw, Polish Town, over 84% of Warsaw was destroyed totally, with the city center bearing in the heart of the damage similar to what happened to the old city of Mosul. Coventry illustrates that when a reconstruction plan is conducted quickly in the absence of significant public consultation or local experts and community involvement will be accurate.

Regarding Beirut, the vision of the Prime Minister in developing the economic sector and enhancing social cohesion created a debatable case in making the city center a developed commercial center (not affordable for the original residents). Then the Old city of Aleppo, with its urban and architectural heritage characteristic and elements, can easily be compared to the old city of Mosul despite the continues reconstruction process. The four cases have been chosen based on the availability of literature, the

amount of destruction estimated between 80- 95%, and their implemented methods from Europe since the research seeks lessons related to the international committee participatory in recovering Mosul old city.

Table 4: Comparison between the examined case studies and Mosul

Comparative study items	Selected Examples						Case Study
	Mostar	Warsaw	Dresden	Coventry	Beirut	Aleppo	Mosul
Geographical Location	Balkans	Central Europe	Central Europe	Western Europe	Middle East	Middle east	Middle East
Country	Bosnia and Herzegovina	Poland	Germany	United Kingdom	Lebanon	Syria	Iraq
Population	104.518	1.765 million	554.649	369.54	2.407 million	1.834 million	1.630 million
Type of Conflict	Civil	World War II	World War II	World War II	Civil	Civil	ISIS
Year of conflict	1992-1995	1939-1944	1945	1940	1975-1990	2012-2016	2014-2017
Affected area	Destroyed its bridge and the historic center	The losses to Warsaw's urban architecture were estimated at around 84%	Destroyed more than 6.5 km ² of the city Centre.	Around two-thirds of the city's buildings were damaged		About 60 percent has been seriously damaged, with 30 percent completely destroyed	About 85 percent of the old city destroyed, including 48 mosques and 8 churches
Year of reconstruction	1995-2004	1946-1974	completely rebuilt 60 years after the war	1950-1978	1990-2005	2017-Under Reco.	2017-Ongoing

Responsible authority	UNESCO, Local expertise and agencies	Local People, Government	Government and citizen	Government, Local Engineers	Private sector, Beirut's Central District	UNESCO, International organization, Citizen	International Organizations, Local community
Size of the old town/ sq km	0.076	0.44		0.71	0.12	3.5	4

Accordingly, each selected city will be studied and analyzed thoroughly considering their *historical development (history)*, *destruction process* and *rebuilding strategy*, with the understanding that these will guide the study of the case of this research.

3.3.1 Mostar City - Bosnia and Herzegovina

History of the city

For many centuries the city was the land where Christians, Muslims, and Jews lived in social cohesion. Historic buildings and urban fabric in the area illustrate the time where tolerance was the general attitude and pluralism. A Catholic Cathedral, a Muslim Mosque, an old Orthodox Church, and a synagogue together reflected the way of living and situation in Mostar. The pride of its diverse character and the autonomy of beliefs made the situation and living stable until the ethnic Bosnian War began. Problems started in 1992 because of a public ballot to benefit Bosnia's independence from Yugoslavia (Aloul, 2007).

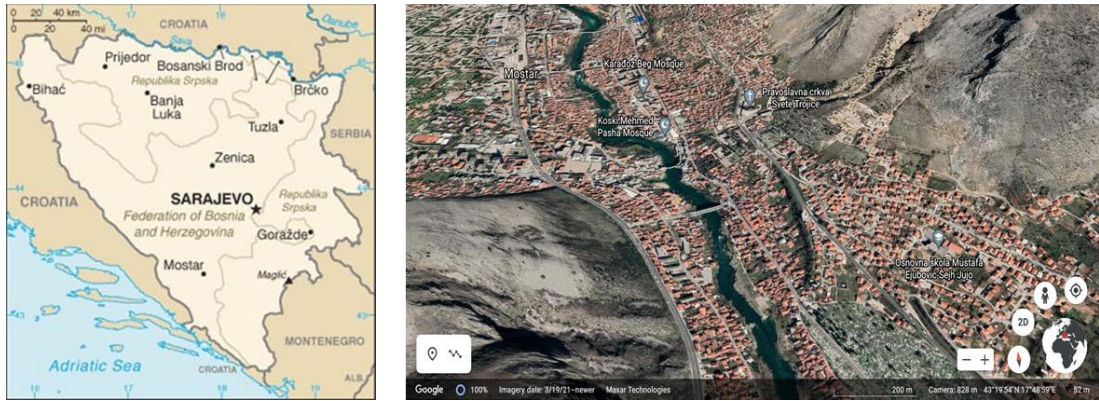


Figure 1: Mostar City location map and aerial photo

Source:

https://m.marefa.org/%D9%82%D8%A7%D9%84%D8%A8:Location_map_Bosnia_and_Herzegovina/doc

Regarding the city's history, the city is believed to have been populated since the Neolithic time. Throughout history, the demographics of the area have been affected and changed by many events.

Throughout the time, the city identity and image began to exhibit each religion, and ruler that controlled the city and the different patterns started to take place. After the Ottoman rule, the region was positioned under Austro-Hungarian Rule who had a considerable effect on the image of the city. In addition, they introduced a Viennese touch to the pattern in an attempt to modernize the city's form, to produce a rich eclectic style exclusive (Aloul, 2007).

Destruction Process

Mostar had been heavily affected by the war in the 1990s, which destroyed its unique bridge and damaged its center, with its Ottoman, Mediterranean, and western-European architectural lineaments. Mostar, a historic Bosnian city, was divided by the conflict between Bosnia's, Croats, and Serbs. Nearly 5,000 Mostar residents died because of interethnic hostilities during 1992 - 1995. In the same time and as a

consequence of the war, about 40,000 individuals left the city because of their fear of violence. Furthermore, the remaining 30,000 citizens were forced to leave their homes which left the city unprotected (Calame, 2005). Then, theft, expulsion, and bombardment caused massive property loss.

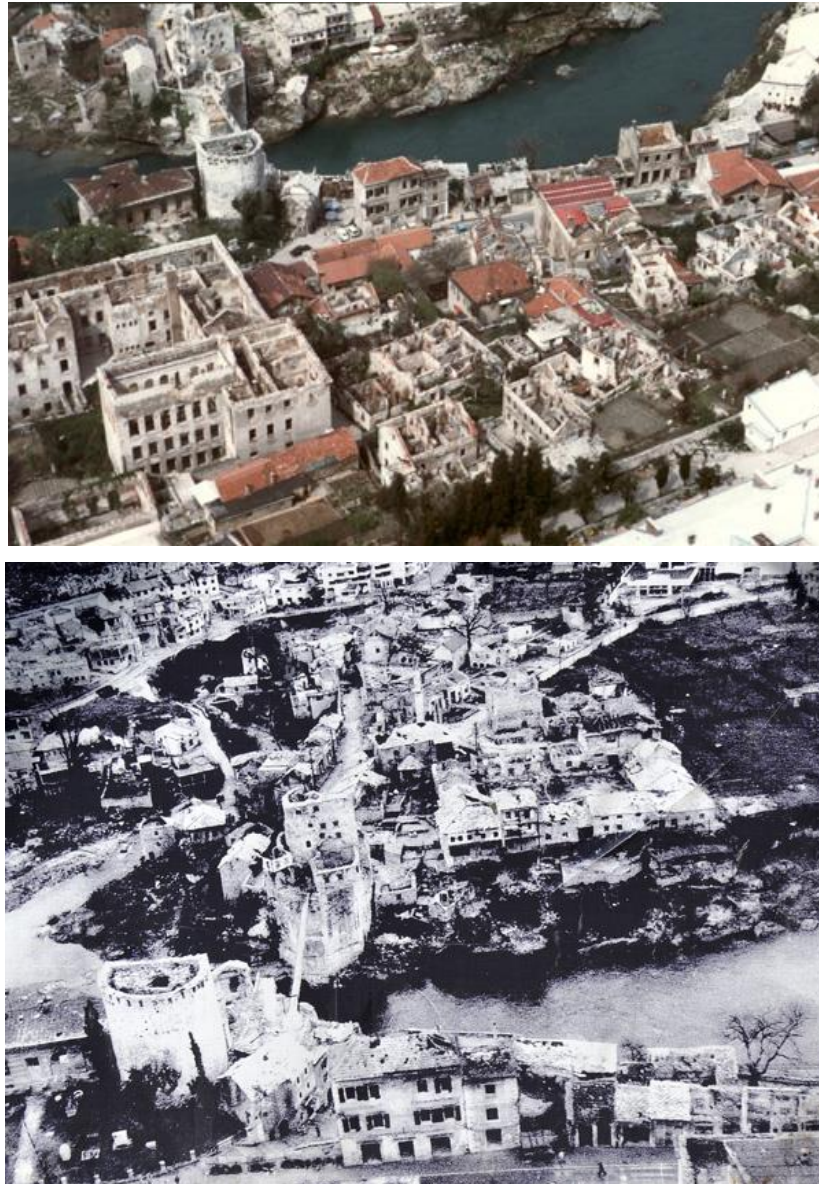


Figure 2: Destroyed Mostar City

Source: <https://www.nato.int/sfor/misc/mostar/mostar.htm>,
<https://www.pbase.com/image/136852510>

The destruction during the war was not limited to the urban heritage, and it also included the destruction or removal of property records, plans, and maps. In addition,

the large amount of displacement, the breakdown in institutional capacity in the aftermath of the war, and the controlling of the left documents by the opposite part, led to a situation wherein legal records no longer match the situation on the ground. In Mostar, the spatial planning authorities and cadastral institutes were divided into east and west, and most technical and office equipment was destroyed. The cadastral records were secured but in the hands of the Croats who did not share them with the Bosnians. As a result, the survived documents were unavailable, became out of date, and no longer reflected the de facto boundaries, land use, or occupancy (Suri, 2012).

Rebuilding Strategy

After the war, Mostar's people vowed to rebuild the city and its monuments. The reconstruction of the historical bridge and its surroundings symbolizes the combined endeavors of all rebuild attempts (Aloul, 2007). Besides the local expertise efforts in finding funders to rebuild the city's landmark, the formal first appeal for the city recovery was implemented by UNESCO in 1994, and then the government asked for assistance from the World Bank's to rebuild the bridge.

Since the municipal authorities in the eastern part of the city had not owned enough human and material resources needed to accomplish the reconstruction activities, the city solicited foreign support, which led to a dilemma. Mostar's residents depended on foreign donations and expertise to jump-start the process of post-conflict recovery. However, municipal authorities on both sides of the city generally refused to cooperate, political consensus long remained an imaginary concept kept for public-relations purposes (Calame, 2005).



Figure 3: Reconstructed Mostar City
The city after reconstruction in 2009. Source:
https://alittleadrift.com/mostar_bombing_damage/

After the War, international agencies with the local organizations began to grasp the massive work that must be implemented in the area. In cooperation with UNISCO, the World Bank initiated a scheme to reconstruct the city's old bridge. However, before that, Amir Pasic, an architect from Mostar, started gathering funds to reconstruct the destroyed bridge in his city as a starting point before the War ended to campaign for his rebuilding plan. His early efforts to collect funds and support flourished and his plan was initiated just after the War (Aloul, 2007).



Figure 4: Mostar City Map from 1993-2016
Source: (Vendemini, 2016)

The Aga Khan Trust for Culture with the World Monument Fund focused on the Mostar bridge and its surrounding urban fabric, including the monuments and neighborhoods whose discrete assets are not noteworthy to the community like the bridge, but together produce the identity and the exceptional image of the city. The proposal included the plans for revitalizing the historic city of Mostar as well as detailed rules and regulations for the protection of the city's form and character. The proposal documented the traditional methods of the building within the utilized materials to motivate the urban heritage recovery. In addition, the plan targeted twenty-one buildings to restore on both sides of the river that have value for the local community and their locations in critical gaps within the urban fabric. The selection process of the buildings was based on their value and location. Thus, they have been selected according to their architectural significance, multi-cultural character, importance for different religions and sects, differentiation of location and for their varied functions. The restoration of the 21 buildings represented focal points attracting investors and tourists and stimulating the economic growth within its district. Moreover, some streets were preferred for detailed streetscape planning. They have

been carefully chosen because of their location. The selected streets have crossed the old city center and extended to parts that date to the 19th-20th century (the newer part of the city). The revitalization of the selected streets connected both parts of the city (new and old), with the existence of significant landmarks along the corridors, it promoted the improvement of economics in the old city extended to the streets in newer neighborhoods outside the historic area (The Agha Khan Trust for Culture, 2004).

Regarding the plan's implementation, while the Conservation and Development Plan prepared as it has been mentioned before, the neighborhood rehabilitation projects implementation required step by step administrative institute. The responsible actors for rebuilding Mostar considered the role of local technical capacities and participation in the recovery price (that carried out from 1998 to 2004) through external assistance. The institutional response to such a case and need was the Stari grad Agency. The Stari grad Agency had a particular mandate that made him dependable to act in a more integrated, direct, flexible, and community-oriented approach to detail the problems of the historic areas (Bianca, 2004).

3.3.2 Warsaw - Poland

History of the City

Warsaw was populated in the 9th-10th century. For more than a hundred years, the city has faced many attacks and been invaded and demolished accordingly but remained indestructible because of its citizens' awareness and sense toward their city. One memorial destruction that Warsaw went through was during the Swedish Prussian wars in 1655-1656 when it lost its freedom to Sweden. Then in 1794, it was attacked

by the Russians. Finally, because of the Second World War, it has been through total destruction when the city suffered the most.



Figure 5: Warsaw location and city map

Source https://www.123rf.com/photo_113009933_stock-vector-vector-map-of-the-city-of-warsaw-poland.html, <http://travelsfinders.com/warsaw-map.html>

Destruction Process

During the Second World War, the residents were forced to go to the concentration camps, and the Germans set off organized destruction of the town. From 1939 to 1944, more than 84% of the city was completely destroyed, in which the city center bore the brunt of the destruction (Aloul, 2007). In his book, Anthony Tung (2001) claimed that the German architects then made their efforts to identify the major buildings and monuments in Warsaw, and then destroyed those buildings. First, they stole all the city's treasures then dynamited the buildings. The German policy was about erasing the culture of Warsaw to quash the spirit of resistance among the Polish people. Accordingly, 782 of the 957 significant Warsaw buildings were demolished and 141 partially demolished. About 96.5% of the city's heritage property had been torn down (Tung, 2001).

Rebuilding Strategy

Poles felt that the destruction was coming and damaging their cultural property. Accordingly, the citizen, including Varsovian architects, planners, art historians and teachers, took action. They took responsibility for archiving and protecting their heritage. The elements of Warsaw castle's interior, like, doors, columns, fireplace, have been held and hidden from the German's and the bombs. Pre the war, and during the destruction, Varsovians worked on documenting the architecture of Warsaw, wishing that someday the city would be reconstructed. Then during the bombings and continuous attacks, the collective comprehensive documentation of historic Warsaw has been hidden in an architectural school, and the city has been ruined and abandoned by the Germans and their bombs. After the war, the documents were used in the recovery phase hoping for the city's reconstruction. The rebuilding process went on between the years 1945 and 1966 and at the end the destructed 85% of the city were completely rebuilt (Aloul, 2007).

The Varsovians' persistence led to a detailed reconstruction, and original material was pulled out of the rubble when found to be reused later. Original material like stones or decoration parts that could be cleaned was found and pulled out among the rubble and placed back in their original locations after identification. Hence, the original material was implemented to reproduce the image of the city and illustrate the memory of destruction.



Figure 6: Warsaw map from 1944 to 1965
Source: (Vendemini, 2016)

As Jelen'ski mentioned (2018) in his research "Practices of Built Heritage Post-Disaster Reconstruction for Resilient Cities", the power and energy of the city were confirmed post the war when people returned home and saw their city reduced to rubble. Their collective efforts eventually restored the original image of the oldest neighborhoods through a program of difficult investigation and reconstruction (Jelen'ski, 2018).



Figure 7: Reconstructed facades after the war-Warsaw

Source: <http://www.artinsociety.com/bernardo-bellotto-and-the-reconstruction-of-warsaw.html>

Finally, the Warsaw reconstruction strategy introduced comprehensive planning for the recreation process, townhouses, the city walls, significant religious structures, and castles, as shown in Figure 9. The decision was to modernize the inner spaces of reconstructed blocks by restoring streets and squares to the pre-war image.

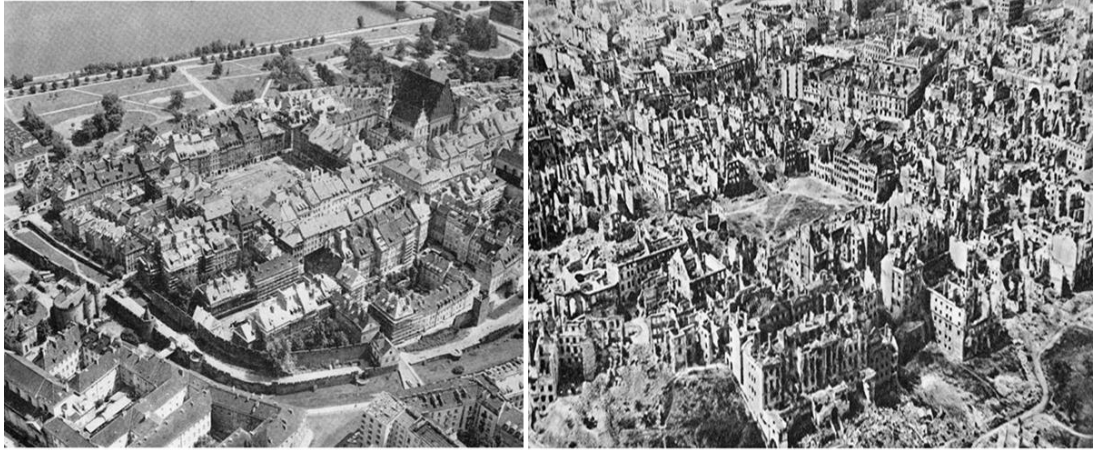


Figure 8: Warsaw Old Town pre-post the war
Destructed city in 1945, reconstructed Warsaw in 1950–1953
Source: (Jelen´ski, 2018)

3.3.3 Coventry - United Kingdom

History of the City

The city was a scattered settlement when Leofric, Earl of Mercia, and his wife Godiva founded a church dedicated there in 1043. In the late 19th century, Coventry became a major center of bicycle manufacture. Later, in the 20th century, it became a major center of the British motor industry. With Coventry's industrial base, it became the fastest-growing city in Britain. In 1901 the population was about 70,000 – to reach in 1938 about 230,000, because of the influx of munitions workers (Coventry, 1978).

The city retained its medieval form; although much had been rebuilt in red bricks in the 18th and 19th centuries, many of its narrow, cobbled streets and half-timbered houses had survived. However picturesque it was, much of the city center was in poor condition. The city center housing was overcrowded, its factories constricted, its drainage and water supply inadequate and its lanes overcrowded dangerously with ever-increasing traffic.

In 1939, the work unofficially on designs for a new civic center had begun, and in 1940, in a public exhibition ‘Coventry of Tomorrow’, subtitled ‘Towards a beautiful City’, the city design proposal was presented. It included some main facilities like library, museum, civic hall, police and law offices, court and municipal offices, around a dignified and spacious close low high to emphasize the verticality of the Cathedral using brick and stone to harmonize with the local red sandstone. As Jeremy and Caroline (2016) mentioned, the experience was successful since the exhibition was attended by more than 5,000 visitors, including most of the citizens, and children from senior schools writing enthusiastic reviews. Gibson started lecturing in the schools and other institutions to raise awareness about understanding the planning, and he used to take notes on public concern to edit the design accordingly (Gould, 2016).

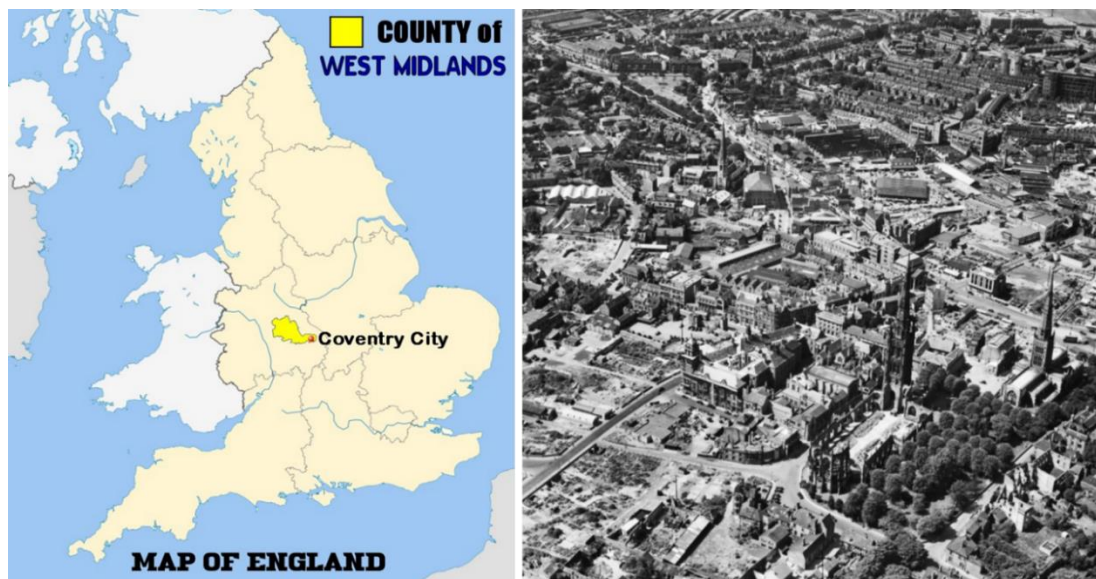


Figure 9: Coventry Location and the aerial view of the city 1946
Source: (Gould, 2016)

Destruction Process

It suffered from one of the most destructive aerial bombardments of the early stage of the Second World War. In November 1940, because of the primary two aerial attacks, massive part of the historic center was destroyed, and most of the town's housing stock was damaged. As a result, 90% of the historical center was damaged in only 11 hours. During this raid, about 500 tons of high explosives were dropped by 449 German bombers. As a result, 975 buildings were burned and destructed within a core area of 0.9 sq km, including documents and evidence that have been archived (Council, 2021). Consequently, over one night, the city became the most destructed city in England.



Figure 10: Damaged pictures of Coventry City

Source: <https://www.bbc.com/news/uk-england-humber-36212234>

Rebuilding strategy

The planning and architecture of post-war Coventry represent a distinct historical period now lived through and with known outcomes. As mentioned, in the following years to the bombs, a rapidly broad working-class had exhausted the city's infrastructure. Lack of zoning planning and practices had reduced open public spaces dramatically; the Labor party in this phase had the opportunity to implement their strategies on Coventry's 'clean slate'. Instead of the remaining urban fabric, a new modern city was designed following the principles that focused on users and functions. In that period, the new design was considered a success for Coventry. In addition, it put Coventry discourses celebrating planning and forecasting the outline of the postwar world development. As a model, it was approved for the recovery planning phase in other European cities that had similar pre-post war conditions (Calame, 2005).

It is clear that the earliest plans, initiated by Coventry, were radical. The form of many destroyed city centers by bombs has been changed. The changes included the urban fabric with new streets and more land use zoning. Although some surviving buildings were retained, and some bomb scales were left as a memory of war destruction (Plymouth; Coventry Cathedral), many portions were demolished. In Coventry's case, some surviving timber-framed buildings were completely eliminated to line a street outside the new ring road. However, the radical reconstructions were in the minority, and the radical nature of proposals became diluted more step by step from the late 1940s to 1950s (Larkham P. J., 2020).

Coventry planners isolated the investment strategy issues, and by letting the public opinion dictate the tempo and character of the post-war model, the aesthetic controls will be lost. So, with a lack of government grants and local revenues, they had to face

unwelcome choices. They had to either opt for a smaller, cheaper, more revenue-oriented scheme or call-in private investors and thereby putting the aesthetic in danger. Then, the local authorities won more support from the central government through drawing the economic attention to produce tourist potential for the restored locations. Accordingly, they had the chance for implementing a secure plan (Calame, 2005).

In the beginning of 1941, the new proposal was shared with the public to raise awareness and take their opinion into consideration. The proposal titled (A Plan for the New Coventry: Disorder and Destruction). After the cleaning process, the city architect, planners, and the council thought that they had an opportunity to build a new city. They considered the blitz and grasp as a positive aspect and chance that the war and bombing had presented them feeling like they have a clear paper on which they can design and construct a new city (Gould, 2016). After the war, Coventry's designers highlighted the features of sudden, large-scale reconstruction, pulling the citizen toward the futuristic, idealized models and images. The new design presented a sharp contrast with photos demonstrating deficiencies of the pre-war city, particularly the dilapidated historical pattern and neighbor beset with pollution, chronic overcrowding, and ugliness.



Figure 11: Coventry proposed plan-1945
Source: (Gould, 2009)

Those promises could not be implemented completely. The project needed massive funding as the new design contained exclusive promises for the future. The efforts needed to undertake such sweeping changes were slow to materialize; this attitude that immediately followed the war made the residents of Coventry control the forthcoming changes and state that new designs and promises are not welcomed (Calame, 2005). Many familiar landmarks and streets had disappeared or left with no restoration efforts; urban designers consider older parts of the city unhealthy, unsightly, or inefficient. The new Coventry that appeared caused many disappointments. With the new plans, the citizens living in the city before the war felt their disorientation extended and lamented the loss of common, salvageable constructions that did not fit new ideas and modernized zoning specifications that neglected the pre-war aesthetic criteria. As before the conflict, a compact, organic city with a medieval style becomes connected with lifeless and drab public spaces hemmed in by severe, homogenized constructions (Calame, 2005).



Figure 12: Coventry, re-erected medieval buildings and section of town wall at the end of Spon Street

City-center

Source: (Larkham P. J., 2018)

As Calame (2005) discussed, the Coventry scheme has been failed in many ways, it depended on assumptions about the city's development and the social behavior of its population that were not reliable, neglecting the cultural value for the local community, and it forced a highly mixed urban aesthetic that owed more to fashion rather than to pragmatism (Calame, 2005). The early phases of planning were based on the city's bright future with its modern elements and design, but after its implementation, it has been considered skepticism and disappointment.



Figure 13: Coventry aerial photo- 2015

The image illustrates the reconstructed city with its heritage and modern buildings,
Source: <https://www.webbaviation.co.uk/aerial/index.php?/category/958>

3.3.4 Dresden - Germany

History of the City

The city was established by the Margraves of Meissen in the thirteenth century and is located behind the castle. It was based on a regular plan typical of newly organized cities in the eastern part of Central Europe, with a rectilinear circulation system and the large, and roughly square marketplace in the middle (Paul, 1990). This pattern was well preserved until the city in 1945 after the war, although the architectural appearance of the small mediaeval center of the city and its surrounding area was no longer mediaeval.

The city was largely dominated by baroque facades and houses built during Dresden's Golden Age from the end of the 17th century until the end of the 18th century. The city's appearance was characterized by several major elements. Then there were the

aristocratic palaces and citizens' houses with their baroque facades lining the streets on the sides of the river (Paul, 1990).



Figure 14: Dresden location map and the city map that illustrates its urban fabric
Source: <https://flippednormals.com/downloads/dresden-city-germany-3d-model-40km/>

The architectural style of the city became diverse, with its description as a Baroque city. It is well known for its Renaissance architecture within the contemporary styles of Modernism and Postmodernism; hence the city contains numerous significant monuments and structures (Aloul, 2007).

Destruction Process

On February 13th, 1945, three months before the end of the Second World War, at night, the city was ferociously ruined by a series of air bombs for three days. It was widely considered that the bombing was conducted with no strategic advantage or specific reason. The unpredictable nature of the raid caused huge destruction to the city. As a result, the bombing killed over 35,000 people. About 15.5 sq km of the historic city center were reduced to ruins, and the most impressive architectural buildings were wiped out in hours. So, by the end of the Second World War, the baroque city center had been reduced to rubble (Dresden, 2021).



Figure 15: Dresden pre-post-war image

Source: <https://www.thevintagenews.com/2016/04/09/pictures-of-dresden-before-and-after-the-wwii-bombing-3/>

Rebuilding strategy

Aloul (2007) mentioned that expansive areas were neglected for 50 years. Areas were rebuilt but the general image of the reconstructed urban pattern was influenced by the new communism ruling regulation. As in every post-war case, the first step was clearing the city. Then for Dresden, the new rulers planned to build a new socialist town instead of reconstructing Baroque city before the destruction. So instead of restoring the old fabric, the Communist planners chose to erase the surviving buildings (Aloul, 2007). With the intention of meeting the urgent need, building in the Stalinist style has been started. The new building method and strategy invaded the memory of what the city's architecture looked like before the war.



Figure 16: Dresden before and after reconstruction
Source: <https://9gag.com/gag/ab5bvnB?ref=pn>

As the Communists were carrying out construction projects in a socialist way, they were encouraged by the success of the Zwinger (that have been chosen by people in a referendum to be reconstructed as a remarkable Palace) to rebuild more properties and the historic pattern and landmarks of Dresden. Consequently, their vision was recreation and restoration of the rest of Dresden's historic core. Despite their concern about some significant buildings, Communists pulled down remnants of a substantial number of monuments and left entire city blocks in relics during their rule because of some financial and political reasons. Then after 40 years, in 1993, the government decided to rebuild a part of Dresden's urban fabric and renewal a part approach. Thus,

it illustrated the combination of both approaches and rebuilding was kicking off again (Dresden, 2021).

Rebuilding efforts started during the communist regime in the 80s, but the shortage of funds delayed it until the German government's arrival. After reconstructing some of the landmarks, such as the Church of Our Lady (Frauenkirche), the German government followed the strategy of using the vacant areas around the reconstructed monuments. They started planning for these vacant areas in a way that respects and compliments the monuments and not take over the cityscape. Accordingly, restoring Dresden's urban pattern and reproducing the original skyline outline, the German authorities started to check construction activity in the city through consultation with the local planners. The actions include:

- Safeguarding the environment's sensitivity to the city's historical atmosphere and its valuable heritage.
- Height restricting plus rebuilding the government properties in the traditional style
- Implementing regulations to restore the streets that were changed during the Communist period to the earliest dimensions.

3.3.5 Beirut - Lebanon

History of the City

Beirut is the capital and the largest city of Lebanon. It was one of Phoenicia's most prominent city states; thus, it presents one of the oldest cities in the world. The medieval city sprang developed on the ruins of a rich Roman law school that had been wrecked by an earthquake (Salaam, The Reconstruction of Beirut: A Lost Opportunity, 1994). Beirut was an Ottoman Empire secondary port city with a population of 5,000

people till 1840. During the period preceding the French Mandate, the city grew at an exponentially, reaching 130,000 residents by 1915. By then, Beirut had grown to become an important city and a vital crossroads between the Syrian hinterland and Europe (Hayek, 2015). Major infrastructural initiatives had already begun at that time. The Beirut-Damascus Road (1863), the railway to Houran, and the port extension (1895) were all initiatives that aided in the city's growth. The French Mandate carried on the Ottomans' modernization initiatives. By the French Mandate in 1920, Beirut had become the capital of Lebanon and the seat of the central administration of the Levant States, affirming its political and economic importance (Gizem Caner F. B., 2012).

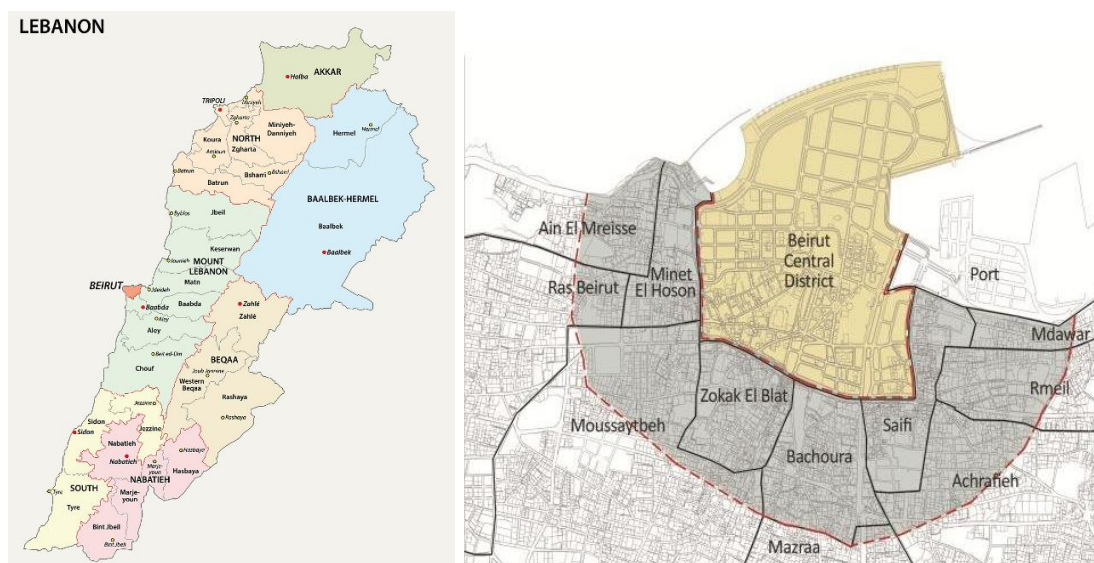


Figure 17: Beirut location and its district map

Source: <https://www.worldatlas.com/maps/lebanon>, the map of Beirut with its districts is by Hiba Mohsen

In (1944-1958), Beirut's post-independence phase, the city was characterized by rapid demographic growth and dramatic spatial improvement, followed by the development of the local industry. Until 1975, Beirut benefited from a highly efficient banking system, which brought both wealth and the educated elite from neighboring nations to

the capital city (Mafaz T., 2019). By 1948 Beirut became a home for low-income refugees and migrants that also transferred the city's demographic. By 1960, the city's population was estimated at 400,000 residents. Accordingly, the city center converted to a denser area with the creation of new neighborhoods (Mona Fawaz, 2003).



Figure 18: Beirut city center 1962

Source: <https://ar.pinterest.com/pin/488710997040777508/>

The city center contained historically significant buildings from both the late Ottoman (late nineteenth century) and French Mandate (1920– 43) periods. Moreover, according to Bollens (2019) it was considered one of the richest cities with religious buildings (29 mosques and churches) in the world (Bollens, 2019).

Destruction Process

During 1975-1976, the city center became a war zone because of the conflict between the Muslim/ Palestinian and Christian militias. The city turned into a battlefield and was divided between the two groups and the corresponding communities, resulting in flows of migrations (Gizem Caner F. B., 2016). The district was a key site of fighting for both groups because of its central strategic geography. During the fifteen years (1975-1990) of the civil war, the city's social, economic, physical, political, and administrative structures were almost completely destroyed. The central state also lost much of its power, and its services were considerably reduced (Bollens, 2019). A quarter of Beirut's structures were either damaged or destroyed. Some of them were elevated to allow military vehicles to pass through the city.





Figure 19: Photo of Martyr's square pre-post the civil war
The first image is from 1960 while the second image is in 1978, Source: (Gizem Caner F. B., 2012)

Accordingly, Beirut's status as Lebanon's capital was eroded, and its activities and facilities were dispersed to peri-urban or rural regions nearby (Mona Fawaz, 2003). The urban areas of Beirut went through enormous changes during years of division; streets widened or narrowed according to exposure to snipers; buildings were classified according to how much they faced the battle zone; and there was a disjunction between intended function and practical use (Yahya, 1993). Former commercial and civic buildings, formerly the scene of inter-communal commerce and social interaction, were transformed into militia headquarters (Fricke, 2005). The built-up area, road and infrastructure systems sustained severe damage (Gizem Caner F. B., 2012).

During the years of partition, Beirut's urban pattern changed dramatically. Avenues were enlarged or limited according to sniper exposure; buildings were categorized according to how much they fronted the conflict zone. Further, there was a disconnect between planned purpose and successful usage. Formerly used for inter-communal trade and social interaction, previous commercial and civic buildings were converted

into military headquarters. With its roads and infrastructural systems, the city was severely damaged (Fricke, 2005).

Finally, the fact that should be mentioned according to Bollens (2019) and Gizem (2012) regarding this phase is that Beirut destruction in the post-war first years in the form of destruction was close, or greater than, the number of buildings and spaces destroyed during the war (Bollens, 2019), (Gizem Caner F. B., 2012).

Rebuilding strategy

In the 1990s, a recovery plan was implemented mainly by Beirut's Central District (BCD), with the rule of Rafik Hariri (Höckel, 2007). This dominance by a private actor (Solidere) was conceivable as the local institutes and sectors were sidelined during the long era of conflict. It had the capability and means to entirely take over this crucial responsibility. The proposal's and plan's goals were to restore economic confidence and strengthen social cohesion (Fricke, 2005).

He based his confidence on a method, assuming that the economic prosperity gained from the capital city's renovation would extend from the center to the country's periphery, bolstering local and national economies. Secondly, he aimed for a symbolic gesture of peace and a fresh starting, in which the beauty of a wonderfully reconstructed city center would aid the inhabitants in forgetting the horrors of war (Höckel, 2007).

As a result, the Solider recovery effort ushered in a second phase of modernization, which occurred during Ottoman and French rule. The first episode of modernization

sparked debate about destroying the city's medieval fabric, while the second sparked debate over damaging the city's late-Ottoman and early-modern pattern.

The central city district's planning razed most of the historical city center to make space for new road projects. As a result, the city expanded along three primary axes: the Damascus Road (east), Tripoli Road (north) and Saida Road (south). Also, new housing quarters have been created, such as the Armenian quarters (Mafaz T., 2019).

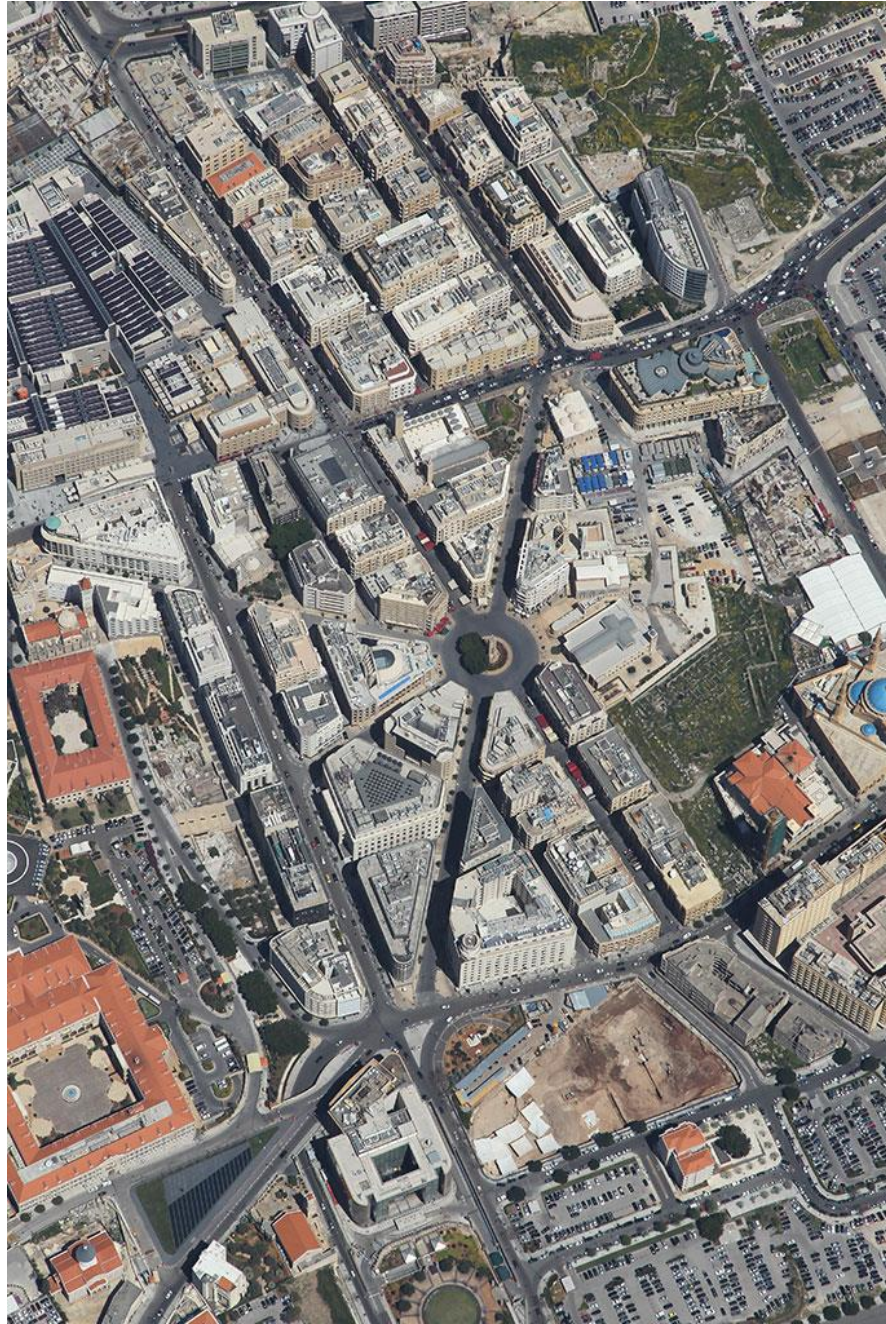


Figure 20: Beirut City Center after reconstruction
Aerial View of The Maarad - Nejmeh Area-2011

Source: <https://www.solidere.com/city-center/urban-overview/districts-main-axes/conservation-area>

There were opposing actors regarding the Solidere project. Some secondary actors were concerned about historic properties protection and requested more democratic decision-making, while homeowners, that were forced to abandon their possessions and leave their provisory homes were not pleased with Solidere's project. Nonetheless,

none of them presented a threat to Hariri's project and Solidere, and the plan have been implemented as it was proposed (Höckel, 2007). This made people feel neglected by the government, which contributed to the city's ongoing division.



Figure 21: Foch Street building facades
from Sheikh Mohammad Toufic El Hibri Street

Source: <https://www.solidere.com/city-center/urban-overview/districts-main-axes/conservation-area>

Solidere prepared the way for their grandiose master plan in the early 1990s by deliberately razing the war-damaged urban fabric, leaving a virtual tabula rasa in the city's center. According to Gizem (2017), by 1993, over 80% of all structures in the midtown had been destroyed beyond repair, although only a third of this devastation was caused by conflict. This, along with the local community's displacement and dispossession, produced a great deal of anxiety in the public, academic, and civic sectors (Gizem Caner F. B., 2016).

3.3.6 Aleppo - Syria

History of the City

Aleppo is an old city that has continuously been inhabited since the 2nd millennium BC. When the Hittites, Assyrians, Akkadians, Greeks, Romans, Umayyads, Ayyubids,

Mameluks, and Ottomans ruled the city, with each civilization adding its trace on the city to produce its distinctive urban framework. The Citadel, the Great Mosque, within madrasas, khans, and public baths are all part of the city's unified urban heritage (Rehfeld, 2021). With residents as Christians, Kurds, Alawites, Circassians, Turkmen, Yezidis, and Ismailis, Aleppo is considered a diverse and cosmopolitan city. The city's ancient fabric remained nearly intact until its liberation from the French Mandate (1920-1946) (Areti Kotsoni, 2020).

Aleppo's history extends back to the sixth millennium BC, founded on a small series of hills centered on the central hilltop, 50 meters above ground level, where the Citadel is now located. The city grew naturally, first within the fortress walls, then beyond, and it is defined by the characteristic Islamic urban fabric, which has a densely center with few open areas (Areti Kotsoni, 2020).



Figure 22: The growth of Aleppo city through time till the 19th century
Source: (Areti Kotsoni, 2020)

The old city of Aleppo contains a variety of building typologies, and the majority have great architectural importance. Most of the buildings inside the city center are residences (traditional courtyard houses), plus other properties that can be found in any other Islamic city, like religious and administrative buildings, Souks, Hammam, Khans, and Museums. Thus, the traditional urban fabric in Aleppo Old city distinctive by five main categories, starting from the Citadel, which includes buildings from

antiquity to the Ottoman period, and the typology of Al-Madina Souk, to the densely structured dwellings, all scale squares and pedestrian corridors and the Bab Al-Faraj neighborhood blocks that include both historic and modern structures (Areti Kotsoni, 2020). The five categories shown in the image below created the unique built environment in the old city Aleppo.

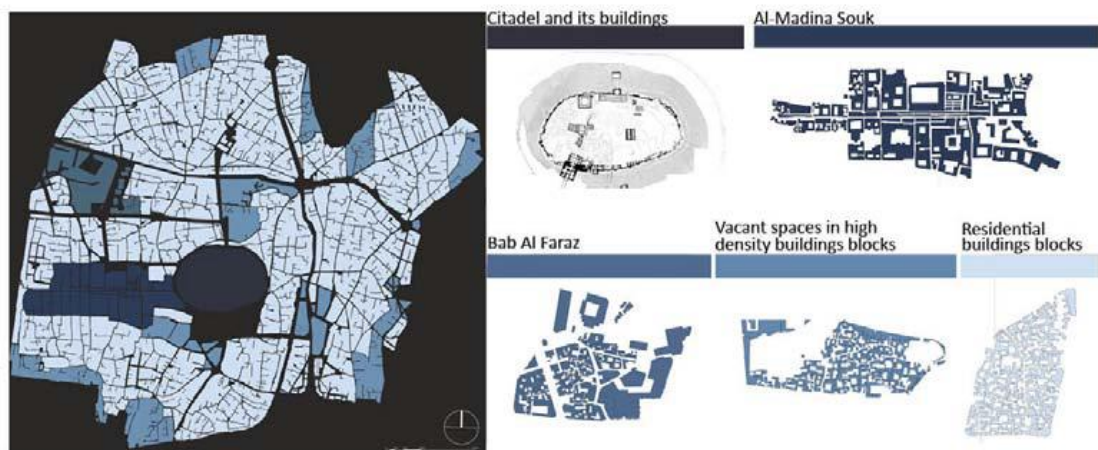


Figure 23: Typologies of Aleppo old city's-built environment
Source: (Areti Kotsoni, 2020)

Destruction Process

Syria's conflict started in March 2011 and reached Aleppo by July 2012. Aleppo remained in conflict for four years, which resulted in an enormous humanitarian crisis besides the massive loss of its urban fabric resulting from attacks via underground bombs, fires, shelling, and street fights (UNESCO U. , 2018). Accordingly, Aleppo became the most affected city in Syria, and its old city with eastern and southern districts became the most damaged parts. These areas used to include low-income houses.

According to UNHABITAT, the first affected heritage property was the old covered Souk in 2012, which was burned because of clashes in the area, then in 2013, the Great Mosque's 11th Century minaret was leveled to the ground, as is shown in Figure 25.



Figure 24: The Great Umayyad Mosque in Aleppo
The mosque before and after destruction. Source:
<https://www.pinterest.co.uk/pin/2744449753816456/>, George Ourfalian (2017)

In addition, about 121 heritage properties such as religious buildings, Khans, markets, monuments, and open spaces have been destroyed totally or partially because of bombs, fires, or loots. The affected neighborhood and level of the damage are

illustrated in the image below. Approximately 80% of its population has fled to the western part of Aleppo. Thus, the shops were either burned or looted, and most of its facilities and infrastructure have been destroyed.

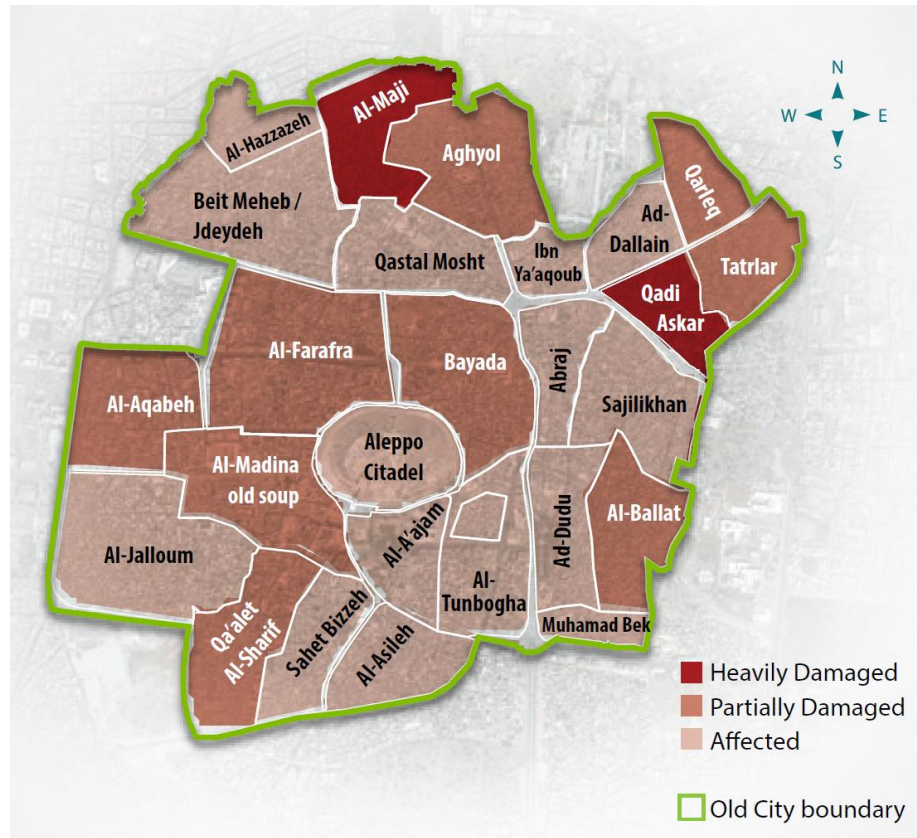


Figure 25: Map of damaged Aleppo Old city
Source: (UNHABITAT, 2014)

In 2016, according to the United Nations Institute for Training and Research (using satellite data and application) report, about 33,521 buildings were damaged. Then in 2018, World Bank made an assessment considering the housing units instead of buildings, distinguishing housing units partially damaged from those completely destroyed: 154,465 of the 662,323 housing units (or 23 percent of the stock) suffered partial damage, while 49,830 (or 7.5 percent) were completely destroyed. In general, according to the Agha Khan Foundation, Old city destruction reached 70 percent by the end of the conflict (Ferrier, 2020).

Rebuilding strategy

Before the destruction, Aleppo old city conserved through a rehabilitation plan that was implemented for many years. In the past (before the war), the rehabilitation of Aleppo old city was implemented according to different levels. At an urban level, the subject plan examined traffic, infrastructure, environment, and urban economy were in detail. Several strategic zones have been defined according to their land-use form and the change they faced. Each zone had its own strategic goal through a set of proactive and/or restrictive tools with economic, capacity building, regulatory, technical, and community involvement. For the local level, Action Areas with manageable sizes were recognized considering the key local issues. As a result, nine Action Areas have been distinguished and planned accordingly. After these two levels of working processes, specific projects were planned, like designing a representative public space in front of Citadel that had a cultural value to many generations and communities, and preserving the central Souk to strengthen cultural identity, boosting economic activities and presenting urban facilities. Another project considered the living condition improvement through Housing Fund, including the Emergency Fund and the Rehabilitation Fund, which supported many families during the Rehabilitation process.

Implementation of the Rehabilitation Project of the Old City of Aleppo for almost two decades had left us a considerable number of documents including many surveys, analyses, planning, as well as the knowledge and expertise that should be further utilized for the future conservation and development of the Old City Aleppo (Cottbus, 2020). These comprehensive plans and projects were the basis for Aleppo's reconstruction after the war. Aleppo's Old City reconstruction process had been started in partnership between its' Municipality and inhabitants as well as international

organizations (Cottbus, 2020). The Rehabilitation Project's main challenge was to improve living conditions (because of the physical and socio-economic dilapidation that Aleppo went through) while preserving the city's integrity with the most valuable urban heritage. With their aims, they hope to develop an integrative approach to conservation and improvement. Thus, a list of tools and measures has been implemented to achieve a comprehensive recovery plan considering the urban and architectural needs. The mentioned plan from 1998 was used as a base for the Old City Development Plan, which depended on a flexible planning system, and defining objectives and strategies despite the rules and regulations. Regarding the historic preservation plan, it was related to a variety of urban management concerns, including land-use restrictions, housing, technological infrastructure, transportation, social services, and public engagement activities (Cottbus, 2020).

As Ferrier (2020) mentioned, the rehabilitation was guided in 2018 by a general master plan prioritizing the Emergency Responses. After that the masterplan has been developed to include detailed plans with historic consideration for the most damaged areas. Finally, a legal framework plan has been conducted to implement the detailed plans accordingly.

According to Ferrier (2020) Aleppo's reconstruction plan illustrates a highly centralized method. The projects are gradually being accepted by an inter-ministerial committee under the Ministry of Local Administration and the local administration is just the implementer (Ferrier, 2020). Thus, the local community are not involved in the decision-making process, but they participated in cleaning and reconstructing according to their concern about their heritage value. Also, Ferrier (2020) added that the authorities favor investors in the tourism, industrial and urban development sectors

rather than the housing needs of the displaced population, which is also the poorest (Ferrier, 2020). Thus, the Aleppo recovery process, including restoration, and reconstruction will take many years, and require much investment and work.

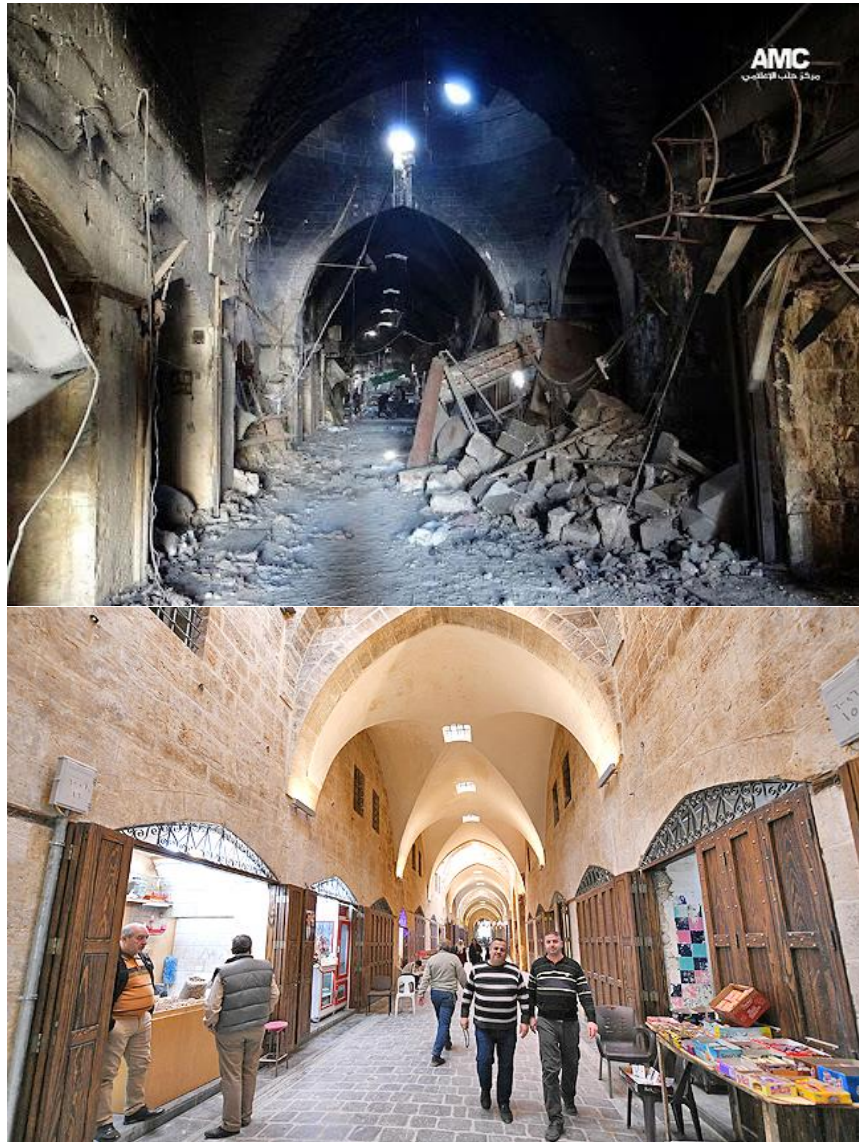


Figure 26: The ancient markets in Old Aleppo pre-post reconstruction
Source: First photo <http://www.naameshaam.org/60-of-old-aleppo-completely-destroyed/>, Second photo by XINHUA

3.4 Systematizing the Reconstruction Strategies: Learning from Examples

Various approaches and points of view serve the recovery process after the war. The recovery process should not take quick steps. The limitation to physical restoration should be avoided, and intangible heritage should be valued within the deep understanding that began during the conflict and sustained through years of recovery. So, planning and developing a tailored model for each case requires recognizing and valuing common notions of different communities, focusing on unity, not divides. This has implications for the psycho-social recovery of the communities that went through trauma as a continuing thread of cultural behavior and traditions, and it provides the basis for reconciliation and recovery (Barakat, 2020).

Reconstruction is a keyword in the post-war reconstruction of war-ravaged communities, shared criteria for the reconstruction of urban and architectural heritage have been developed with the awareness that the reconstruction of long-lost landmarks of cultural memory is a post-modern global phenomenon, bearing in mind social needs, the value of the destroyed heritage system and the extent of the destruction (Calame, 2005).

The reconstruction action can cover the design and (re)construction of monuments, buildings, and neighbors and the performance of temporary and intermediate measures. Depending on the vision of the conservators and decision-makers, developing the guidelines requires good knowledge and understanding of the specific morphology and typology of the destructed historic city. This will need a deep

understanding of the intangible heritage and community need throughout the project implementation.

Urban heritage areas can work as the most important cultural, commercial, and tourist assets. It gives the citizens a sense of ownership, belonging and cultural identity. As in all the cases, the reconstruction of the old city to its pre-war situation was made by the local community to bring back their memory, identity and sense of belonging. In case of conflict and all the examples, the pre-conflict cadastral documents served the recovery process as the reference point for reconstruction. As a result, the public squares, roads and paths, and the technical and social infrastructure had been made usable again (Recover Urban Heritage, 2018).

The lack of clear vision and regulations in terms of urban recovery creates many obstacles. It leads to unsuccessful conservation projects, as in Dresden, the planning had been conducted in two phases, the first one with no clear vision and the second one based on civilians' choices, so new scheme is essential through relinking the current elements of the urban structure to integrate the remains of the traditional urban pattern and significant urban characteristics (Al-Saffar, 2018). In addition, the success or failure of a reconstruction proposal depends on the co-working of expertise like architects, heritage professionals, engineers, planners, archaeologists, contractors, local craftsmen and trades in order to plan, design, and conduct the whole process. Besides, the quality depends on their experience and vision. In another meaning, as Lenger claimed (2018), heritage can be considered as a process that requires interdisciplinary teams with various scientific and work-related experiences, within the involvement of local community and handcrafts (Legnér, 2018).

In relation to post-conflict reconstruction phases, which have been observed in all the case studies and according to Fien, there are pre- during- post-conflict responses since violence does not erupt from small slights or even pre-war consideration matters overnight (Fien, 2014; Fien, 2014). While developing the social capital's bridges and bonds will affect the disaster risk reduction considering which physical and social reconstruction can be built post-conflict. Particularly, with post-conflict, many immediate crises should be addressed, while the most important is the reconstruction, the weak urban contract will result in future conflicts.

In addition, trust (between former warring parties and between them and their city and national governments) must be restored (Legnér, 2018). According to pre-conflict documentations, the reconstruction process should be implemented by participating in the local community and local craftsmen. In addition, for Calame, the phases have been defined differently, as the emergency phase immediately after the crisis, the transitional phase when citizens go back to their everyday life and work with social relations and the reconstruction phase, in which the community and its environment are conceived and accomplished (Calame, 2005). But more important is the pre-disaster preparation that allows urban planners and stakeholders to use the urban contract concept to reconstruct the community and the physical environment that will accurately direct the post-disaster.

After the emergency response to any conflict, from the reconstruction processes that all the six case studies went through, the vision and the role of the responsible actor is the first factor in processing the activities. Then the community's involvement in decision-making and implementing the plan can be the second factor toward a successful recovery. Then considering the community's need and value will foster the

process that could be completed via preserving, protecting and reconstructing the valuable properties based on pre-documents and images. Though, when comparing Mostar, Dresden and Warsaw, in Mostar and Dresden, some of the buildings were decided to be reconstructed, not the whole urban fabric as in Warsaw, while the others were designed and built to harmonize and improve the landscape rather than being literal reproductions. Then regarding Coventry, it is a good model for considering time after the destruction, utilizing new plans and design that promise to bring new future for the citizen. In regard to the two cases from the Middle East, Beirut and Aleppo city centers, each of them represents a different method and plan that changed according to the responsible actor's vision. It became a concern for Aleppo citizens not to become like Beirut, as the low-income residents wonder to stay in their area just before the war. In addition, none of the cases would be successful without the local community, experts, planners' efforts. Thus, the reconstruction will heal the community only when it comes from them.

Accordingly, the strengths and weaknesses of the different strategies that have been used in the previous examples, Mostar Warsaw, Coventry, Dresden, Beirut and Aleppo will be examined in the table below in comparative way.

3.5 Chapter Summary

There is no post-war reconstruction template or model. Each situation requires tailored approaches (Nijkamp, 2004). Before conducting and implementing any strategies, the decision-makers (local or international) should consider the reconstruction guidelines that orient for the methods, stages and components of spanning an entire historical city, or individual quarters. Previous examples and strategies with their weaknesses and strengths should be examined for methods. The stages need to depend on

documents and assessment, consultation, plan, awareness plus publication and implementation, and finally, mentoring. At the same time, the content should include the design and reconstruction process implementation, and the execution of temporary and transitional measures. In the planning for the recovery, all the methods and strategies from other conflict samples like complete restoration and conservation to comprehensive replacement or redevelopment should be available, focusing on the authorities' vision and community need. They need to be implemented pragmatically and flexibly allowing adjustments in every stage responding to the actual needs. As Hussein and her colleagues mentioned, it is crucial to identify the valuable buildings and symbolic values and their roles in reclaiming the urban heritage and promoting a sense of belonging to conduct a successful recovery plan (Shaimaa Hameed Hussein, 2019).

Accordingly, to conclude the chapter findings and outline the rebuilding strategies in all the cases studied, the table below illustrates the variables related to urban heritage reconstruction in each case. The main variables that classified all the six case studies are "Reconstruction plan, the Heritage properties condition, Urban pattern, Building's façade, Building/area function, Road hierarchy, Public space, Original material usage, and Main actors". Reconstructing historical centers, means managing them for the benefit of the current generation considering next generations. (Nijkamp, 2004). Thus, the variable in table 6 will be compared to the Old city of Mosul in the later chapters to achieve better outcomes related to its reconstruction.

Table 5: Case studies rebuilding strategies

Comparing the selected city centers						
Urban Heritage Elements	Cities					
	Coventry	Warsaw	Dresden	Mostar	Beirut	Aleppo
Reconstruction plan	Existed	Existed	Existed	Existed	Existed	Existed
Heritage properties	Partly Reconstructed	Reconstructed	Partly Reconstructed	Reconstructed	Replaced	To be Reconstructed
Urban pattern	Preservation with new design	Preserved	Preservation with new design	Preserved	New roads and neighborhoods	Preserved
Building's façade	Harmonized and improved	Harmonized and improved	Harmonized and improved	Harmonized and improved	Modern and new design	
Building/area function	Mixed as it was before the war	Mixed as it was before the war	Mixed as it was before the war	Mixed as it was before the war	Re-functionalized-Commerce	Mixed as it was before the war
Road hierarchy	Preserved	Preserved	Preserved	Preserved	Partly preserved	Preserved
Public space	Preserved	Preserved	Preserved	Preserved	Preserved	Preserved
Main actors	Local community, Government	Local community, Government	Local community, Government	International, Local community	Private actor, Government	International, Local community

Chapter 4

CASE STUDY: THE OLD CITY OF MOSUL

This chapter consists of five Sections. In the first section, the history of the city, its development, its socio-political and economic plus physical and functional characteristics will be presented. Then the architectural and urban heritage of the Old city of Mosul will be presented based on documentary analysis and field trips.

4.1 Methodological Approach

In the last chapter of this research, after looking at the six case studies and analyzing their experiences and strategies, the city of Mosul will be examined through literature review and field trips to understand the situation closely, observe the reconstruction projects in detail and define the heritage property condition. First, the history of Mosul city and its Old city will be presented. Then its urban and architectural heritage, the city's characteristics and elements will be studied. Then the heritage property based on the religious, residential, and public classification will be listed.

4.2 The City of Mosul

As an Arabic word, the city of Mosul means "the linking point". It is one of the oldest cities in the world. For millennia, it has a strategic location crossing between north and south, east and west. It is the home for a large number of people from diverse backgrounds, ethnicities and religious beliefs because of its strategic location (UNESCO, 2019).

The city is located about 465 km northwest of Baghdad, and it is the center of the Governorate of Niniveh that was and still is recognized for its heritage, commercial, intangible elements and its multi-cultural citizens. Mosul was established along the western bank of the Tigris. That part that has been established first is currently called the Old City of Mosul (UNESCO, 2018). In 225 BC, Mosul became part of a Sassanian province, then in AD 641, it became annexed to the Rashidun Caliphate. Additionally, Christianity in the area dates back to the 1st century AD (UNESCO, 2018).

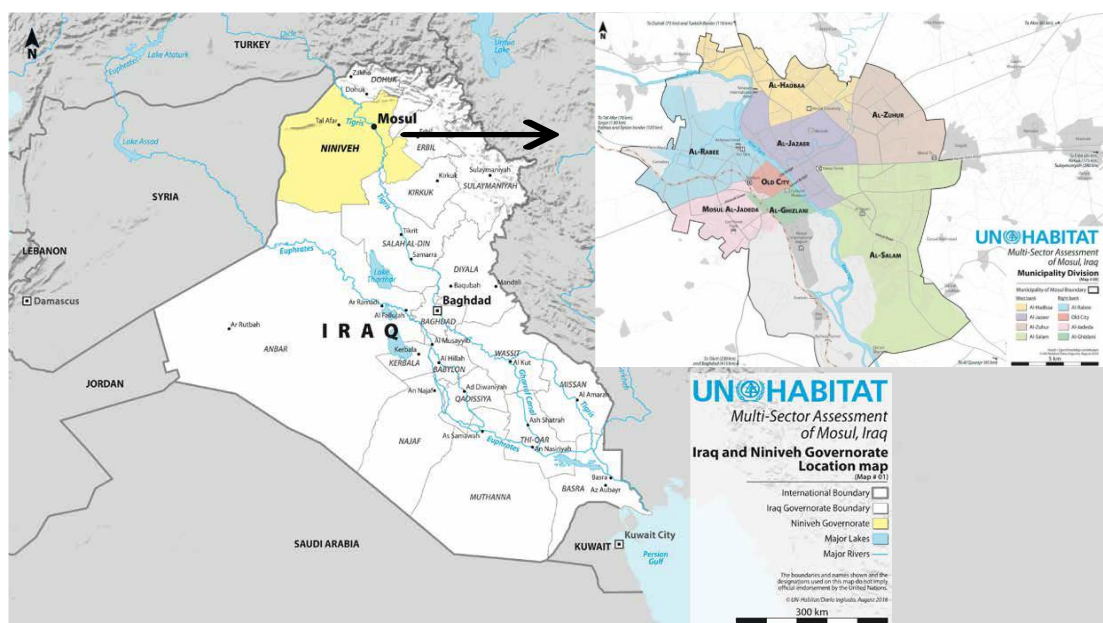


Figure 27: Iraq and Nineveh governorate location and Mosul municipality division map.

Source: (UNHABITAT, 2016)

4.2.1 Historic Development

From beginnings - 12th Century AD

Mosul's foundation is unknown, but historical documents indicate that it arose during the 7th or 6th century BC, prior to the fall of the ancient Assyrian city of Niniveh, when some towns formed on the west bank side of the Tigris River. One of them was Mepsila village, which the Mosul name is believed to have come from. Others

think that the Arabic tribes called it Mosul or Al Mawsil as a "connecting point" in Arabic. While, others relate the name to muslin, a cotton fabric that was greatly sought during the medieval period. Mosul's importance expanded under the hundred-year Arab rule of Rashidun Caliphate's Arab rule when the city's streets were paved, and defense walls around the city were built. According to Novacek (2017), the city had "approximately 50,000 inhabitants, which was twice comparing to Rome population and ten times less than Baghdad" during the administration of Marwan II, Mosul Builder, (744-750 AD) the last Umayyad Calipha (K. Nováček, 2017, p. 4).

During this period, the ship bridge, the only cross bridge until the 20th century AD was built on Tigris; also, the city witnessed the building of the Qaysaria (covered market), the Umayyad Mosque (which is known as Masfi mosques too), and Al Nouri Mosque great Mihrab. The broader territory saw internal strife and political turbulence from the 9th century to the first half of the 11th century during the rule of Hamdanid and Uqaylid dynasties, which culminated with the city's fall to Seljuk ruler Toghril Beg in 1057 AD. Despite the fact that Mosul was experiencing political upheaval at the time, the arts, sciences, and trade grew. Accordingly, and as al-Muqaddasi (a 10-century geographer) claimed, Mosul was the region's metropolis. It was a marvelous city, built attractively. Famous for its great antiquity, as it possessed of great markets and hotels, and is inhabited by many personages of account and educated. It was a path for provisions to Baghdad, and thither for the caravans of al-Rihab. Thus, the city was thriving in this period (UNESCO, 2020).

12th century AD - 16th century AD

The oldest and most crucial visible layer of the old part of the city's architecture is from the 12th -13th century AD during the Zangid Dynasty to reflect its great

significance, power and influence. Following the Seljuk conquest, the dynasty's princes and governors dominated the Al Jazira region (part of Syria and Iraq nowadays), then Zengid, took the rule in 1127 AD and established an autonomous authority. Imad al-Din Zengi became the Atabeg of Mosul and Aleppo. The Atabeg dynasty ruled Mosul for about 130 years, known as Mosul's golden years. during this period, the arts and sciences grew more, and Mosul saw the construction of numerous mosques, school (madrasa), shrines, and hospitals. Some of them survived until the twentieth century, then were damaged during the recent war. In addition, he constructed numerous palaces, doubled city wall and added massive towers to bolster them, constructed Bash Tabyia castle, and deepened the trenches. Then his son, continued his efforts and ordered the construction of the Al Nouri Mosque, and a madrasa plus the Hadba Minaret. The patronage of Badr al-Din Lu'lu (1219-1259 AD) was the beginning of the so-called school of Mosul, within its delicate architectural decorations of gypsum arabesques, and carved marble (UNESCO, 2020).

By the end of the 13th century, this golden age came to an end by Mongols when they captured and sacked Mosul which led to the population decrease and restricted the city's urban expansion. For three long centuries, the only inhabited neighborhoods were the ones around Al Nouri, within the ones that were on the east to the river (K. Nováček, 2017).

16th century AD - 19th century AD

Mosul had a period of prosperity and recovery after integrating into the Ottoman Empire and eventually reclaiming its position. During the Ottoman Empire's four centuries, Mosul was an independent city led by local rulers. The Ottomans rebuilt the city and transformed it to a commercial and administrative center of the region when

they gained control of the city in 1534. Most of its architectural properties are dates back to the late Ottoman period between the 18th to 19th centuries (UNHABITAT, 2016).

In this period, some parts of the city wall were restored, several khans, bazars, mosques, and schools were built, and the city expanded outside the walls. Then the empire centralized the rule of the government and Mosul became the regional capital with a diverse and flourishing economy which depended on cotton agriculture and metallurgy, as well as pastoral products (UNESCO, 2020).

During 20th Century

Following First World War, the Ottoman Empire fell apart, and Mosul, along with Baghdad and Basrah, became part of the British Mandate from 1918 to 1926. They started enormous infrastructure projects throughout Iraq, and they started with building roads, bridges, and railways until they phased a shortage of funding. Mosul became part of Iraq in 1926, and it became the capital of Niniveh province. Then, during the rule of the king, the city grew and expanded again, and some parts of the defensive wall were demolished. Some new neighborhoods appeared inside and outside of the Old City and in its southwestern and southeastern part, and new roads have been contracted. The new roads completed the morphology of the urban fabric and created a new system of relation between the Old City and the expanded urban area (UNESCO, 2020).

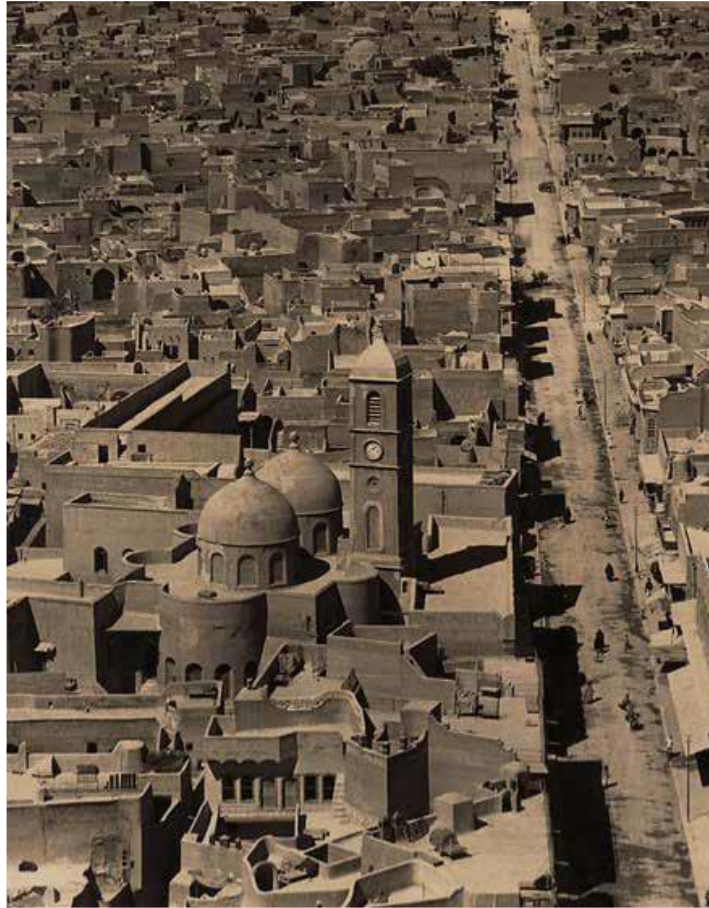


Figure 28: Nineveh Street in Mosul

An Old image from 1927, Source://www.flickr.com/photos/jones_in_chester/12564768694/in/album-72157641061121185/

With the establishment of the Republic of Iraq, Mosul modernized and expanded on the eastern bank of Tigris. The city witnessed more extension and development post the '70 s, major works and constructions were started. (K. Nováček, 2017). Many other roads have been built to serve as motorways with more bridges, to connect the east and west bank. Accordingly, this period saw the construction of many modern buildings even inside the old city using concrete and other modern materials. Despite that, Mosul was one of the cities along the eastern bank of the Euphrates that built mostly of local stone and brick that were exclusive to Mosul, alabaster stone (a local construction material) from Mosul have been used mainly and gave its architecture and urban pattern a unique style and character that will also be examined later in this chapter

(UNHABITAT, 2016), and some historical houses were left (that will be discussed in detail later) to decay because of the owners' inability of restoration or as an aspiration for modernity.

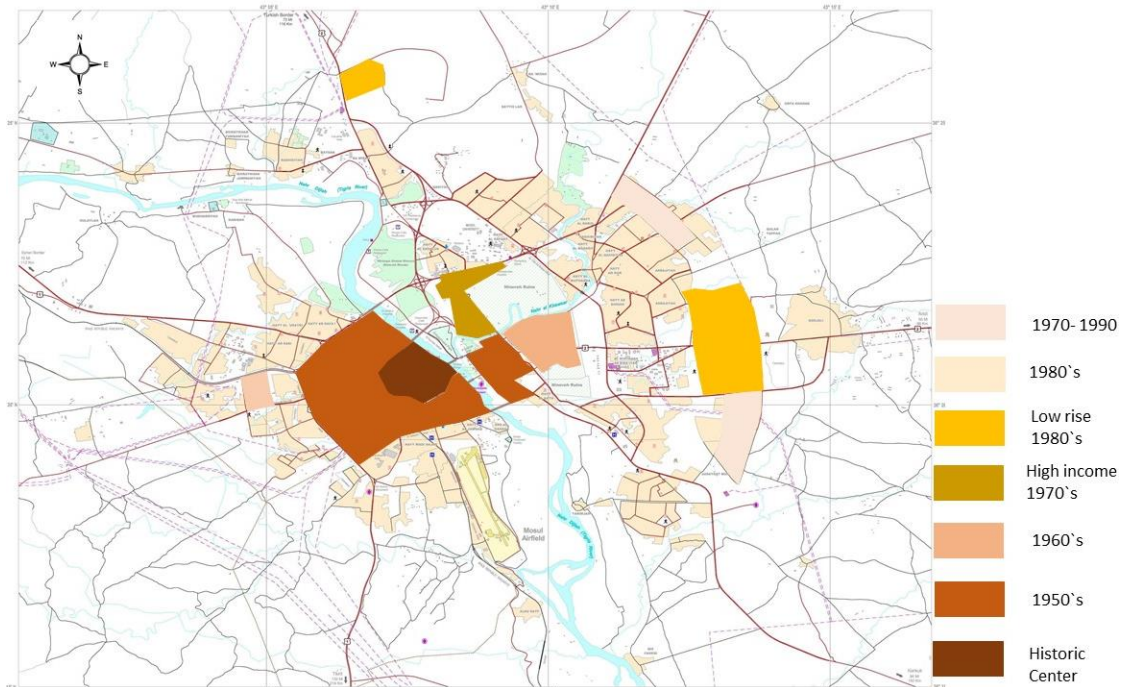


Figure 29: Historical development of Mosul
Source: Based on (UNHABITAT, 2016)

The historic city center of Mosul, with its intricate labyrinth of small streets and their archways used to be a very well-preserved heritage area before the destruction as it was far from the changes that other cities suffered from because of modernization. In contrast to other towns in Iraq, affected by modernization, Mosul kept much of its traditional heterogeneity. The network of streets, alleyways and archways represented one of the best examples of the spontaneously grown pattern of cities in the Middle East (UNESCO, 2018). Mosul, with its unique urban pattern from the medieval plan, buildings from their domestic architecture and a detailed interior with their local material, plus the distinctive cityscape that presents harmony and cohesion made the

city recognizable compared to other cities in the region (Shaimaa Hameed Hussein, 2019).

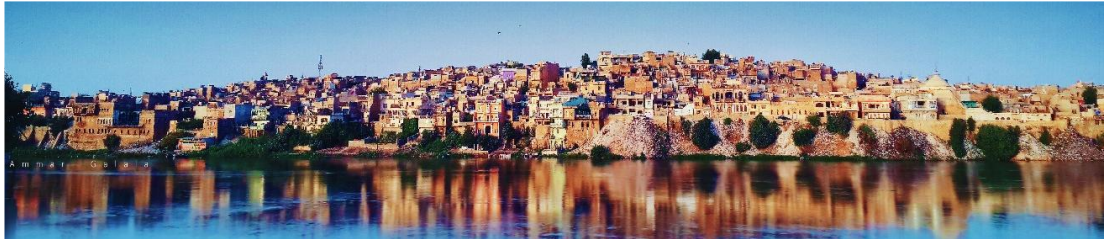


Figure 30: Distinctive cityscape of Mosul pre-ISIS
Source: (Shaimaa Hameed Hussein, 2019)

4.2.2 Socio-political and Economical Characteristics

Nineveh Governorate comes second regarding population, after the capital, Baghdad. It is the cradle of an ancient civilization spanning thousands of years. The resident in the city illustrated the religious and sectarian diversity to the point that all spectrum of Iraq could be seen in the towns and villages of Nineveh. Mosul was known as the “mother of two springs” due to its temperate climate in comparison with the rest of Iraq (UNHABITAT, 2016).

Mosul is a unique and diverse cultural mix due to its many ethnicities of Arabs, Kurds, Yazidis, Shabak and Armenian and Assyrian Christians. It is the main city of the Governorate of Nineveh, alongside the culturally rich adjacent towns, villages, and suburbs. Accordingly, Figure 12 illustrates how Mosul was the land for various ethnic and religious groups living as one community for thousands of years (Shaimaa Hameed Hussein, 2019).

Demographic data is a sensitive matter in Iraq because of the country's sectarian and ethnic conflict. Therefore, reliable population size data and ethnoreligious composition are hard to count. The last official countrywide census was conducted in 1997. According to the Statistics authority in the Governorate of Nineveh, in 2009, the city comprised 1,137,000 inhabitants and it increased in 2014 to become 1,377,000 (before ISIS). Before 90's most of the city's residents were living on the right bank side. During the Iraq-Kuwait war, the urban areas on the left bank gradually grew and became land for more residents; then, after 2003, it expanded in a way that its population size became comparable to that of the right bank (UNHABITAT, 2016). Now, the number of Mosul's residents is not accurate since it is difficult to survey in such situation. According to the current residents, the population is much less than before ISIS because of displacement and unreturned families, especially on the left side.

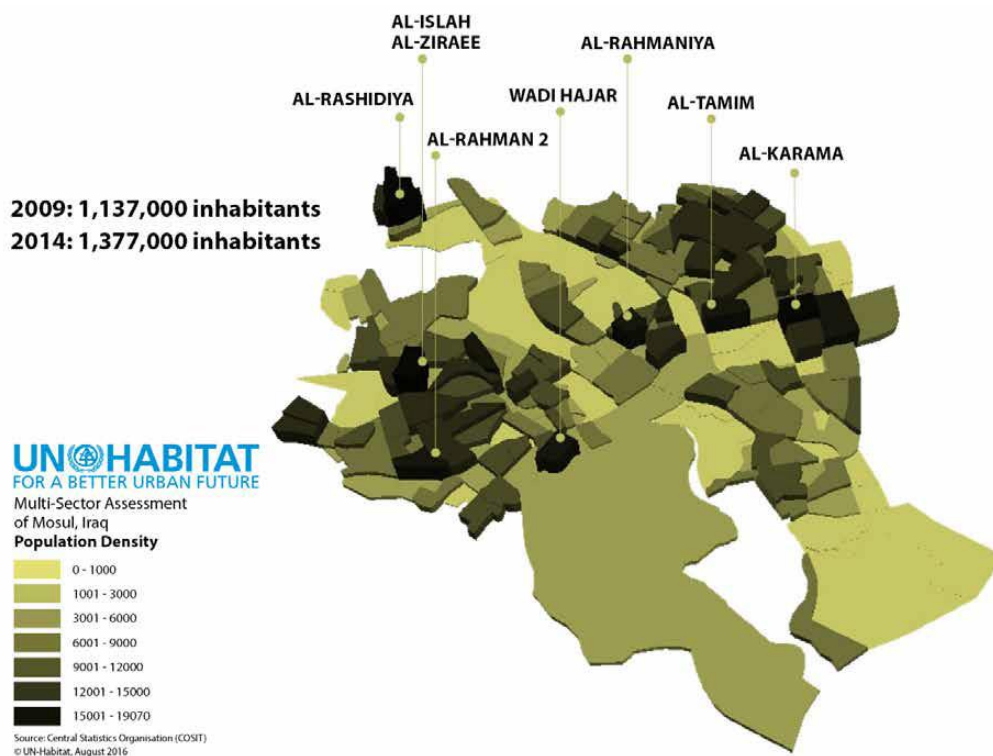


Figure 31: Population density of Mosul city before ISIS
 Source: (UNHABITAT, 2016)

4.2.3 Physical and Functional Characteristics

It has been mentioned that Mosul is characterized by its cultural diversity. This diversity, particularly in the Old City, affected the physical representation and character. For about 2500 years, it was the land of diverse cultures, groups, and religions representing Iraq's co-existence with its various groups ethnically, linguistically, and religiously. Hence this diversity was fully presented in the skyline of the city before controlling the city in June 2014 by ISIS, and the war for its liberation. The Old City of Mosul was a physical image of this diversity reflection because of its great shrines dedicated to various religious figures and the churches, mosques, madrassas, and cemeteries side by side. The most known architectural heritage treasure was the 50-meter-high minaret beside the Great al-Nouri Mosque that represented two spectacular buildings in the Old City. The Hadba minaret presented an important architectural property of the city and became its landmark to be known and called for, within the Dominican Church - clock tower controlled the skyline of the city. Many other distinguished buildings like palaces, mausoleums, and monuments date back to the 12th century within highly decorated brick facades, highly decorated marble interiors and muqarnas vaults. During the rule and control of the Mongol and Turkic dynasties, as well as the early Ottoman period, Mosul was further improved by building many mosques and madrassas. The city contained layers of different ages and rulers that brought various characters and pattern and produced its distinguishes (Fethi, 2018). Moreover, the shrines also added value to the city component. They belong to the prophets al-Khidr, Seth, and Daniel. With the graves of other Muslim shekhs and leaders in the city, it also gained another descriptive name as "Town of Prophets".



Figure 32: Pre-destruction Clock tower of the Dominican church with al-Hadba in the skyline of Mosul.

Source: <https://www.nationalgeographic.com/history/article/Mosul-ISIS-Islamic-State-Iraq-Nuri-Mosque-Hadba-Minaret>

The city, with its various valuable historical building and sites, produced a rich cultural diversity with its both tangible and intangible components. The uniqueness can be seen through different elements as the usage of local stone and houses' style, archways and narrow alleys and the facilities they serve within the general urban pattern.



Figure 33: The uniqueness of the local stone and brick

The left image was taken in 1968, and the right image is the destroyed site which was believed to be the resting place of Prophet Jonah they present the unique material, engrave and arches in Mosul. Source: Lena Ha

City circulation

Regarding the city circulation, the roads took different directions such as parallel and perpendicular, connected and separated. Hence the alleys and paths took on the features to become twisted branches. With the cases of change and continuous development, the need for special sub-roads increased, which was broader and straighter. It is clear that the city's urban fabric expanded automatically in response to the social and environmental requirements of its residents, which gave the circulation a gradual sequence between streets, branches, and alleys to gain its distinctive urban identity (Muhammed, 2017).

As shown in Figure 36, the paths with their winding and twisted shape linking and serving the necessary facilities which form a continuous connected organic spatial structure. It has unique, organic, spatial structure reflecting the character of the traditional Islamic city. The network of winding streets and alleyways were cut through by straight boulevards during the 20th century: first by the East -West Nineveh Street (1914–1918) meeting and following the old pontoon bridge, and later by the orthogonal Fārūq Street. After WWII, other similar streets followed (K. Nováček, 2017).

The labyrinth that constitutes the kernel of the historical town used to be an exceptionally well-preserved heritage environment then survived despite the devastation.

from the sun in summer, and they represent entrances to neighborhoods or a link between several houses (Shkur, 2017).

There were many reasons for creating Qantara, for example, during the Ottoman period, it was required to cut an alley in the middle of the land when building a house. So, the owner of the building was forced to build a bridge that would unite his house from the upper alley extends from under it, or to unify two adjacent plots of land owned by one person or owned by several relative people, as a way to unite two homes and create an alley in the middle of them except by using a bridge to be a hidden passageway between the two houses from above. While for small size houses, the house owner built a bridge attached to the opposite house to use its roof as a room to increase the house's area. They are mainly located in "Shahrat Souk" (Souk of the Prophet Zarjis), "H'ush Al khan", and "Aws" neighborhood. Some of these archways were extended for about three to five and seven arches, and some were only one arch as shown in the figures below. In addition, their shapes were different and low in Hight (Al-Juma`a, 2019).



Figure 35: Qanatir in the Old City of Mosul (Archways)
Source: First, Author, Second, Iraq museum

Mosul Land use

The lack of detailed land use classification of the Old City of Mosul is due to the political and conflicts issue, as with the highly destroyed area, the usage and boundaries are hard to be defined. Mosul is an Islamic city characterized by its dense

traditional urban fabric, narrow alleyways, historic center, and courtyard houses. The facilities, bazaars, and residential areas are located around the Mosques (Jami'), which are usually settled in the center of the city. Regarding open spaces, the main large open space in the old city was the one in the Nuri Mosque, and greens can be seen mainly in the neighborhood's small parks or inside the houses or properties. Accordingly, the old city of Mosul shown in the map below, is a mix-crowded land use with all facilities that the narrow and twisted alleys are served and linked.

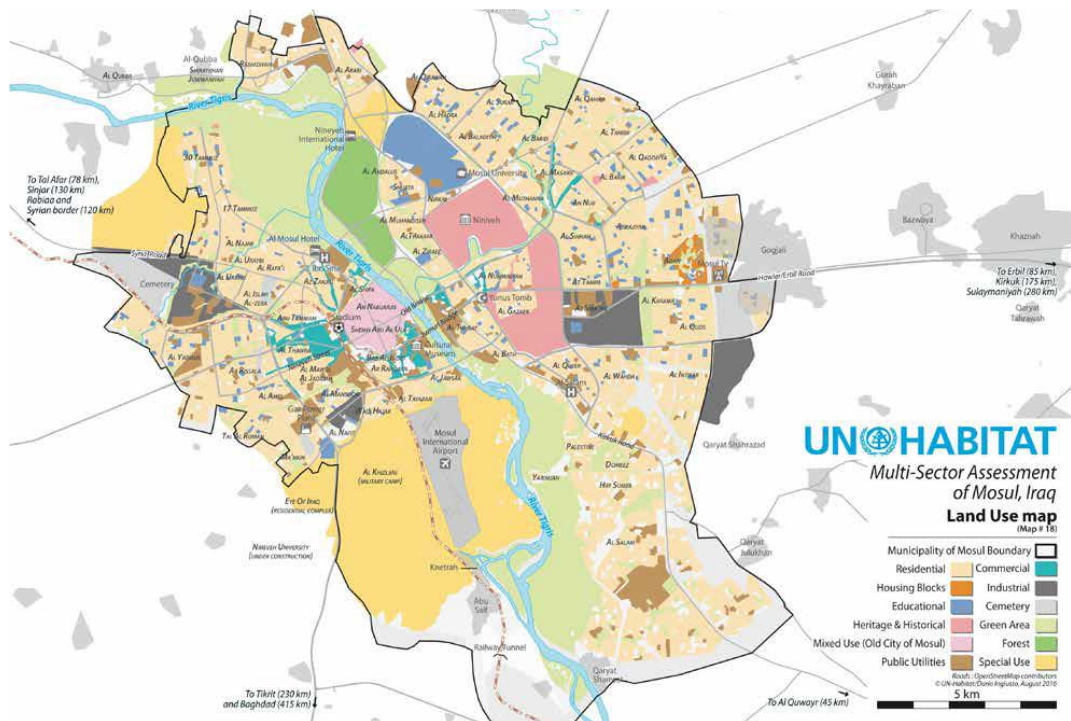


Figure 36: Land Use Map of Mosul city
Source: (UNHABITAT, 2016)

4.3 Urban Heritage of the Old city of Mosul

In the 7th century BC, the city of Mosul was established, and achieved the height of its influence by the 12th century AD during the rule of the Zangid Dynasty. The city represented the oldest and most significant visible architectural layers from the 12th-13th centuries AD, that presented Mosul its unique identity with an urban heritage

pattern. One example showing standings throughout all the destructions and events is the remained Citadel of Bashtabia that was built around the 12 century AD.



Figure 37: The citadel of Bashtabia which still standing as evidence of architectural heritage from 12 Century

Source: https://en.wikipedia.org/wiki/Bash_Tapia_Castle

As mentioned, by controlling the city by the Ottomans in 1534, Mosul became the commercial and administrative core of the region. The largest portion of the architectural properties that were seen before ISIS dated back to the late Ottoman period ruler in the 18th-19th century. Accordingly, the city is distinguished by the great variety of ages of buildings and monuments from Assyrian dated back to 2000-2500 years and the Ottoman period before 100-150 years (Fethi, 2018). The old city of Mosul is a traditional Islamic city and a historic urban center characterized by its dense traditional urban fabric, narrow alleyways, historic center, and courtyard houses. Each cultural group has its local architectural identity and heritage, related to memory, which gives Mosul its urban identity. Historic urban centers in general, and the old city of Mosul in particular, enact in enhancing a place's memory, belonging, and identity.

Mosul is a walled city with a citadel (Qal'at), took its place on a hill and close to Tigris, its main Mosque (Jami') located in the center of the city and the bazaar (shops) surrounds it expanding on the main roads leading to the city's gates. During the Ottoman period, the palace (Sarai) was located close to the surrounding protective walls. The residential neighborhoods, and paths and roads fill in the remaining spaces. The overall of the Mosul old city remained unchanged from the 8th until the 19th century AD, until the massive area of the old city targeted and bombed because of ISIS and liberation when they took control of the city and exploited the compactness of the urban fabric for defensive reasons (Shaimaa Hameed Hussein, 2019).

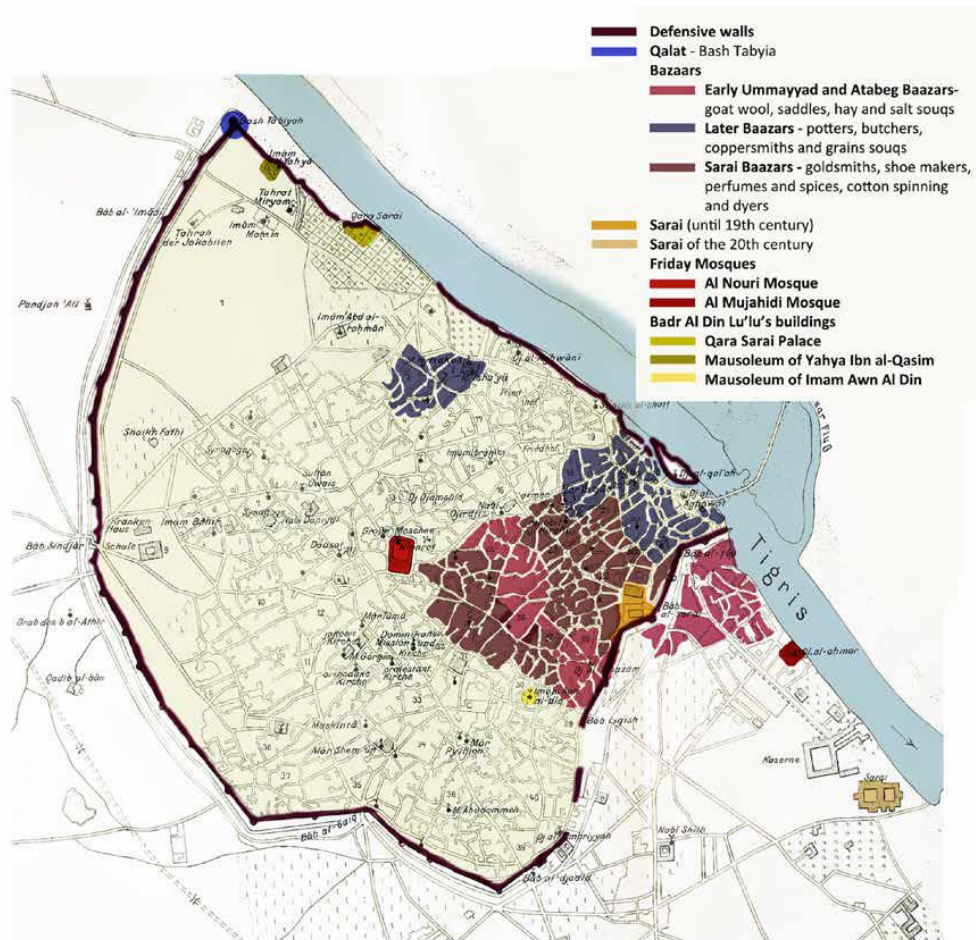


Figure 39: Old Map of Mosul in 1920

The map illustrating defensive wall, mosques, bazaars, Sarai, Source: (UNESCO, 2020)

The Mosul ruler's diverse religions and ethnicities leave a unique mark on Mosul's architecture. Mosul city contains harmonic mixed cultures, religions, architecture, and arts. Various periods came through Mosul construction with each period adding multi-effects on the city's identity. The traditional architectural style in Old Mosul has confirmed mixed cultural style, making it one of the most unique heritage cities (K. Nováček, 2017). Accordingly, representative of the city's architectural heritage are its mosques, shrines and churches, reflecting the type and model of the arts that each period added to the area. Examples include Mosul's unique riverfront panorama with monumental buildings; and the Ottoman inns and bazars situated in its south. It also rose in elevation in time because of successive building overlaps and gradually became

a memorable and significant hill. Because the prevailing building material was local stone, many of its buildings lasted for centuries and gave Mosul its unique architectural character (Fethi, 2020).

The indicators of urban character are represented by land use, movement, and accessibility, the technical side, the alignment of the city, which can be seen in the presented maps and figures, which are authentic heritage elements that express the identity of the city. Accordingly, it is essential to understand the formal elements and the relationships that are organized according to which they are organized to achieve a better result in the recovering process.

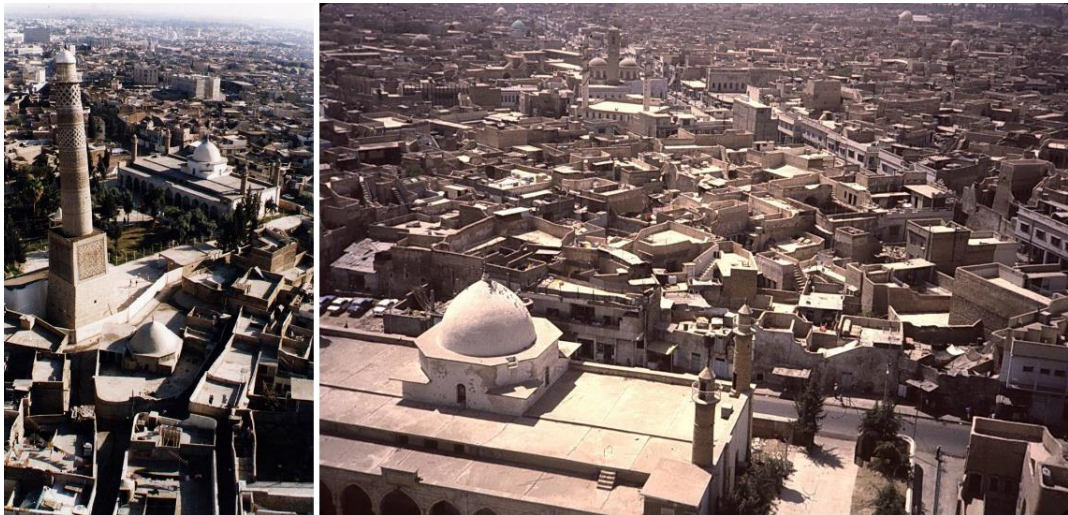


Figure 40: The unique urban fabric of the city of Mosul
Illustrates the preserved urban heritage pre-ISIS, Source: (Fethi, 2020)



Figure 41: Homes overlooking the river in the old Mosul late 1970s, Source: Nik wheeler

The Old City center illustrated its intricate labyrinth of small archways, narrow streets, which still can be seen post the war and its devastation. The old core of the city kept its traditional heterogeneity. As examined earlier in this chapter, the city's network presented one of the best models of the unique pattern even after the destruction, as the roads and streets still define how they were before the war.



Figure 42: The network of streets, and alleyways of Old Mosul.
Source: 10.21625/baheth.v2i2.546

4.4 Architectural Heritage of the Old City of Mosul

The Old part of Mosul city presents a comprehensive group of an evolved traditional town mainly dates back to the Ottoman ruler with its lame, intricate alleyways. It comprises and linked dwellings, schools, diverse religious buildings, and shops as shown in the city's old images Figure 46. In addition, the alabaster stone that is consider as a unique local material that have been used in the internal construction decoration gave the city its unique appearance internally reflecting valuable architectural heritage that go with the language of Mosul urban heritage to produce its distinctive character (UNESCO, 2018).

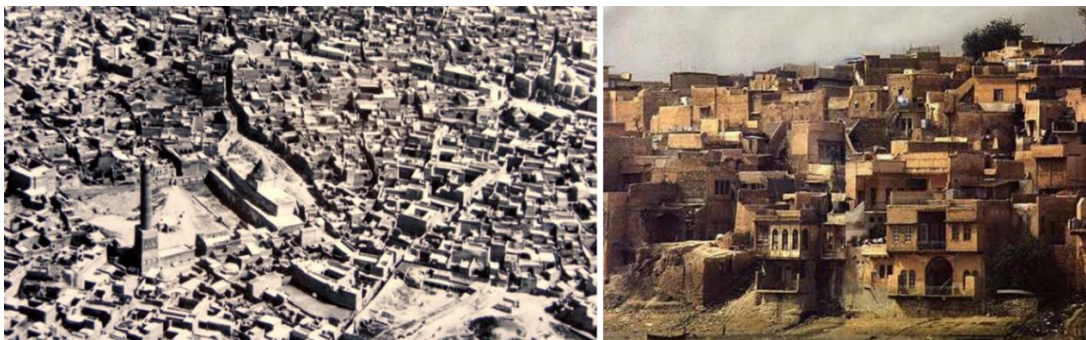


Figure 43: Old Mosul urban fabric shows the typical system of a meandering network of narrow alleyways serving other facilities before the 1940s. Source: <https://www.atlastours.net/iraq/mosul.html>

The oldest and most valuable layer of Mosul's architecture dates back to the 12th–13th centuries. Before the war, it comprised 25 diversely preserved buildings that can be divided – both chronologically and artistically – into two groups. The first group is connected with the rule of the Zengids (1127–1219), the Atabeg dynasty, which is known for mounting an effective military resistance against the Crusaders. Regarding other 12th -century monuments, where the decorations are very austere and geometric and the architecture of the mosque combines, in an interesting way, Syrian influences (basic geometric forms) with Persian traditions (brickwork decorations).

The medieval architectural development of the town culminated during the ambitious rule of Badr al -Din Lu'lu' (1219–1259), who launched the transformation of Mosul architecture in a way that fully represented his religion (Shii Islam). Badr al -Din's architectural program was unique from an artistic point of view: his buildings were inspired by the contemporary Shii architecture of Fatimid Egypt, but also shared many shapes and decorative elements with the Christian architecture of northern Iraq, which suggests that local Christian architects might have built them. Typical features of this architecture (Mosul school) are amply decorated brick facades: the geometric decoration being more delicate than earlier and complemented by blue glazed bricks, epigraphic friezes, arabesques and figural reliefs. The same is also reflected in the decoration of the interiors, where decorative elements were carved in local dark grey, spotted marble. Badr al -Din's architecture was absolutely original in its unique synthesis of trans-regional artistic identities and local traditions, mainly the architecture of Nestorian monasteries (K. Nováček, 2017).



Figure 44: Al-Mujahidi (Al-Khidr) Mosque

Al-Mujahidi Mosque in 1975 and its interior, Source: PhD Thesis Edinburgh University, Studies in Medieval Iraqi Architecture, [http:// archnet.org](http://archnet.org) © Aga Khan Documentation Center at MIT

Regarding the form of the traditional formal and decorative elements used in the Mosul architecture, it is evident that there are a set of indicators reached by the research, which represented in their entirety the fixed values of the architectural heritage of the

old city of Mosul, which the research recommends to adopt as a starting point for the reconstruction of the old city after the war.

Within each generation of inhabitation, architectural heritage layers increased in the Old City, because of their diverse religions and ethnicities. Each one added an individual and unique mark on Mosul's heritage architecture. As mentioned earlier, Atabeg mosques during 12 and 13 centuries were inspired by the architecture of earlier churches, which also may have been inspired by the earlier architectural examples of the Assyrian empire. Or during the rule of Badr al Din, where the palaces and mosques reflected his beliefs and religion, and had similarities with the Mar Tuma church, also may inspired the Yazidi architecture. Residential architecture also reflected in a simple way the mosques and churches architecture through decorations and elements, as the case of Iwan that was closed from 3 sides and opened from one side and looked over the internal courtyard. Accordingly, not only in the residential properties, as a Mosul architectural element Iwans were a part of public buildings, like schools and hospitals (UNESCO, 2020).



Figure 45: Entrance influences

First two pictures from Imam Awn Al-Din tomb, the other two from Mar-Tuma church, they clearly illustrate the influence of the architectural type of both on each other. Source: https://archnet.org/sites/3841/media_contents/107325 and https://archnet.org/sites/3841/media_contents/107314, <https://www.mesopotamiaheritage.org/monuments/leglise-syriaque-orthodoxe-mar-touma-de-mossoul/>

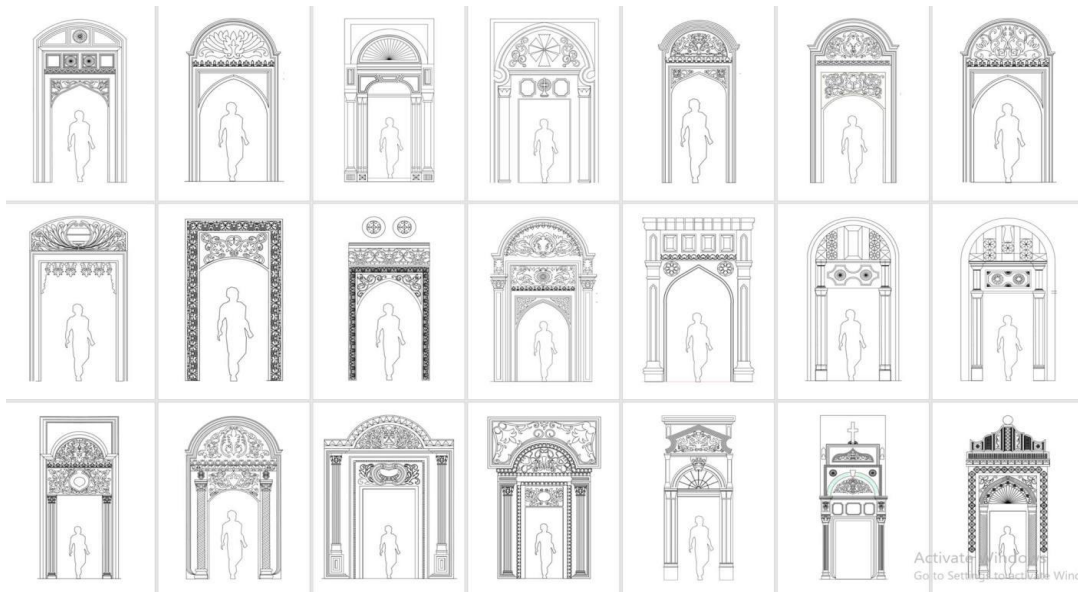


Figure 46: Samples of traditional entrance windows, contracts, and decorations
 Source: <https://round-city.com/iraqi-architect-races-to-document-mosuls-standing-doorways-and-arches/>

4.4.1 Mosques and Tombs

In Islamic cities, Mosques were multi-functional centers where prayer and activities had implemented. It was a center for education, sciences, medicine, sociological, philosophy, and legislative function. In addition, mosques served as community centers and housing multipurpose spaces where members of the community can gather and socialize before and after prayer. Libraries, museums, galleries, stores, multipurpose halls for lectures and debates, as well as hostels, shelters, and feeding facilities for the people in need, have all become part of their repertoire.



Figure 47: Old maps of the old city of Mosul illustrating the Mosques
 First map from 1918 that illustrate the location of the mosques in the Old city of Mosul, second map illustrate the raise of mosque numbers with the urban expansion.
 Source: (Matloob, 2014)

Mainly mosques are two types, Friday Mosques (Jamii') for Friday praying and Daily mosques (Masjid) for daily praying, gathering, educating, and activities. Their locations were related to the characteristics of their surrounded spaces and activities. As an essential element of the Islamic city, the old city of Mosul contained a main collective mosque called Al-Nouri Great Mosque, plus many other mosques. The oldest Mosques, despite the unique material, design and environmental consideration, were known for their Muqarnasat (the edge that the rectangular shape hall needed to be linked to the circular Dome). Number of destroyed mosques, according to previous documents and research, is listed below (which will be located on a map in the following chapters plus their situation) (K. Nováček, 2017), (Karel Nováček, 2021), (RASHID, 2016):

Table 6: List of the destroyed Old Mosques in the Old City of Mosul

No.	Property Name	Type	Founder	Period
1	Great Mosque of Nur al-Din (al-Nuri)	Mosque	Nur al-Din Zangey	1170-1172
2	Minaret al-Hadba'	Minaret		1170-1173
3	Mosque of Alkhidir (Mujahid)	Mosque	Mujahid al-Din Qaymaz	1176
4	Mosque and Tomb of Nabi Yunus	Mosque	NA	NA
5	Mosque and Tomb of Nabi Jirjis	Mosque	NA	1175
6	Mosque and Shrine of Imam Ibrahim	Shrine, Mosque	emir Ibrahim al-Jarrahi	NA
7	Mosque and Shrine of Imam Muhsin—Madrasa al-Nuriya	Shrine, Mosque	Hamdanids	947–948
8	Mosque and Tomb of Shaykh Qadib al-Ban al-Mawsili	Mosques with Tombs	Abu 'Abd Allah al-Husayn Qadib al-Ban	1078-1177
9	Mosque and Tomb of Shaykh Fathi	Mosques with Tombs	NA	beginning of the thirteenth century
10	Mosque of Sultan Uways	Mosques with Tombs	Badr al-Din Lu'lu'	
11	Mosque of Hamu al-Qadu—Tomb of 'Ala' al-Din	Mosque	NA	Late Ottoman, with earlier phases
12	Mosque of the Prophet Seth (Nabi Shith)	Mosque	NA	Ottoman; modern
13	Mosque of Shaykh Abu al-'Ala'	Mosque	NA	Ottoman
14	Mosque and Tomb of Nabi Daniyal (Prophet Daniel)	Mosques with Tombs	Ma'rif ibn Ibrahim al-Sulayman	Ottoman 1813–1814
15	Mosque, Tomb of 'Isa Dadah and Adjacent Cemetery	Mosques with Tombs	NA	Atabeg origin
16	Mosque and Tomb of Shaykh 'Ajil al-Yawar	Mosques with Tombs	NA	Modern-1943
17	Mosque and Madrasa of al-Ridwani	Mosque and Madrasa	Shaykh 'Abd al-Razzaq al-Ridwani	1795–1796

18	Mosque and Tomb of Shaykh Muhammad al-Abariqi	Mosques with Tombs	NA	Late Ottoman
19	Mosque and Shrine of Imam al-‘Abbas	Shrine, Mosque	NA	Ottoman
20	Mosque and Tomb of Imam Zayd ibn ‘Ali	Mosques with Tombs	Badr al-Din Lu’lu’	Ottoman
21	Madrasa of the ‘Abdal Mosque	Mosque	al-Hajj ‘Abdal ibn Mustafa al-Mawsili	Ottoman, 1669–1670
22	Mosque and Shrine of Awlad (or Banat) al-Hasan	Mosque	Alid, al-Hajj Ahmad ibn Shahidu	Ottoman, 1820–1821
23	Mosque of Imam Muhammad/Mosque of al-Sab‘aw	Mosque	NA	Nineteenth-century
24	Shatt al-Jumi Mosque/Tomb of Shaykh Ibrahim al-Naqshbandi	Mosques with Tombs	NA	1921–1922
25	Mosque and Tomb of al-Kharrazi	Mosques with Tombs	NA	Ottoman, modern restoration
26	Al- Masfi Mosque	Mosque	‘utba Ebn Farqad	16 Hijri
27	Aghawat	Mosque and Madrasa	Nur al-Din Zangey	1170-1172

The list of heritage properties in the Old city of Mosul will be examined in next chapter while defining the current recovery process.

4.4.2 Churches and Monasteries/ Der

Mosul has the highest proportion of Christians of all the Iraqi cities and contains several interesting old churches, some of which originally date back to the early centuries of Christianity. However, its ancient churches are often hidden, and their entrances in thick walls are not easy to find.

The first Christian settlement on the western bank of the River Tigris can be reliably dated back to 570 when the Nestorian monk Īshōyab bar Qusrē founded a large church

with a monastery on the grounds of a Sasanian fortress. However, most Christian expansion started only after the influx of inhabitants into the Islamic garrison town, founded in the middle of the 7th century (K. Nováček, 2017).

Apart from the dominant Nestorians (Assyrian Church of the East), the Jacobites (Syrian Orthodox Church) were also invited to the town as early as 657. The existence of numerous churches is confirmed by sources from the end of the 8th century. Some of them can be reliably identified with currently existing sites. In addition, Christian institutions in the town were linked with significant monasteries scattered throughout the province of Ninawa. (K. Nováček, 2017). List of destroyed churches located in the Old city of Mosul are (K. Nováček, 2017), (Karel Nováček, 2021), (RASHID, 2016):

Table 7: List of the main destroyed Churches and Monasteries/Der in the Old City of Mosul

No.	Property Name	Type	Neighborhood	Period
1	Al-Tahira Syriac Orthodox Church	Church	Shifa'	1743–1745
2	Mar Guorguis Chaldean Church	Church	al-Arabi	1023
3	Mar Isho'yab Chaldean Church	Church and Der	Sarjkhana	NA
4	Ancient Church of the Virgin-Tahira Mary	Church	Al Dargazilia	NA
5	Latin Al-Saa'a Church	Church	Kalakchi	1866 and 1873
6	Sham'un al-Safâ	Church-Institute	NA	9th century
7	Mar Ichaya church	Church	Ras Al Koor	570
8	Mart Meskinta church- Mar Michiel	Church	Al Mayasa	1199 or 1212
9	Mar Touma Syriac-Orthodox	Church	Nabi Jarjis	640 or 770
10	Mar Touma Syriac-Chaldean	Church	Nabi Jarjis	NA
11	Mar Yuohana	Church	Sarjkhana	NA
12	Mar Hudeni (Ahudemme)	Church	Bab al-Bayd	1970

4.4.3 Private Traditional Houses

House is the unit of a residential area that looks inwards, with no or minor openings to the exterior at the street level. The area of the traditional houses varied from 50 sq m- 600 sq m or more with one courtyard, and high of two, or three floors. The opening to the exterior was above the eye level or in the upper floors as a window or closed balcony (Shanasheel) for observing the street life while keeping the inhabitants' privacy (Mozahim Mohammed Mustafa, 2010). The traditional houses in Old Mosul were adaptable and flexible in their space usage and movement. Seasonal and daily movements reflected their needs and climate change throughout all the spaces. Some functions were fixed in all the traditional houses and palaces like bathrooms, toilets or kitchens, while others were changed. For example, the first-floor rooms were mainly used in winter because of the low sunrays then in summer the ground-floor used because of the high sunrise, which considers a vertical movement, but the daily movement varied between vertical and horizontal movements according to the daily activity and movement. These movements are considered an adaptation of the citizens to the region's harsh weather conditions from one season to another between an average of 2°C- 43°C in winter and summer. The spaces in these houses are divided into usable and transitional spaces plus physical architectural components (UNESCO, 2020).

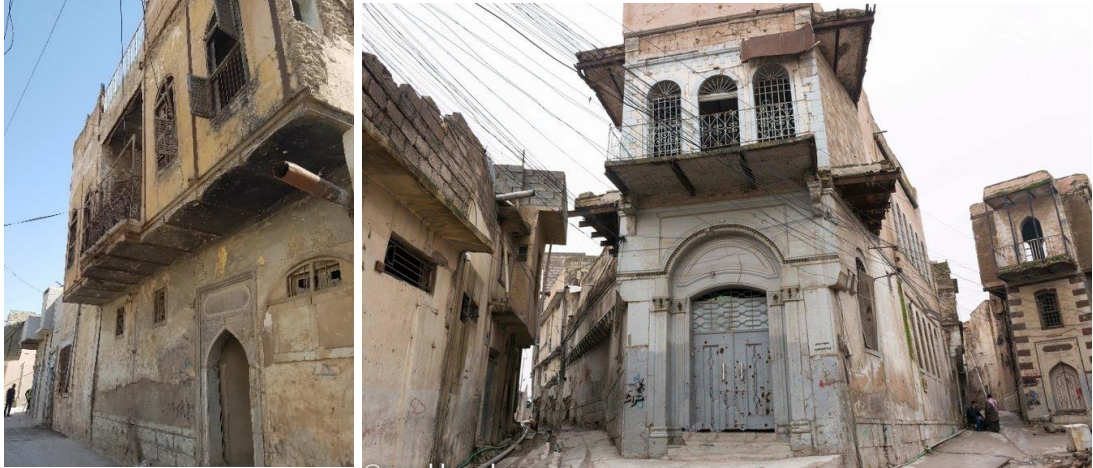


Figure 48: Examples of traditional houses in old city of Mosul- exterior
The images illustrate the exterior wall of the houses with high level of opening
Sources: First image on the left: Author; Second Image: Saad Haad

The houses focused on a high level of privacy. The access to the courtyard was through a series of median spaces and indirect entry, beside the large Depths of the house space by the space sequence of the rooms. This privacy was also enhanced through the internal opening toward the main courtyard, which made through the intermediate spaces that opened toward the courtyard. The entrances were mainly primary and secondary. The main entrance has a distinguished decoration style made of stone. Most of the houses have a basement that was either entirely under the ground floor or its ceiling higher than the level of courtyard ground and under the building structure. Moreover, the rooms were either within main parts or conceived in separated parts (Mozahim Mohammed Mustafa, 2010). The main idea of these houses depended on the partition where affected the whole building at the level of regulation of space and mass composition.



Figure 49: Examples of traditional houses in old city of Mosul- interior Courtyard Houses with distinguished decoration, Source: <https://twitter.com/mosuleye/status/1203796868507078656?lang=id>

In the 1980s, the heritage department of Mosul Museum registered around one thousand historically significant buildings there. They bought some of the selected houses with the approval of the owner families to become a public heritage building owned by the Iraqi Antiquates and Heritage Authority. The number of documented houses has since considerably decreased.

The largest segment of the architectural monuments was– and still is – private houses and palaces from the late Ottoman period. However, only a small number of this domestic architecture has been conserved; many houses have been abandoned, are in ruins, or have been insufficiently maintained (K. Nováček, 2017). The list below illustrates some of the main traditional houses in the old city of Mosul that have been documented as historical private houses. They are partly destroyed and planned to be reconstructed. (K. Nováček, 2017), (Karel Nováček, 2021), (RASHID, 2016), (Mozahim Mohammed Mustafa, 2010), (Mafaz T., 2019):

Table 8: List of destroyed Traditional Houses in the Old City of Mosul

No.	Property Name	Neighborhood	Owner	Period
1	Numan al Dabagh	Sarjkhana	Family	1776
2	Sharif al-Dabagh		Family	NA
3	Ziyada	Bab Al Baydh	Antiquities and Heritage Authority	1870
4	Al-Sharabi House	NA	Antiquities and Heritage Authority	NA
5	Al-Tutunji	Qatanin	Antiquities and Heritage Authority	1815
6	Sulaiman Al Saigh	NA	NA	
7	Al Motran Palace/ Bahnam	Danadan	Family	1850
8	Saffawi	Bab Jadid	Family	1907

Another significant architectural element of the traditional houses was Iwan (arched room open on one side). It is considered one of the distinctive elements of the Moslawi traditional courtyard house. This is a space into which the doors and windows of the other rooms open; most commonly bedrooms, but also kitchens and living rooms. This space was used as a sitting area in different seasons according to their orientation. It used to be on the ground floor with a rich internal decoration. Its arch was different from the arch of windows and doors. They were usually tapered while the other arches were flat (UNESCO, 2020).

Since one of the characters of the Islamic city is the rich interior decoration that the courtyard houses are distinguished by. Accordingly, Mosul's traditional houses and as mentioned earlier, was well known for their amazing interior decoration that can still be seen (despite the destruction) in Old Mosul houses. Hence, as a strategy for the reconstruction efforts, the interior spaces and decoration should be enhanced rather than facades (Fethi, 2018).



Figure 50: Abduni House and Tutinchi House
 The usage of marble in the interior design, Source:
<https://archnet.org/authorities/3843/sites/15594>

Based on the findings, it can be concluded that the idea of the house in Mosul is dependent on partition and the parts dominated on the whole at the level of regulation of space and the mass composition, which makes the house of Mosul has a high Privacy and has irregular geometry of Mass composition. And there is a difference between the pattern of regulation at the whole level and the regulation pattern of its parts due to the diversity in the main components of the houses. The diversity of the elements was not the only reason for the differentiation of Mosul's traditional houses, but also its architectural treatments, and the diversity of used materials in building the houses, rich internally and simple externally (Mozahim Mohammed Mustafa, 2010).

4.4.4 Others

These include the properties that have a historical value apart of the urban heritage pattern but are not included under any of the categories above. These properties included buildings, cemeteries and baths. They used as orientation points, landmarks inside the city's labyrinthine streets, some of them becoming urban symbols. Some of them are shown in the list below (K. Nováček, 2017), (Rashidi, 2020):

Table 9: List of Other Historic Properties

No.	Property Name	Type	Period
1	Hammam al-'Umariya	Bath	Ottoman
2	British War Cemetery	Cemetery	1918
3	Al-Saray Police Station/ Madrasat al-Sana'i'	Military property	Late Ottoman
4	Barud khana	Military property	1842

As it has been mentioned before, list of historical properties in the Old city of Mosul will be discussed in the recovery plan of the city in the next chapters.

4.5 Chapter Summary

Representatives for Mosul are its meandering roads and paths and courtyard houses, constituting the Old City's residential urban fabric, with constructions dated back to the 18th and 19th century, with projecting jetties, arched, and decorative gates. The Old City was a densely built and populated area, without green areas and vegetation except for a few gardens inside the largest courtyard houses. The majority of the valuable architectural monuments were from the late Ottoman period – and despite the war are including traditional private palaces and houses (however many of them were neglected for many years due to their owners, political issues, regulations and revenue) plus the archways, urban pattern, Mosul's architectural religious structure including both Islamic (mosques, mausoleums, madrasas, cemeteries) and Christian (monasteries, churches, cemeteries) completed the distinguished urban heritage component.

Chapter 5

THE DESTRUCTION AND RECONSTRUCTION OF THE OLD CITY OF MOSUL

Urban heritage is usually addressed and designated by various legal statuses, like local government municipal, local institutes, and international agencies or committees. It refers to various urban resources, such as tangible with its movable, immovable, and natural components plus intangible including cultural, digital, analog. Within the massive destruction in Mosul and its old city in particular, there was an essential need for recovery because of the Islamic State group. Later the efforts implemented to reconstruct the city by the external funders and local authorities will be analyzed in depth. Accordingly, in this chapter, the recovery strategies that have been followed in the reconstruction process will be analyzed and discussed clarifying their positive and negative aspects based on the lessons that have been learned in chapter 3.

5.1 Mosul Urban Heritage Intentional Destruction

Daesh started systematic and premeditated destruction of Mosul's valuable heritage. Pre-their attack, they issued a list that included 40 sites in Nineveh province to demolish. On 10 June 2014, they occupied Mosul. By June 2016, many historically significant structures had been destroyed or entirely demolished (as it will be illustrated later), thousands of civilians had been killed, the coexistence of both Sunni and Shi'i Muslims with Christians, Yezidis, and other cultural and religious minorities have been broken (Karel Nováček, 2021). Sunni mosques, madrasas, mausolea, and shrines designated as Mosul's heritage were the most affected monuments and

properties in the old city. Almost all of the architectural landmarks that shaped the city's distinctive panorama have been demolished from 2014 to 2017 (RASHID, 2016).

The Islamic State, commonly known as ISIS or Da'esh in Arabic, is an Islamic terrorist group linked to al Qaeda in Iraq that has taken control of areas of Iraq and Syria. Their goal was to create an autonomous Islamic state in the Middle East based on anti-Western radicalism (Hill, 2017). They used to document and publish the crimes and destruction they have done through social media and the internet. Their focus was on erasing the culture and history of Iraq and Syria.

The city of Mosul suffered dramatically after the war. The old city was severely damaged. A high percentage of destroyed parts were residential, including historical buildings and heritage properties. The level of destruction is unmatched since the Second World War. Moreover, once ISIS had controlled the area, they started a systematic iconoclastic plan for destructing the significant heritage properties that resulted in the razing of countless cultural and religious sites (Benjamin Isakhan, 2019).

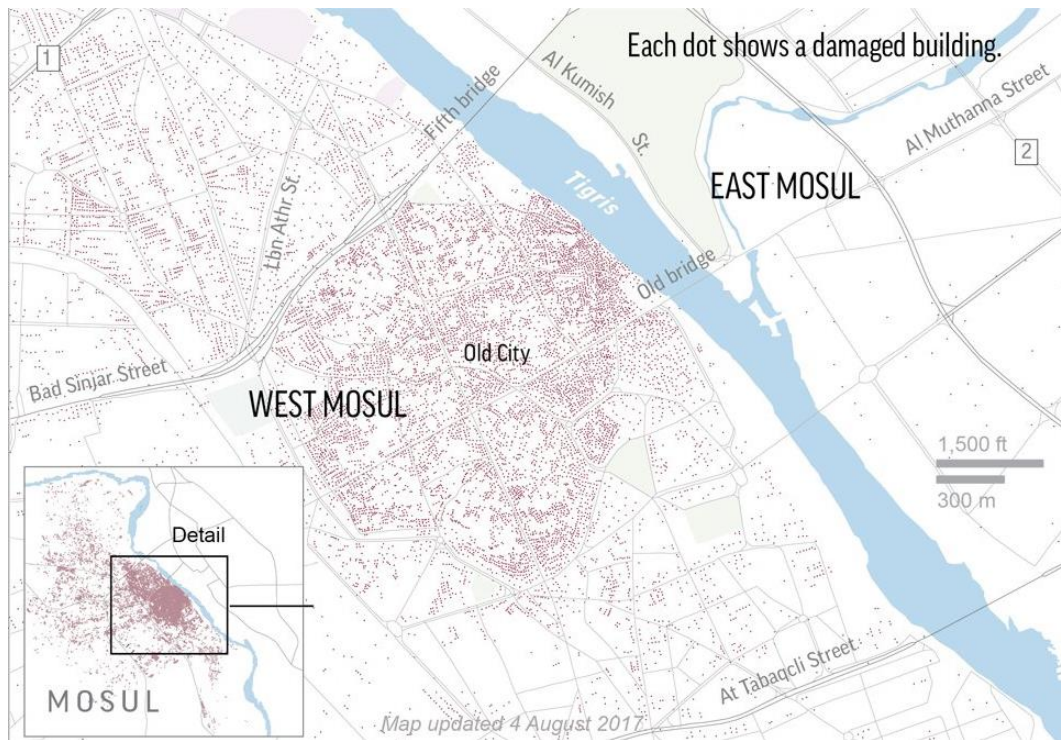
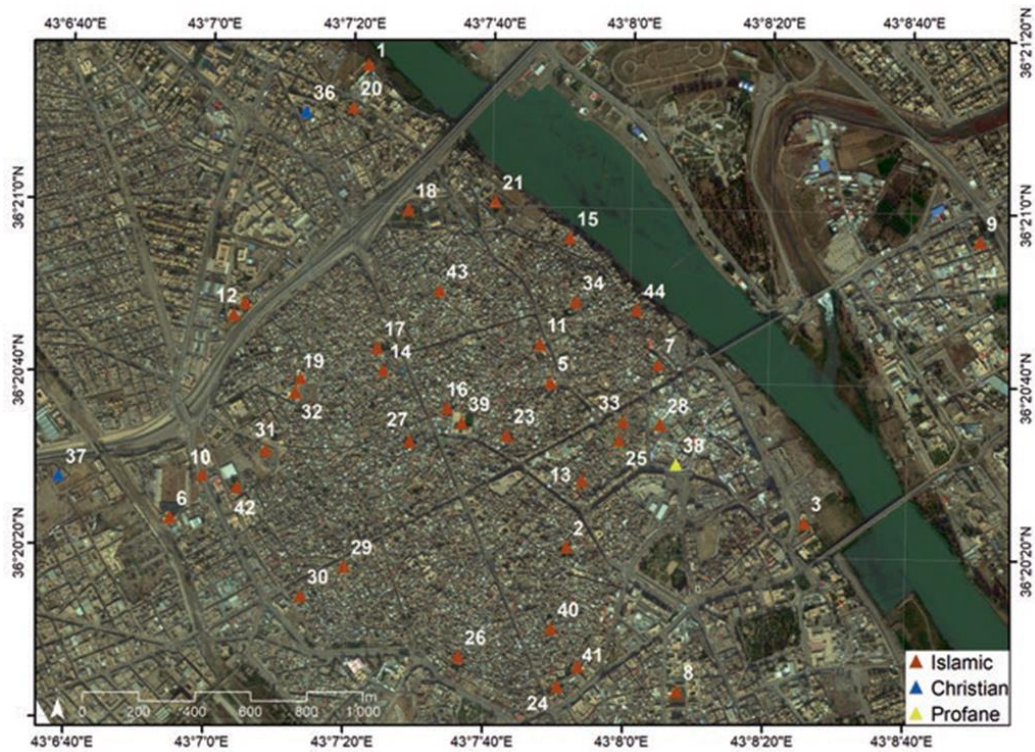


Figure 51: Mosul city-damaged building

Source: <https://apnews.com/article/collapse-of-the-caliphate-islamic-state-group-ap-top-news-baghdad-middle-east-daf97af61a044eecb9c5f2a7b283ed00>

The destruction has been conducted mainly in three different phases that despite the traditional private houses and urban pattern, nearly 50 architectural monuments (a part of the medieval architecture) fell victim to their cultural genocide (Karel Nováček, 2021). In the first phase, (June 2014–July 2017) the architectural monuments were deliberately destroyed by ISIS. This systematic selection of heritage was strategically motivated and planned previously (according to what they have published) (Ani, 2020).



1. Shrine of Imam Yahya ibn al-Qasim — razed, 2. Shrine of Imam ‘Awn al-Din —ruined, 3. Mosque of al-Khidr (al-Jami‘ al-Mujahidi) —razed, 4. Mosque and Tomb of Nabi Yunus — razed, 5. Mosque and Tomb of Nabi Jirjis —razed, 6. Mosque and Tomb of Qadib al-Ban al-Mawsili —ruined, 7. Mosque of Hamu al-Qadu — ruined, 8. Mosque and Tomb of Nabi Shith — razed, 9. Mosque and Husayniyya Rawdat al-Wadi—razed, 10. Tomb of Ibn al-Athir (Qabr al-Bint) —razed, 11. Mosque of Imam Ibrahim —ruined, 12. Mosque and Tomb of Shaykh Fathi —razed, 13. Mosque of Abu al-‘Ala’ — ruined, 14. Mosque and Tomb of Nabi Daniyal — ruined, 15. Tomb of Shaykh al-Shatt —razed, 16. Shrine of Imam ‘Ali al-Asghar —ruined, 17. Mosque of Sultan Uways with cemetery —ruined, 18. Shrine of Imam ‘Abd al-Rahman — ruined, 19. Mosque and Shrine of Imam al-Bahir — razed, 20. Mosque and Shrine of Imam Muhsin—ruined, 21. Tomb and cemetery of ‘Isa Dadah —ruined, 22. Mosque of ‘Ajil al-Yawar — ruined, 23. Hammam al-Saray Mosque and Shrine of al-Sitt Nafisa—ruined, 24. Hammam al-‘Umariyya —razed, 25. Mosque of al-‘Abbas —ruined, 26. Shrine of Imam Zayd ibn ‘Ali —ruined, 27. Cemetery adjacent to the Mosque of Umm al-Tis‘a—ruined, 28. Madrasa of the ‘Abdal Mosque (continued) —razed, 29. Shrine of Imams Hamid and Mahmud —razed, 30. Shrine of Imam ‘Ali al-Hadi —ruined, 31. Tomb of Shaykh Mansur—ruined, 32. Tomb of Abu al-Hawawin —ruined, 33. Mosque and Shrine of Awlad (or Banat) al-Hasan (Mosque of Bayt Shahidu) —razed, 34. Mosque of al-Sab‘awi —ruined, 35. Tomb of Shaykh Rashid Lolan—razed, 36. Al-Tahira Syriac Orthodox Church (al-Tahira al-Kharijiya) —razed, 37. English War Cemetery —ruined, 38. Al-Saray Police Station/Madrasat al-Sana’i’ —razed, 39. Great Mosque of al-Nuri and Minaret al-Hadba’ —ruined, 40. Mosque and Madrasa of al-Ridwani —ruined, 41. Mosque of al-Abariqi —ruined, 42. Tomb of Shaykh Ibrahim —ruined, 43. Mosque of Mahmud ‘Abd al-Jalil al-Khidri — razed, 44. Shatt al-Jumi Mosque—Tomb of Shaykh Ibrahim al-Naqshbandi —ruined, 45. Mosque of al-Kharrazi —ruined.

Figure 52: Old Mosul with architectural monuments deliberately destroyed by ISIS (June 2014–July 2017)

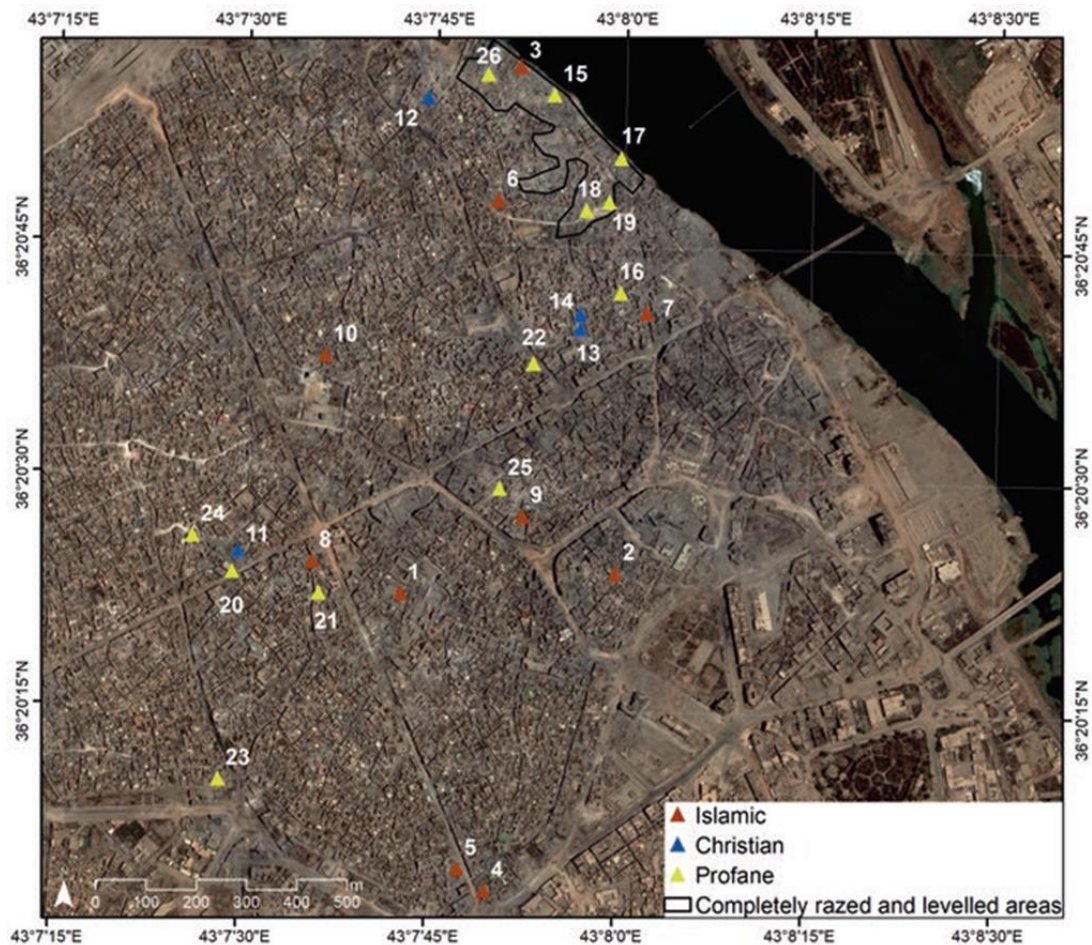
Source: (Karel Nováček, 2021)

The second UNESCO International Expert Conference was held to follow up on implementing of UNESCO's framework for the urgent conservation of Iraqi cultural heritage. Most of the destruction have been illustrated in the figure below; which shows that the damage has affected at least one third of the area. Buildings that reflected historical and symbolic values were selected, so their destruction triggered feelings of despair and desperation among the local people. Subsequently, the demolition slowly led to disintegrating their values, traditions, and finally, their identity (Shaimaa Hameed Hussein, 2019). The places mostly targeted was based-identity disintegrating which were:

- Traditional buildings with deep values in the historical collective memory throughout the years, from generation to generation.
- Public spaces with symbolic values drawn in the peoples' conscience. Al-Nuri Mosque open space, city squares.
- Cultural and religious buildings (the mosques, churches, madrasaa and monasteries)
- Public known buildings as university and school buildings and the sort.
- In conclusion, their demolition will cause the culturally emotional shock desired, which is why they had been targeted (Shaimaa Hameed Hussein, 2019).

Then the second phase of destruction was during the liberation process. Later destruction was, at least predominantly, a consequence of the armed conflict between IS and the coalition forces, especially following the launch of the operation to liberate Mosul's old town on 19 February 2017. The city's liberation has been achieved, but the cost was destroying the remained surviving areas of the Old city Mosul. The Iraqi

Army and Americans were active parties in this phase of destruction, as according to Fethi call (before the liberation) in the name of all those who value the cultural heritage and humanity, this tragedy could be avoided by taking other solutions in liberating the old city of Mosul (Fethi, 2017). UNHABITAT released maps showing the rate of destruction in the Old City of Mosul in particular and Mosul in general due to military operations to liberate the city from ISIS. Fethi indicates that the indiscriminate artillery and aerial bombardment by the Iraqi Army and Americans exceeded the worst expectations (Fethi, 2020). Old Mosul was largely ruined, and very few historical monuments and houses survived that massacre. The architectural monuments that have been destroyed or severely damaged during the liberation of the city are shown below,



Hatched area was completely destroyed. 1. Mosque of Rabi'a Khatun—partly ruined, 2. Mosque of al-Khazam —partly ruined, 3. Mosque of Shaykh al-Shatt —ruined, 4. Mosque of Bab al-Jadid (al-Bashir Mosque)—ruined, 5. Masjid of al-Sha'uri—razed, 6. Mosque of al-Kawazin—razed, 7. Al-Khalal Mosque—ruined, 8. Al-Muta'afi Mosque—razed, 9. Mosque of 'Uthman al-Khatib—ruined, 10. Mosque of Shaykh Muhammad—ruined, 11. Mar Guorguis Chaldean Church—ruined, 12. Mar Isho'yab Chaldean Church—ruined, 13. Ancient Church of the Virgin Mary—ruined, 14. Syriac Catholic Church—ruined, 15. Sharif al-Dabakh House—razed, 16. Hana Jirjis House—ruined, 17. Bashir Munir House—razed, 18. Hana Michel Hana House—razed, 19. Dawud Ishak House—razed, 20. 'Abd al-Rahman House—ruined, 21—Bahnam Raban House—razed, 22. Anes Kamas House—razed, 23. Ziyada House—ruined, 24. Al-Sharabi House—ruined, 25. Al-Tutunji House—ruined, 26. An unknown heritage house—razed.

Figure 53: Heritage buildings destroyed or severely damaged during the liberation
 This phase started in February ended in July 2017
 Source: (Karel Nováček, 2021)

After the mentioned two phases, ISIS wrecked at least 45 monuments during its three-year control. The three-year conflict has resulted in the deaths of around 50,000 Mosul residents, half a million refugees, and a completely destroyed city. Mosul's cultural genocide has taken the city's most valuable landmarks, which formerly declared the town's diverse ethical and theological history (K. Nováček, 2017).



Figure 54: The Destruction of old city of Mosul
First Image Have been taken in 2015 while the second one in July 2017. Source:
https://reliefweb.int/sites/reliefweb.int/files/resources/UN-HABITAT_MosulCityProfile_V5.pdf

The third phase of the devastation was, bulldozed clearance. The start of clearing the rubble from alleyways and mines without supervision by specialist heritage teams caused a loss of stone rubble, old windows, doors, decorative marble panels, and any heritage items that could be found within the rubble. They could be located in a secure site nearby to form a materials bank for recycling such items in future restoration and reconstruction projects.



Figure 55: Clearing the rubble randomly
one year after liberation

source: http://www.xinhuanet.com/english/2018-12/09/c_137661701_8.htm

In addition to the massive devastation in whole the city, about 3 square kilometers of the old city have been massively destructed (Fethi, 2018). Furthermore, the large riverside houses were destroyed during the last phase of the war, excellent examples of late Ottoman urban local architecture were lost. As it has been shown in Figure 59:



Figure 56: The panorama of the old city of Mosul before and after the war.
The credit of the upper image to Mosul municipality and the lower image has been
taken by Musaab Sami Al-Obeidy

5.2 Mosul Postwar Urban heritage

In June 2017, after three years, Mosul went through the liberation war. As a final stage of destruction to make ISIS leave the city, the operation run by the Iraqi Security Forces in collaboration with United States army-led coalition which provided aerial and logistical support to ground forces controlled by Kurdish Peshmerga units and Iranian militias. The Liberation war had a notable impact on the local residents and the urban heritage fabric of the city, especially the old city.

Regarding Mosques attacks and destruction, the mosques were divided into two groups: those who belong to Pious Shaykhs and Sufis or to Descendants of the Prophet Muhammad. This was in addition to the prophets' mosques and cemeteries. (Karel Nováček, 2021). Regarding the Christian monuments, only one total demolition happened that left the Syriac Orthodox Church (called al-Tahira al-Kharijiya) leveled to the ground, while the other churches and monasteries have suffered major damage and their structures looted and destroyed. Below is the list that has been heavily or destroyed according to Karel Nováček (2021) and his colleagues (Karel Nováček, 2021), (K. Nováček, 2017).





Figure 57: Al- Nuri Mosque Pre-Post Destruction

Source: <https://www.bbc.co.uk/news/resources/idt-9d41ef6c-97c9-4953-ba43-284cc62ffdd0>

Table 10: Number of the destroyed heritage monuments in the old city of Mosul

Type	Property Name	Type	Property Name
Islamic	Great Mosque of Nur al-Din (al-Nuri)	Christian	Al-Tahira Syriac Orthodox Church
	Minaret al-Hadba'		Mar Guorguis Chaldean Church
	Mosque of Alkhidir		Mar Isho'yab Chaldean Church
	Mosque and Tomb of Nabi Yunus		Ancient Church of the Virgin-Tahira Mary
	Mosque and Tomb of Nabi Jirjis		Latin Al-Saa'a Church
	Mosque and Shrine of Imam Ibrahim		Sham'un al-Safâ
	Mosque and Shrine of Imam Muhsin—Madrassa al-Nuriya		Mar Ichaya church
	Mosque and Tomb of Shaykh Qadib al-Ban al-Mawsili		Mart Meskinta church- Mar Michiel
	Mosque and Tomb of Shaykh Fathi		Mar Touma Syriac-Orthodox
	Mosque of Sultan Uways		Arzh 'atiq
	Mosque of Hamu al-Qadu—Tomb of 'Ala' al-Din		Mar Yusuf Chaldean
	Mosque of the Prophet Seth		Mar Touma Syriac-Chaldean
	Mosque of Shaykh Abu al-'Ala'		Mar Yuohana
	Mosque and Tomb of Nabi Daniyal (Prophet Daniel)		Mar Hudeni (AhudemmeH)

Mosque, Tomb of 'Isa Dadah and Adjacent Cemetery	Private Houses	Numan al Dabagh
Mosque and Tomb of Shaykh 'Ajil al-Yawar		Sharif al-Dabakh
Mosque and Madrasa of al-Ridwani		Ziyada
Mosque and Tomb of Shaykh Muhammad al-Abariqi		Al-Sharabi House
Mosque and Shrine of Imam al-'Abbas		Al-Tutunji
Mosque and Tomb of Imam Zayd ibn 'Ali		Sulaiman Al Saigh
Madrasa of the 'Abdal Mosque		Alazzawi house
Mosque and Shrine of Awlad/ Banat al-Hasan		Al Motran Palace/ Bahnam
Mosque of Imam Muhammad/Mosque of al-Sab'aw		Saffawi
Mosque of Mahmud ibn 'Abd al-Jalil al-Khidri		Others
Shatt al-Jumi Mosque/Tomb of Shaykh Ibrahim al-Naqshbandi	British War Cemetery	
Mosque and Tomb of al-Kharrazi	Al-Saray Police station/Madrasat al-Sana'i'	
Al- Masfi Mosque	Barud khana	
Aghawat Mosques		

In general, the war in Mosul affected the economic, social, and environmental aspects negatively on resident's capital, employment, economic growth, and infrastructure, despite the death, injury, and displacement. According to Bank (2018) the old city of Mosul mainly suffered (Bank, 2018):

- Physically: As buildings, public facilities, infrastructure, and urban structures and heritage were damaged in the urban environment.
- Economically: The destruction of the physical built and natural environment limited the growth process via the lack of production movement, and weak human resources made the city suffer economically. Also, because of migration, homelessness, death and injuries, which affected the collapse of

social security, people are afraid to invest or lose much that cannot return to their normal working life.

- **Socially:** As an invisible aspect that had a significant impact on society. Social problems in conflicts area are usually produced by the lack of basic needs, deteriorating living conditions, trauma, and poverty.
- **Culturally:** By changing the visual image of the historical core, clearing history and imposing a new identity for the area, the city and its local community have been targeted in their culture. The destruction of historical and cultural evidence through intentional actions during the battles made evidence like moral culture, documents or subjects used to be taught in schools be lost. Additionally, the displacement of the city's citizen affected the intangible heritage in a way that they will be forgotten with slow returnees and physical rebuilding.
- **Politically:** The collapse of governments on different levels such as local, regional, or national.



Figure 58: Demolished old city market after the liberation
(Drone image, UNESCO/ 2018)

After the liberation, when people decided to return to the city, foreign organizations (actors for housing rehabilitation including UNDP, UN-HABITAT, UNHCR, Human Appeal, and Norwegian Refugee Council (NRC) that cover the rehabilitation of houses to the minimum repair standard) (UNESCO, 2019) did not take into account any consideration of identity and heritage when financing the local people. While those who didn't get any financial support, took action individually as a result of their desperation to find solutions. Therefore, they reconstructed in a simple way using modern construction and finishing materials. As it is shown in the images below:



Figure 59: Reconstructed hoses in old Mosul
Using modern construction and finishing material that is opposite the identity of the place, Source: Author

In addition, the local government did not pay any attention to what was related to preservation and did not take into account the ideas of projects that were developed pre the war and the standardization of architectural elements.



Figure 60: Neglecting the standardization of architectural heritage elements
in reconstructing process in Mosul city center
Source: Author

5.3 Debate on Reconstruction Process of the Urban Heritage in Mosul

Urban heritage reconstruction is not about conserving the physical fabric but ensuring continuity of the socio-cultural system and contributing to sustainable development.

Therefore, an integrated reconstruction process with active community participation is considered key to achieving wondered outcomes in the destructed historic towns.

Concerning scholars' approaches, for Shaimaa and her colleagues, with the massive change in the urban environment because of war, reclaiming the urban identity is a must. The identity of a place greatly consolidates the sense of belonging. Accordingly, sustaining a place's identity can be achieved through forethought urban renewal that accomplishes (Shaimaa Hameed Hussein, 2019):

- Sustaining the traditional urban fabric of the old city.
- Activating society's hidden potentials.
- Enhancing the sense of belonging.
- Sustaining architectural styles, materials, and technologies.
- Enhancing the participation of the local community and individuals in the decision-making process.

For others, Mosul must adapt the aspects of sustainability in the rebuilding program regarding the dimensions of environmental, social, and economic sustainability, and attention to cultural aspects. The extent of the massive destruction of the infrastructure, can present an opportunity to be invested in reconstruction according to the sustainable development strategies. This can be implemented by empowering the institutional capacity of the local authorities plus enhancing the memory of the city. Also, increasing awareness among residents to enhance the cultural concern about their built environment, and restoring functional balance, that lead to a better result in the recovery process (Al-Qaraghuli, 2021).

Others believe in integrating Mosul's archaeology and heritage assets within a cultural rights approach, aiming at the benefits of Iraq's diverse communities. Hence, both government of Iraq and the international community should take a step toward the recovery, allowing Iraq's citizens to plan and explore their own futures, with providing expertise's advice, and sources when called upon by appropriate individuals, organizations and governmental authorities of Iraq (Roger Matthews, 2020).

Accordingly, all the notions are similar in recovering Mosul city through international comities, local authorities, and local communities. However, the strategies or projects that have been implemented are quite different. Thus, revive the spirit of the Mosul project will be analyzed plus the strategies that have been utilized in the reconstruction process.

5.3.1 Main Actors in Recovering the Old city of Mosul

The primary recovery projects' aims were focused on clearance, stabilization, rehabilitation, and development after its liberation from Da'esh. They are illustrating the joint efforts in post-Da'esh Iraq. Many international and national actors have been involved within the local authority and agencies in recovering the city. Each of them has a specific scope of work and limit related to the health, economic, shelter, food, education, construction, heritage, social cohesion sectors. Currently, some of the main actors that work in Mosul are UNDP, UN-HABITAT, UNHCR, Human Appeal, Norwegian Refugee Council (NRC), USAID, IOM, UNESCO, Kuwait, Emirate, State Board of Antiquities and Heritage (SBAH), Word vision international, Yazda International Organization, INTERSOS, International Rescue Committee, Catholic Relief Services, Triangle Generation Humanities, IMMAP, Women Rehabilitation Organization, Oxfam, REACH.

In the beginning, local authorities had to concentrate on restoring security, water, electricity, and fuel, and on returning the displaced families for about 6 months. Then according to Ahmed Aboulenein (2017), there was a two-year period of reconstruction process followed by another phase that included economic development and investment attraction for 30 months (Aboulenein, 2017).

Despite the coronavirus pandemic's impact, the process of reconstructing Mosul has been excruciatingly slow. Delays have been created by a lack of cohesion in provincial government; the governor of Nineveh province, which contains Mosul, has been replaced three times since the city was liberated. In addition, a convoluted network of agencies managing rehabilitation efforts, from the municipal, provincial, and federal governments to foreign organizations and relief groups, has added to the disarray due to the lack of a single authority to coordinate. The administration started big infrastructure projects and restored basic services to the city, but a lot of work still need to be done (Kullab, 2020).

5.3.2 UNESCO and UN HABITAT's Project: Initial Planning Framework for the Reconstruction of Mosul

The many actions and steps toward Mosul recovery required meeting, planning, and framework. One of the main published papers that dealt with the planning and recommendation phase is "Initial Planning Framework for the Reconstruction of Mosul" prepared by UN-Habitat and UNESCO in 2017. (UNESCO, 2019) The role of the local government and international actors was emphasized to address the challenges that cover both humanitarians, development, and recovery problems. Hence, some guiding principles, regulations and recommendations have been concluded to facilitate the empowerment of the cities' residents to become dependable

in reconstructing their city such as citizen return, addressing structural issues, controlling informal expansion, rebuilding the Old City through a ‘super block’ approach, support the ongoing process of self-reconstruction (UNHABITAT U. , 2019). As UNESCO and UN HABITAT have claimed, “the plan was based on consultation with Mosul’s technical authorities, leaders, civil organizations, analysis of damaged structures, bedside satellite assessment and analyses, field trips, in addition to desk research” (UNESCO, 2019). The documents were produced to addresses the recovery process, according to earlier studies on Mosul.

The plan has been designed to address the problems related to the existing and potential urban structure that prevents the recovery process of Mosul. The report aimed to contribute to the short and medium-term reconstruction understanding of the challenges that face Mosul. Then local decision-makers and authorities suggested recommendations to follow up, address, and facilitate. Accordingly, the recommendations that related to urban heritage reconstruction are, (UNHABITAT U. , 2019)

- Heritage protection, to secure it from more destruction as preparedness for reconstructing the city.
- Implementing the super block method in recovering the old city.
- Implementing the regulations and conducting events to respect the city’s historical character.
- Support the ongoing process of individual reconstruction to foster the recovery process.
- Usage of pre-crisis plans to rebuild the city accordingly.

5.3.3 UNESCO's project: Revive the Spirit of Mosul

When ISIS controlled Mosul, the amazing city was heavily destroyed and left with tones of rubbles that included the most amazing Mosul treasure. To assist Mosul and support the reconstruction projects for destructed world heritage properties, the Director-General of UNESCO, Audrey Azoulay, presented a newly designed project to 'Revive the Spirit of Mosul' (UNESCO, 2019). The project was particularly designed to coordinate initiatives in reconstructing specific historical properties in the old part and around Mosul, including critical religious and historical sites and properties (Azoulay 2018). The project was supposed to rely on problematic assumptions regarding the concern of citizen needs with the value they consider making the engagement between people and heritage as it was before destruction and allowing them to remember what they have been through. In February 2018, the Director-General of UNESCO began the flagship project "Revive the Spirit of Mosul" to reconstruct heritage sites and to empower the population as agents of change involved in the process of rebuilding their city through culture and education (UNESCO, 2019).

UNESCO had led the project to revive the city's spirit as it called. It seems like a meaningful initiative that could have a positive and profound effect on the recovery process and the city's future. According to UNESCO, they were working closely with the local people of Mosul (experts, handcrafts, and public) to ensure the community involvement, not only as employed for the sake of the reconstruction but that they are also valued and consulted during the project implementation. Hence, in 2018 October, UNESCO conducted its first action in a series of events and public meetings in the Old City, then provided local residents of the old part with some regulations about

individual reconstruction and unique insight for future plans about reviving the spirit of the city (UNESCO, 2019). The efforts should be continued by UNESCO to expand the space for a series of open conversations and dialogue with the local residents and create opportunities for their participation and involvement. Accordingly, the local community needs to be aware of the reconstruction process, and local expertise have the favor in every stage.

Strengths of the projects

Both projects have been conducted and implemented by UNESCO, UN habitat, funded by other countries and agencies. The plan was based on consultation with Mosul's technical directorates, local leaders, civil society organizations. After the war, there was a considerable demand for immediate intervention by various restoration organizations, institutes and heritage specialists to conduct immediate plans for the upcoming phases.

The international funders usually look after living conditions and provide support. Thus, the efforts of the international and local organizations and agencies are highly recommended, especially when UNESCO and UN HABITAT claimed that the reconstruction process in Mosul is respecting honesty in conservation decisions towards the material integrity of the built heritage. Accordingly, with the local communities, plus the significant financial support, while the local authority is facing an economic crisis, the rebuilding efforts can be considered an essential base for reconstructing the historic city. In addition, when it has been clarified that the process is based on detailed documentation and materials that have been laid by skilled local people, the reconstruction could take the right path toward success.

Local Community Involvement

Another positive effort that has been conducted based on the lack of public awareness regarding heritage and traditional material during reconstructing efforts for self-reconstruction of private properties was the meetings that demonstrated the need for guidelines in rebuilding the city. Thus, public campaigns on the valuable historical form and buildings were started. In order to avoid poorly guided and quick reconstruction. While the actions were implemented without a proper understanding of the urban heritage context. As a result, Mosul's historic characters and heritage identity were at risk. Hence, UNHABITAT in partnership with UNESCO launched an event – focusing on the Old City heritage to raise awareness about the unique but endangered heritage values of traditional construction material, color and elements in the historic core.



Figure 61: Community awareness event
Event held on 22 October 2018 in Al Chalabi House by UNESCO & UNHABITAT,
distribution of poster titled dos and don'ts for reconstruction

Challenges of the projects

Despite all the efforts, the concern or challenge is the stability of the plans, as they need to be temporary until a more detailed comprehensive reconstruction plan materializes. The significance of reconstruction is not about rebuilding the properties in the material sense but to revive the spirit of the city and revitalize living environment of the local community in their familiar context. In the case of Mosul, a post-war historic city, people need to value what remained and engage with its restoring, how they perceive and interpret its destruction, not allowing external competence or experts to decide about the city's future.

In order to ensure the success of the reconstruction process and foster the recovery efforts, it is essential that the local community tailors their initiatives and decides to best meet their needs and respect their values. For example, at the Great Mosque of al-Nuri and the al-Hadba minaret rebuilding project, proposed by external agencies, UNESCO's efforts appear that the heritage value and community need are being neglected in favor of heritage reconstruction with funders vision. To amend this, UNESCO can promote broad-based discussions on ensuring that the archaeological properties that survived in the old city of Mosul should be preserved in hand with the local community far from the donors' goal, vision and direction.

5.3.4 Current efforts toward the Old City of Mosul recovery

The current situation regarding the recovery process can be classified under three main categories, International, Local authority, and local people efforts. The international organization with substantial financial support offers a great opportunity for the local community to learn new skills, earn money and build their city. While the local authority, in addition to the limited resources and coordination - with central

government and international actors- their control has been limited also because of the political and multi-sectoral actors. In regard to the local community, with very limited sources and support, they participated in each phase of the recovery process, from the cleaning to the reconstruction. They participated in cleaning the survived heritage monuments and roads from the rubble to foster normality and recovery. Then, noticed during the last field trip to Mosul city on 15th October 2021, many mosques have been built (with limited heritage expertise consultation), and others are planned to be reconstructed. Accordingly, the recent situation of a number of heritage monuments in the old city of Mosul has been updated as listed below.

Table 11: Situation of the heritage monuments of the old city of Mosul

No .	Property Name	2021/15th October	Responsible actor
1	Great Mosque of Nur al-Din (al-Nuri)	Under Reconstructed	UNESCO, UAE
2	Minaret al-Hadba'	Under Reconstructed	UNESCO, UAE
3	Mosque of Alkhidir	Reconstructed	Local Community
4	Mosque and Tomb of Nabi Yunus	Reconstruction planned	Local Community
5	Mosque and Tomb of Nabi Jirjis	Reconstruction planned	Local Community
6	Mosque and Shrine of Imam Ibrahim	Reconstructed	Local Community
8	Shrine and Mosque of Imam al-Bahir	Reconstructed	Local Community
9	Mosque and Shrine of Imam Muhsin—Madrasa al-Nuriya	Under Reconstructed	Local Community
10	Mosque and Tomb of Shaykh Qadib al-Ban al-Mawsili	Under Reconstructed	Local Community
11	Mosque and Tomb of Shaykh Fathi	Reconstructed	Local Community
12	Mosque of Sultan Uways	Reconstructed	Local Community
13	Mosque of Hamu al-Qadu—Tomb of 'Ala' al-Din	Reconstructed	Local Community
14	Mosque of the Prophet Seth (Nabi Shith)	Reconstruction planned	Local Community
15	Shi'i Mosque and Husayniya Rawdat al-Wadi	Reconstructed	Local Community
16	Tomb of Ibn al-Athir (Qabr al-Bint)	Reconstruction planned	Local Community

17	Mosque of Shaykh Abu al-‘Ala’	Under Reconstructed	Local Community
18	Mosque and Tomb of Nabi Daniyal (Prophet Daniel)	Reconstruction planned	Local Community
19	Mosque, Tomb of ‘Isa Dadah and Adjacent Cemetery	Reconstruction planned	Local Community
20	Mosque and Madrasa of al- Ridwani	Reconstruction planned	Local Community
21	Hammam al-Saray Mosque and Shrine of al-Sitt Nafisa	Reconstruction planned	UNESCO, UAE
22	Mosque and Tomb of Shaykh Muhammad al-Abariqi	Reconstruction planned	Local Community
23	Mosque and Tomb of Imam Zayd ibn ‘Ali	Reconstruction planned	Local Community
24	Cemetery Adjacent to the Mosque and Tomb of Umm al-Tis‘a	Reconstructed	Local Community
25	Madrasa of the ‘Abdal Mosque	Reconstructed	Local Community
26	Tomb of Abu al-Hawawin/Shaykh ‘Amir	Reconstruction planned	Local Community
27	Mosque and Shrine of Awlad (or Banat) al-Hasan	Under Reconstructed	Local Community
28	Mosque of Imam Muhammad/Mosque of al-Sab‘aw	Reconstructed	Local Community
29	Shrine of Imams Hamid and Mahmud	Under Reconstructed	Local Community
30	Hammam al-‘Umariya	Reconstruction planned	UNESCO, UAE
31	Mosque of Mahmud ibn ‘Abd al- Jalil al-Khidri	Reconstructed	Local Community
32	Shatt al-Jumi Mosque/Tomb of Shaykh Ibrahim al-Naqshbandi	Reconstruction planned	Local Community
33	Mosque and Tomb of al-Kharrazi	Reconstruction planned	Local Community
34	Al-Tahira Syriac Orthodox Church	Reconstruction planned	UNESCO, UAE
35	Mar Guorguis Chaldean- Der	Reconstructed	International Organization
36	Latin Al-Saa’a Church	Reconstruction planned	UNESCO
37	Barud khana	Reconstructed	Iraqi Antiquities and Heritage
38	Ziyada House	Under Reconstructed	EU funded/ UNESCO
39	Al-Tutunji House	Under Reconstructed	Iraqi Antiquities and Heritage
40	Sulaiman Al Saigh House	Reconstruction planned	EU funded/ UNESCO
41	Mar Touma Syriac-Orthodox	Cleaned	Local Community



Figure 62: The preserved and secured original material
They will be a base for Al Nuri Mosque and Hadbaa Minaret reconstruction process
Source: Bashar Al Talib



Figure 63: Barud khana after reconstruction
Reconstructed by Iraqi Antiquities and Heritage Authority, Source: Bashar Al Talib

5.3.5 Role of the Local Community in the Recovery Process

For three years, the Old city of Mosul witnessed massive neglect and delay in the recovery process. Accordingly, the local community, in groups of engineers, workers, craftsmen and experts, began their procedure to rebuild their city. From the beginning, besides cleaning the streets and monuments from rubble, they started collecting financial support for reconstructing the valuable monuments. Most of the mosques, in particular, have been rebuilt or under reconstruction by the local people as a step toward recovery, in response to the limited reconstruction efforts or financial support, the mosques have been left since the liberation of the city. The delay of rebuilding and neglect from both government and organizations, the local community took the responsibility of rebuilding the mosques. For them (project managers and workers) rebuilding the mosques will bring back the community together and promote normality of living. Depending on local people's financial support and potential, the mosques are either under reconstruction or planned to be reconstructed.



Figure 64: Mosques under reconstruction in the old city of Mosul
First image: Abdal Mosque, Second image: Sultan Uways Mosque. Source: Author, October 2021

In reconstructing the mosques, the usage of original survived material or elements have been emphasized, and whether it was a gate, a brick, or a window, it can be seen as a fingerprint from its earlier scene. In addition, as shown in Figure 69, the original elements have been used as an initiative for what the local community values.



Figure 65: Rebuilding the Mosques in the old city of Mosul valuing the original elements

Mosque of Abdal and Imam Bahir, Source: Author, October 2021

In general, for every stage and phase of the recovery process UNESCO should continue its efforts to create the ongoing dialogue with the local experts and residents, and involve local expertise to obtain better results and foster the recovery of the city. It is vital to create opportunities for the local craftsmen and specialists to participate in and direct the project toward reviving the heritage value. Based on the lessons that have been learned from the six-case studied, the reconstruction of heritage in Mosul will be discussed in the table below.

The reconstruction plan in every post-war case has its own plan toward reconstruction. For Mosul, like Mostar, Warsaw, and Aleppo, was supposed to reconstruct its urban heritage based on the prewar situation. While Dresden and Coventry's plan combined both strategies (new design with partially urban heritage preservation). This led to the preservation of Heritage properties, Urban pattern, Road hierarchy, and Building's façade as for all of the cities, they have been preserved and new designs have been harmonized, and the urban pattern conserved as it was before. The only case that went through huge change is Beirut, where even the local community had stepped out.

Regarding the area's function and facility, all the historic centers remained multi-functional and Mosul will follow the same direction. In addition, for the cities that have been destroyed in the Second World War like Warsaw, Dresden, and Coventry, the cities have been built through local community and government's effort. Nevertheless, Nevertheless, for the recent conflicts, the international organization participated in the recovery process to protect historic city centers with universal heritage values. Accordingly, even the actors were local people or international organizations, the main concern that remains is the original material that should be a base for rebuilding, but in Mosul unfortunately, during the cleaning process, most of its historical treasures have been neglected. Based on the lessons that have been learned from the six-case studied, the reconstruction of urban heritage in the Old City of Mosul is on the proper path but needs more time, effort, and local involvement.

Table 12: Case studies' strategy comparison

Comparing the selected city centers							
Urban Heritage Elements	Cities						Case Study
	Coventry	Warsaw	Dresden	Mostar	Beirut	Aleppo	Mosul Plan
Reconstruction plan	Existed	Existed	Existed	Existed	Existed	Existed	Not Existed
Heritage properties	Partly Reconstructed	Reconstructed	Partly Reconstructed	Reconstructed	Replaced	To be Reconstructed	To be Reconstructed
Urban pattern	Preservation with new design	Preserved	Preservation with new design	Preserved	New roads and neighborhoods	Preserved	Preserved
Building's façade	Harmonized and improved	Harmonized and improved	Harmonized and improved	Harmonized and improved	Modern and new design		Partly harmonized
Building/area function	Mixed as it was before the war	Mixed as it was before the war	Mixed as it was before the war	Mixed as it was before the war	Re-functionalized-Commerce	Mixed as it was before the war	Mixed as it was before the war
Road hierarchy	Preserved	Preserved	Preserved	Preserved	Partly preserved	Preserved	Preserved
Public space	Preserved	Preserved	Preserved	Preserved	Preserved	Preserved	Preserved
Main actors	Local community, Government	Local community, Government	Local community, Government	International, Local community	Private actor, Government	International, Local community	International, Local community

5.4 Future Directions and Proposals for the Reconstruction of the Urban Heritage in Mosul

The conservation of Mosul historical areas requires applicable tools and methods, and since most heritage sites are owned and managed by governments and non-profit organizations, conservation measures and safeguarding should not cut off the social fabric.

Preservation includes the protection, maintaining, and stability of the current form, materials, memory, and the identity of the historical place with protecting its heritage value. It could be short-term and temporary measures to protect or stabilize the place, and long-term measures to prevent more deterioration or damage.

Regarding the strategies related to preservation that could be used in the old city of Mosul, a restoration which is to return the heritage property to the way they were at some particular time in the past, it takes place on sites that preserve most of their original architectural elements in their original sites. However, with the original documentation lost, random cleaning and severe damage, this could be challenging to be implemented. In addition, replacement that may be a replica or a new design that competes with the style, age, and character of the historical place will affect the recovery negatively as it will not go with the urban heritage language. While for reconstruction and renewal to remake decayed areas or make a partially or totally destroyed building suitable for use are preferable in the case of Mosul according to what has been mentioned in the earlier chapters. Also, it will be necessary to maintain the traditional jobs, particularly crafts and, that was a valuable intangible heritage. Additionally, it is required to create new jobs that fit the economic and social context

of the city. Accordingly, all the strategies can be followed in the old city of Mosul and its surrounding, respecting the community needs and values.

5.5 Chapter Summary

Mosul urban heritage can be reconstructed under various legal statuses, such as municipal, national, and World Heritage through a deep understanding of the various urban heritage resources and values, such as tangible, intangible, movable, immovable, natural, and cultural. Hence, the efforts can be directed in a way that reconstructs, conserves, and reuses the destructed urban heritage that will serve the recovery process of Mosul. Since urban heritage refers to a variety of resources and components like tangible, intangible, movable, immovable, natural, cultural, digital, analogue, its deep understanding and detailed planning are in efforts that are usually made. The severely damaged historic core of Mosul must be restored to its original pattern and land use; however, it is a difficult task and needs time, effort, plus financial and technical support. The vision and plans should be revised and shared with the community expertise and handcrafts men to enhance the urban heritage identity. The decision-makers need to play a positive role in restoring the historic neighbors and oppose any attempt to turn it into a modern style city center full of high-rise commercial building with new finishing and materials, as shown previously, to read the old city as it was before the war. Since the restoration plan was prepared directly after the liberation, it was supposed to keep the overall urban heritage pattern from its scale, materials, and pattern of alleyways, houses, mosques, churches, with accepting the overlapping of some inevitable modern efforts in facilities and infrastructure. So, the plan had to be prepared and presented by experts who know Mosul in detail, addressing the issues and suggesting some convincing solutions.

Chapter 6

CONCLUSION

In this chapter the lessons that have been learned in the previous chapters will be adopted to present some recommendations for the reconstruction of Mosul old city. Besides, some views for future research will also be presented.

6.1 Findings and Recommendations for the Reconstruction of Historic Mosul

The role of heritage in the post-conflict stage became essential in light of all the wars and conflicts that many historic cities have been through in the last decades. Heritage as a part of the identity, a part of life, memory, feeling, ensure the recovery process. Researchers have noted that post-war scenarios should be a comprehensive procedure that includes activities that meet humanitarian needs and physical reconstruction, economic regeneration, and reconciliation and trauma consideration (Sultan Barakat, 2002). Hence, the recovery plan of the Old city of Mosul must depend on heritage to foster community healing after trauma.

Based on the literature survey of this research, we can argue that reconstruction should play the role of the weld between old elements to achieve wealthy and rationally designed cities, but respectful of the past and its values. The necessity of post-conflict urban heritage reconstruction in the Old city of Mosul, in particular, include:

- Valuing the national heritage: The Old city of Mosul presents an important urban and architectural heritage symbol for all Iraqi's. Despite the destruction, the local community's value will enhance the post-conflict recovery.
- Sustaining re-use or function: It allows continuity to serve its previous function or re-use the area as before.
- Peace building and social cohesion: It is well established that social cohesion is greatly required in the post-conflict period, while in the case of Mosul, the war was forced by ISIS, and the local community has always lived in tolerance.
- Education and research. Still, the reconstruction models and their processes are the subjects of the research project, and their results are important educational tools for visitors or researchers. And the non-specialists from local community can gain new skills during the process.
- Tourism attraction: A reconstructed urban heritage can promote tourism despite the strategy or practice that has been taken. After the huge damages that happened to the city centre, Mosul reconstruction will generate income for the community through the public or private authorities and tourists.

After looking at different reconstruction models and analyzing them as post-conflict process experiences, it becomes apparent how each case has its specific condition from the values, destruction, authorities to the post decision making. In Mosul city, the conflict had finished, but still, urban heritage is under threat because of limited sources and lack of security with the lack of law and regulation. Therefore, a strategy to involve the local community and experts is necessary. For reconstructing Mosul historic city center, many variables like economic, political, and social conditions of the area affect

the procedure as a whole. In addition, the public knowledge, desire and value will change every step through engaging them and an increasing a sense of responsibility.

Based on the learnings from the examples and after a thorough analysis of Mosul historical city center and its destructed architectural and urban heritage, this research wraps its recommendations for the restructuring historic urban heritage of Mosul under the titles of *coordination, local crafts and value, education, time and planning, decision-making and makers, reconstruction approach.*

Coordination

From the beginning of this research, the characteristics of urban heritage and the choices facing stakeholders, urban planners, architects and experts regarding historic cores have been discussed. As for some, the easy solution is to consider the war a chance to relocate the residents (poor civilians) of the historic cores. As destruction and targeting the historic core will give them a chance to replace them with modern designs and structures. This is considered opposite to what cities and their citizens will need in the case of Mosul. As Lenger and Fien mentioned, (2018, 2014) even after conflict and severe destruction, urban heritage must be reconstructed (Legnér, 2018) (Fien, 2014).

The accumulation of problems and urgencies in a post-conflict situation calls for a multi-sectoral coordinated response (Sultan Barakat, 2002). It is obvious that the impact of the management process including decision-making and funding will direct the whole recovery project. In case of the support by external third parties, reconstruction usually follows a system of values that will be identified by them.

Planning for the reconstruction according to its time frame, suitability, especially in extreme cases of severe damage, is an essential face in the whole process. In particular, post-conflict's reconstruction requires more engagement and understanding. Hence, the main goal and objective should be identified within the participation of the local community and expertise and documents pre-the conflict.

Since heritage as a process needs interdisciplinary teams with diverse scientific and work-related backgrounds, the community should be involved in the decision making, documents and local materials should be well protected, and the intangible aspect should be implemented to assist the project's success. The cooperation between craftsmen and architectures is a strategy to progress the project and make the local community feel committed to their heritage.

Local Crafts and Value

Antecedent to cultural heritage management is the understanding of what constitutes cultural heritage. Salvador Muñoz Viñas in his book, *Contemporary Theory of Conservation*, claim that “the conservator has to search and emphasize the conservation process, to find out the reasons for preserving an object, to identify the period that it should be conserved to, and understand it is intangible value and aging before making decisions that can compromise its usability” (Vinaz, 2005, p. 204). Nevertheless, conserving an object is not always the case, as urban heritage, property conservation is much complex, both intangible and tangible indicators should be understood first. The capacity of the community, international connections, and the capability to run the projects should be considered before making any decision. Hence, the reconstruction process should depend first on understanding the intangible and tangible heritage, defining its value related to its owner then involving the local

communities. Usually, local communities' awareness of the economic return from their heritage increases by demonstrating that its preservation could be efficiently associated with income generation when attracting tourists and developing the community later.

Public participation in urban reconstruction projects provides the local community opportunities to identify their value, problems, plan, implement and monitor the projects and manage of the entire destructed historic towns. In addition, this participation provides the community a feeling of ownership, a more inclusive approach, and maximum satisfaction which will lead to the success of the project.

Regarding the local community involvement advantages, it will increase a desire for shared learning of relevant knowledge and skills between local workers and conservators. In addition, increasing awareness of the importance of ongoing care of the destructed heritage properties prevents the loss of historical material and lessens the need for new building elements. Finally, it will boost locally built heritage to remain meaningful to the local communities (Ronchi, 2020).

Education

Many people around the globe have an intimate relationship with and knowledge of their heritage, and at the local level, Mosul citizens are important components of the reconstruction process. In general, the reconstruction should be started by local institutes external experts and skills. Educating local communities could be effective in promoting urban heritage reconstruction.

Education enhances people's awareness, attitudes, and long-term behaviors towards heritage. In addition, most reconstruction projects require some level of local community' understanding and knowledge. Therefore, it is essential to include education as a key component of reconstruction.

Developing a localized, qualified practice for the conservation of destructed urban heritage directly depends on the availability of skilled, local construction workers. Additionally, it can promote the learning of high-standard conservation and reconstruction practice, acting at the level of both the individual and the community (Ronchi, 2020). As for individuals, studies on experiential learning have shown that immersion in a concrete experience enables more profound learning, leading to changes in the learners' patterns and actions.

Additionally, the teaching process should not be limited to workers or specialists, but the public too. Many houses in the old city center are being reconstructed by the low-income families that consider only the roof they live under. This will affect the whole recovery process in the near future. Accordingly, serious steps and regulations should be implemented to avoid such danger.

Time and Planning

The recovery process should avoid fast responses, which usually be limited to physical restoration but comprehensive indicators and methods for improvement within protection. It began during the conflict and was sustained during the recovery phase. Therefore, planned integration of activities will be required that change according to the comprehensive level, scope, and type of the effort. So, it is a basic rule to develop

a tailored model based on community and cultural value, which require non-elitist and prescient design with considering people memories and needs.

Particularly, in relation to post-conflict, many immediate needs should be addressed; while the most important is the reconstruction, the weak urban contract will result in future conflicts. In addition, trust between former warring parties themselves and with their city and national governments and the public has to be restored. Hence, post-war rebuilding needs to be considered as a social and economic process that will support the local community to overcome the trauma.

Despite the depressed physical and social situations in the historical areas, it remains the source of cultural inspiration for citizens. By reviving the city's spirit, the displaced people will prefer going back and living in the traditional neighborhoods where they grew up. Hence, the time is one of the main indicators that foster the recovery process.

Decision Making and Makers

It is obvious that a lack of clear vision with planning, and regulations with level of implementation in terms of urban conservation creates many obstacles and by uncontrolled procedure, unsuccessful conservation projects will be the outcome. As it has been discussed earlier, the urban heritage is part of broader physical, social, political, economic, philosophical, and ethical conditions, though the decision-making phase of the reconstruction process should consider multi sector processing as it shown in chart below as the reconstruction involvement sector tree.

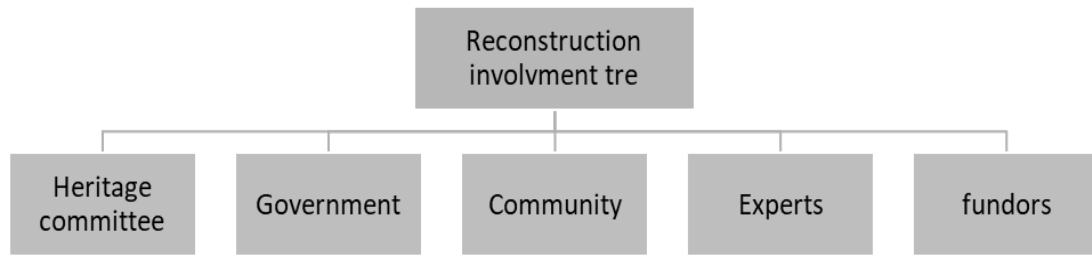


Figure 66: The reconstruction involvement sector tree
Source: Author

Management

In Mosul, after almost four years of the low-speed reconstruction process, people started to rebuild the city to return to normality. It was essential to be prepared for such an effort. It is the same scenario (not involving the local community in the government and international organization effort), local people began with individual heritage properties` rebuilding not considering its pre-situation, original material, and expert consultation. Unfortunately, with massive efforts and support from the local community, the rebuilt heritage properties are losing their identity. Lack of coordination between the main actors, who are responsible for the recovery process, will result in urban heritage destruction as a fourth stage. The mismanagement in Mosul can be easily addressed through implementing local agencies or institutes that enhance the coordination and handle the recovery procedure. The local agency should involve local expertise from various sectors to plan for the recovery process. They need to preserve what has been remained and reconstruct the destroyed heritage property to protect the city's uniqueness. It is time to think about the decision-making process. It needs to be reformed in order to make the urban reconstruction process easier and more accurate. Accordingly, they will prioritize which property should be restored first. Then define the period that should be considered. Later the procedure will be agreed on.

Reconstruction Approach

In comparing all the six cases from two different periods, post the second world war and recent wars, some basic differences have been detected:

- During the old reconstruction examples, the responsible actors were the local community and government, while in recent cases international organizations are leading the procedure through fund, regulation, capacity building, and guidelines.
- The original material had been protected then used in reconstructing the cities in almost all the old cases. While the usage of the original material and documents dramatically decreased in the new reconstruction models.
- In regard to the design, modern design and new material are controlling the recent reconstruction projects. Despite the addition of properties, roads, neighbourhoods, the reconstructed properties are not harmonized. Thus, the post-conflict area had lost its heritage value.

The research suggested some strategies that need to be adopted in reconstructing the urban heritage of Mosul old city. Starting from (memorializing) to conserve the ruins as a memory of the past keeping the monument as before the destruction, to (mixing), to mix the conservation methods to reinvent the heritage through new technologies, depending on the pre documents and construction details showing the preimage of the city implementing the new technology that foster the recovery process. Then to (reconstructing) overtake the past tragedy through a complete reconstruction of the symbols of the past, especially where Mosul was one of the richest cities with numerous historical properties and landmarks. This can be concluded with a solution of (designing): To design the fully destroyed neighborhoods and buildings according

to previous images and maps. Building it on the ruins of the lost, damaged heritage or design in a modern way for the river side facades that need to combine both methods. All the strategies consider the Islamic urban pattern of the Old city of Mosul pre-war, they will confirm the city identity and revive its spirit. Further, some efforts could be taken to respond to the modernization necessity and design accordingly. It is essential to emphasize the importance of a debate between international and local experts regarding the best way to support the local decision-makers achieve reasonable outcome and aware them about their heritage value instead of waiting for external agencies and funders. By combining the pre-conflict memories with the conflict memories to construct a new future for the next generations, then the city will be successfully recovered.

The reconstruction of the old city of Mosul post-war should revive traditional elements and principles, and the intangible components to direct an integrated project that messages the continuity and regenerate the memories. Then leaving the development and modern construction for the intermediate part between the center and modern neighbors that have a bigger chance and potential for development. Additionally, the multilateral funds that are offered by trusted funders can improve long-term financial support, but with clear vision and reason for the support with the full awareness and regulation from the local heritage expertise. The tailored strategy for rebuilding Mosul will increase the social cohesion to become as it was before the war. The institutional and human capacities development will affect the recovery and conservation success. Understanding heritage value and community need will avoid the opposite or dissimilar notions between international, national authorities and decision-makers. Since local perception often differs from global views, it is a must to consider what

people need or prefer to preserve from their past which is influenced by experiences, memories and circumstances they dealt with before the ISIS.

6.2 Recommendations for Future Research on Post-conflict Reconstruction

This research aimed to understand the ways and methods of recovery of the urban heritage in conflict zones and then propose a reconstruction strategy for the post-conflict city of Mosul based on what has been done for the city after the conflict. For this purpose, international documents on the reconstruction of urban heritage and also examples of post-conflict cities whose destructed urban heritage have gone through reconstruction processes have been studied thoroughly.

The aim of this research was to understand the ways and methods of recovery of the urban heritage in conflict zones and then propose a reconstruction strategy for the post-conflict city of Mosul. After completing the overall research, in this thesis, based on a qualitative analysis of reconstructed cities post-conflict and Mosul urban heritage in response to the post-conflict recovery strategies, it can be concluded that Mosul reconstruction projects are important factors to enhance the recovery process. While these efforts required a high level of coordination and local community involvement, as a strategy to be implemented, the results indicate that international donors need to be addressed by a local agency that sequence the projects, coordinate with Mosul and central authorities, value pre-unity and heritage, consider the international and local regulations, and promote the recovery process.

Based on the literature findings of the research as well as its findings and recommendations for the historic city of Mosul, this research may be useful for new researchers who would like to:

- Understand urban heritage, its destruction and conservation processes in conflict cities.
- Understand international conventions regarding urban heritage reconstruction.
- Understand the relationship between the urban heritage in conflict and recovery process.
- Find information on destruction and restructuring of post-conflict examples from different geographical locations.
- Study the existing urban heritage reconstruction strategies of the Old City of Mosul.

Thus, this research can suggest some new questions for future qualitative and quantitative research as such:

- What is the role of stakeholders during the restructuring process in post-conflict areas?
- What other tools and methods can be applied for a more successful restructuring process in post-conflict areas?
- How can/should the post-conflict areas be managed during the restructuring process in post-conflict areas?

REFERENCES

- Aboulenein, A. (2017). *Five years, billions of dollars needed to rebuild Mosul: officials*. Reuters.
- Albrecht, H. (2013). *Urban Conservation Practices in Canada*. Canada: Standing Committee on Environment and Sustainable Development.
- Al-Juma'a, A. Q. (2019). Qanatir al Mosul. Mosul.
- Allam Alkazei, K. M. (2018). The Role of Post-war Reconstruction Planning in Hiroshima's Image-shift to a Peace Memorial City. *The 18th International Planning History Society Conference*. Yokohama.
- Aloul, M. A. (2007). *The Destruction of Cultural Heritage by Warfare and Reconstruction Strategies: Lessons Learned from Case Studies of Rebuild Cities*. University of OF Florida.
- Al-Qaraghuli, A. A.-S. (2021). Adopting sustainable development in reconstruction Post War City of Mosul Architecture-Case Study. *IOP Conf. Ser.: Earth and Environmental Science*.
- Al-Saffar, M. (2018). Urban Heritage and Conservation in the Historic Center of Baghdad. *International Journal of Architectural Heritage*, 23-36.

- Al-Saffar, M. (2018). Urban Heritage and Conservation in the Historic Centre of Baghdad. *International Journal of Architectural Heritage*, 23-36.
- Ani, M. Q. (2020). Mechanisms of Safeguarding Urban Heritage at Risk- Mosul Heritage as Case Study. *Periodicals of Engineering and Natural Science*, 2495-2470.
- Areti Kotsoni, D. D. (2020). Urban Regeneration of the Historic Center of Aleppo in Syria. *7th International Conference S.ARCH*. Tokyo.
- Bank, W. (2018). *Iraq Reconstruction and Investment*. World Bank Group.
- Barakat, S. (2020). Necessary conditions for integrated approaches to the post-conflict recovery of cultural heritage in the Arab World. *International Journal of Heritage Studies*. Retrieved from <https://www.tandfonline.com/loi/rjhs20>
- Benjamin Isakhan, L. M. (2019). UNESCO's project to 'Revive the Spirit of Mosul': Iraqi and Syrian opinion on heritage reconstruction after the Islamic State. *International Journal of Heritage studies*.
- Bianca, S. (2004). *Investing in the Future: The Stari Grad Agency*. The Aga Khan Trust for Culture.
- Bollens, S. (2019). An Islnad in Sectarian Seas? *UC Irvine*.

Bosma, J. E. (1990). *Planning the Impossible: History as the Fundament of the Future - the Reconstruction of Middelburg*. In J. M. Diefendorf, *Rebuilding Europe's Bombed Cities* (pp. 64-76). London: Palgrave Macmillan.

Britannica. (2013, 09). Retrieved from <https://www.britannica.com/place/Khorramshahr>

Calame, J. (2005). *Post-war Reconstruction: Concerns, Models and Approaches*. *Center for Macro Projects and Diplomacy Working Paper Series*.

Cameron, C. (2017). *Reconstruction: changing attitudes*. Poland: UNESCO. Retrieved from <https://en.unesco.org/courier/july-september-2017/reconstruction-changing-attitudes>

Cameron, R. a. (2013). *Many voices, one vision: The early years of the World Heritage Convention*. Ashgate Publishing.

Charter, R. (2014). *Engineering Heritage & Conservation Guidelines*. Engineers Australia.

Commission, E. (2018). *Safeguarding Cultural Heritage from Natural and Man-Made Disasters*. Brussels: European Commission.

Convention Concerning the Protection of the World Cultural and Natural Heritage. (1972). *UNESCO*. Paris: UNESCO. Retrieved from <https://whc.unesco.org/en/conventiontext/>

Cottbus, B. (2020). *Aleppo Archive in Exile - Plan of the Old City of Aleppo*.
Senftenberg: BTU.

Council, C. C. (2021). *20 facts you might not know about the Coventry Blitz*. Retrieved
from Coventry City Council:
https://www.coventry.gov.uk/info/217/coventry_bltz/2603/20_facts_you_might_not_know_about_the_coventry_bltz

Coventry, T. o. (1978). *Historical and Architectural Resources of Coventry*. Coventry:
Rhode Island Historical Preservation Commission.

Daldanise, G. (2016). Innovative Strategies of urban Heritage Management for
Sustainable Local Development. *Procedia - Social and Behavioral Sciences*,
101-107.

Dresden, F. (2021). *Frauenkirche-Dresden*. Retrieved from
<https://www.frauenkirche-dresden.de/en/reconstruction/>

Ferrier, M. (2020). *Rebuilding the City of Aleppo: Do the Syrian Authorities Have a
Plan?* European University Institute.

Fethi, I. (2017). *Save Mosul Old City*. Amman.

Fethi, I. (2018, 09 10). The impact of cultural heritage destruction in Mousl.
(UNESCO, Interviewer)

- Fethi, I. (2020, 08 09). Mosul Heritage. Baghdad, Iraq. Retrieved from <https://www.youtube.com/watch?v=x34lj6xChOk>
- Fien, E. C. (2014). Breaching the Urban Contract Lessons from post disaster reconstruction from reaserch on five divided cities. *International Journal of Disaster*, 194-201.
- Franchi, E. (2014). *Khan Academy*. Retrieved from <https://www.khanacademy.org/humanities/special-topics-art-history/arches-at-risk-cultural-heritage-education-series/arches-beginners-guide/a/what-is-cultural-heritage>
- Fricke, A. (2005). Forever Nearing the Finish Line: Heritage Policy and the problem of Memory in Postwar Beirut. *International Journal of Cultural Property*.
- Gizem Caner, F. B. (2012). Urban Consequences of Division in ‘Divided Cities’: A Comparative Perspective. *AESOP*.
- Gizem Caner, F. B. (2016). Urban planning approaches in divided cities. *ITU A/Z*.
- Gould, J. a. (2009). *Coventry Planned*. English Heritage.
- Gould, J. a. (2016). *Coventry the making of a modern city 1939–73* . Historic England.
- Hadzimuhamedovic, A. (2011). The Reconstruction of Destroyed Built Heritage in View of our Understanding of its Permanence and Mutability. *Paradigm Shift*

in Heritage Protection? Bosnia and Herzegovina: Polistampa-ReasearcherGate.

Harrison, R. (2013). *Heritage Critical Approaches*. Routledge.

Hayek, C. E. (2015, June). *The Last Levantine City: Beirut, 1830-1930*. Cambridge.

Retrieved from file:///C:/Users/Excellence/Downloads/922697915-MIT.pdf

Hill, C. V. (2017). *Killing a Culture: The Intentional Destruction of Cultural Heritage in Iraq and Syria Under International Law*. *Georgia Journal of International and Comparative Law*.

Hmood, K. (2019). *Heritage Conservation, Rehabilitation of Architectural and Urban Heritage*. In K. Hmood, *Urban and Architectural Heritage Conservation within Sustainability* (pp. 3-14). London: British Library.

Höckel, K. (2007). *Beyond Beirut: Why Reconstruction in Lebanon did not Contribute to State-Making and Stability*. Crisis States Research Centre.

ICOMOS. (1987). *Charter for The Conservation of Historic Towns and Urban Areas*. Washington, DC: ICOMOS.

ICOMOS. (2013). *Burra Charter: the Australia ICOMOS Charter for places of cultural significance*. Australia: Australia ICOMOS.

ICOMOS. (2017). *Guidance on Post Trauma Recovery*. Paris: ICOMOS.

- Jelen'ski, T. (2018). Practices of Built Heritage Post-Disaster Reconstruction for Resilient Cities. *Buildings*.
- Johnson, J. (2000). Rebuilding of a Historic Polish Town: 'Retroversion' in Action. *Journal of Architectural Conservation*, 63-71.
- Jordaan, K. P. (2014). Towards integrating built heritage resources in urban development through spatial planning. *WIT Transactions on Ecology and The Environment*, 209–220.
- K. Nováček, M. M. (2017). *Monuments of Mosul in Danger*. Science around us.
- Karel Nováček, M. M. (2021). *Mosul after Islamic State*. Palgrave Macmillan.
- Khalaf, R. W. (2016). A Viewpoint on the Reconstruction of Destroyed UNESCO Cultural World Heritage Sites. *International Journal of Heritage Studies*, 261-274.
- Kullab, S. (2020). *Iraqis slowly rebuild Mosul, with little aid from government*. APnews.
- Lah, L. (2001). From architectural conservation, renewal and rehabilitation to integral heritage protection (theoretical and conceptual starting points). *Urbani Izziv*, 129-137.

- Larkham, P. J. (2018). Conserving the Post-Second World War Reconstruction: a Contentious Idea. In N. M. James, *Occasional Papers in the Historic Built Environment* (pp. 59-85). Birmingham: Milton Keynes City Discovery Centre.
- Larkham, P. J. (2020). British Urban Reconstruction after the Second World War: the Rise of Planning and the Issue of “Non-planning”. *Architektury A Urbanizmu*, 20-31.
- LeBlanc, F. (2019). *ICOMOS*. Retrieved from http://ip51.icomos.org/~fleblanc/documents/terminology/doc_terminology_e.html
- Legnér, M. (2018). Post-Conflict Reconstruction and the Heritage Process. *Journal of Architectural Conservation*, 78-90.
- Lih, C. Y. (2005). Conservation and Change- A Singapore Case of Urban. *ICOMOS*.
- Loughlin Kealy, S. F. (2011). *Conservation/Transformation*. Italy: EAAE.
- Macdonald, S. (2011). Contemporary Architecture in Historic Urban Environments. *Conservation Perspective*, 13-15.
- Mafaz T., A. M. (2019). Adaptive Reuse of Heritage Buildings "Old Buildings in Mosul as A Case Study. *Erbil-Zanco Journal*.

- Matloob, F. A. (2014). The Impact of Spatial Organization on Locating the Friday Mosques in the Traditional Islamic City. *Jurnal Teknologi*.
- Mehmet Bengü ULUENGİN, Ö. U. (2014). A New Layer in a World Heritage Site: The Post-War Reconstruction of Mostar's Historic Core. *Megaron*, 332-342.
- Mona Fawaz, I. P. (2003). *Urban Slums Reports: The case of Beirut, Lebanon*. Lebanon .
- Mosul Eye*. (2021, 8). Retrieved from Mosul Eye: www.mosuleye.org
- Mozahim Mohammed Mustafa, D. a. (2010). The Characteristics of Architecture Style of the Traditional Houses in the Mosul City-Analytical Study. *American J. of Engineering and Applied Sciences*.
- Muhammed, A. N. (2017). *Mosul Urban Heritage*. Mosul: Dijla.
- Munawar, N. (2018). Rebuilding Aleppo: Public Engagement in Post-Conflict Reconstruction. *ICOMOS*.
- Nijkamp, P. R. (2004). *Valuing Cultural Heritage Benefits to Urban and Regional Development*. Porto, Portugal: University of Porto .
- Oers, R. v. (2010). Managing cities and the historic urban landscape initiative – an introduction. *World Heritage Papers*.

- Paul, J. (1990). Reconstruction of the City Centre of Dresden: Planning and Building during the 1950s. In J. M. Diefendorf, *Rebuilding Europe's Bombed Cities* (pp. 170-189).
- Project, H. R. (2015). *Hiroshima's Path to Reconstruction*. Hiroshima Reconstruction and Peacebuilding Research Project.
- RASHID. (2016). *The Intentional Destruction of Cultural Heritage as a Violation of Human Rights*. Munich: Rashid, Institute for Ancient Near Eastern Archeology.
- Rashidi, D. M. (2020). Retrieved from https://www.youtube.com/channel/UC5AX26B9dILLKTeXo_csG6A
- Recover Urban Heritage*. (2018, 4 27). Retrieved from <https://www.recover-urban-heritage.org/reconstruction-guidelines/>
- Rehfeld, S. (2021). *Ancient City of Aleppo*. UNESCO.
- Rieniets, T. (2012). Reconstruction and Sustainable Urban Development. In I. F. Societies, *Sustainable Reconstruction in Urban Areas* (p. 25). International Federation of Red Cross and Red Crescent Societies.
- Roger Matthews, Q. H.-A. (2020). Heritage and cultural healing: Iraq in a post-Daesh era. *International Journal of Heritage Studies*.

- Ronchi, A. T. (2020). Community involvement in built heritage conservation: the case study of the Birzeit Historic Centre Rehabilitation Project, Palestine. In S. P. Renata F Peters, *Heritage Conservation and Social Engagement* (pp. 66-84). UCL Press.
- Rui, L. (2008). *Urban Heritage Conservation by GIS under Urban Renewal*. Retrieved from http://www.isocarp.net/data/case_studies/1147.pdf
- Salaam, A. (1994). The Reconstruction of Beirut: A Lost Opportunity. *Architectural Association School of Architecture*.
- Salaam, A. (1994). The Reconstruction of Beirut: A Lost Opportunity. *AA Files*.
- Salah Haj Ismail, E. M. (2014). Post Conflict Conservation or Reconstruction: Analysis, Criteria, Values of The Recent Syrian Cultural Heritage. *La Cultura del restaure e della valorizzazione*. Florence, Italy.
- Shaimaa Hameed Hussein, Z. R. (2019). Urban regeneration through post-war reconstruction: Reclaiming the urban identity of the old city of Mosul. *Periodicals of Engineering and Natural Sciences*, 294-301. Retrieved from <http://pen.ius.edu.ba>
- Shkur, A. N. (2017). Archways. In *Mosul Urban Heritage*. Mosul: Dijla.
- Steinberg, F. (1996). Conservation and Rehabilitation of Urban Heritage in Developing Countries . *Pergamon* .

- Su, X. (2010). Urban conservation in Lijiang, China: Power structure and funding systems. *Elsevier*, 164–171.
- Sultan Barakat, M. (2002). Post-war Recovery Studies at the University of York: Interdisciplinary Education Addressing the Challenges of Rebuilding War-torn Communities. *Architectural Education Today*, 118-123.
- Suri, S. N. (2012). *Two cities with no soul: Planning for division and reunification in post-war Mostar*. ISOCARP.
- Tedex (2011). Cultural suicide [Recorded by I. Fethi]. Baghdad. Retrieved from <https://www.youtube.com/watch?v=zH10qK2PZV8>
- The Agha Khan Trust for Culture. (2004). *Historic cities support programme: Conservation and revitalization of historic Mostar*. Geneva: The Agha Khan Trust for Culture.
- Throsby, D. (2015). Investment in urban heritage conservation in developing countries: Concepts, methods and data, *City, Culture and Society*. *Elsevier*.
- Tung, A. M. (2001). *Preserving the World's Great Cities: The Destruction and Renewal of the Historic Metropolis*. New York: Three Rivers Press.
- UNESCO. (2011). *Records of the General Conference*. Paris: UNESCO.

UNESCO. (2018, 08 17). *World Heritage Centre* . Retrieved from UNESCO:
<https://whc.unesco.org/en/tentativelists/6355/>

UNESCO. (2019). *Revive the Spirit of Mosul*. Retrieved from UNESCO:
<https://en.unesco.org/fieldoffice/baghdad/revivemosul>

UNESCO. (2020). *Reconstruction & Rehabilitation of the Al Nouri Complex in Mosul*.
Mosul: UNESCO.

UNESCO. (2021, 4 10). Retrieved from <https://whc.unesco.org/en/activities/946/>

UNESCO, U. (2018). *The State of Cultural Heritage in the Ancient City of Aleppo*.
Paris: UNESCO.

UNHABITAT. (2014). *City Profile Aleppo*. UNHABITAT.

UNHABITAT. (2016). *City Profile of Mosul*. Mosul: UNHABITAT.

UNHABITAT, U. (2019). *Initial Planning Framework for The Reconstruction of Mosul*. UNHABITAT, UNESCO.

Union, O. J. (2014, 2014). *Cultural Heritage as a Strategic Resource for a Sustainable Europe*. Official Journal of the European Union.

Urban, F. (2020). *Postmodern Reconciliation: Reinventing the Old Town of Elblag*.
Architectural Histories.

Urban, F. (2020). Postmodern Reconciliation: Reinventing the Old Town of Elbląg .
Architectural Histories.

Vendemini, E. (2016). *Sustainable reconstruction for Aleppo.*

Verhagen, P. (2006). Retrieved from Architectureguide:
[http://www.architectureguide.nl/project/list_projects_of_architect/arc_id/100/
prj_id/120](http://www.architectureguide.nl/project/list_projects_of_architect/arc_id/100/prj_id/120)

Vinaz, S. M. (2005). *Contemporary Theory of Conservation.* Elsevier.

Wang, J. (2012). Problems and Solutions in the Protection of Historical Urban Areas.
Frontiers of Architectural Research, 40-43.

Webster, M. (2021, 8 31). *Merriam Webster.* Retrieved from [https://www.merriam-
webster.com/](https://www.merriam-webster.com/)

Zeidan, A. (2021). *Britannica.* Retrieved from
[https://www.britannica.com/summary/Aleppo:](https://www.britannica.com/summary/Aleppo)
<https://www.britannica.com/summary/Aleppo>

Ziesmer, C. M. (2016). *Heritage at Risk.* Berlin: Hendrik Bäblier verlag .

APPENDICES

Appendix A: Mosul - Iraq

The city of Mosul is one of the oldest cities in the world and a major city in northern Iraq. In 2014, the Islamic State (IS) took the city and announced it its capital. For three years, various battles took place, leaving Mosul in ruins. most of the heritage sites leveled to the ground or heavily destroyed, thus, most of the religious monuments, and cultural antiquities were damaged. In August 2016, more than 135 sites in the old city had been destroyed that involved 86 governmental and 49 residential properties. Accordingly, in 2017 the city was liberated, and the recovery process was implemented by multi-international organizations.

Mosul/ Iraq		Population	1.630 million	Size of old town	4 sq km
Type of conflict	ISI	Years of conflict	2014-2017	Situation	Over
Demolishment area information	- 48 mosques plus 8 churches have been destroyed with many other historical monuments (Ani, 2020)			Years of reconstruction Going or over	2017 Ongoing
Responsible body/bodies in reconstruction process?	UNESCO, UN HABITAT, Kuwait, Emirate (UNHABITAT, City Profile of Mosul, 2016)				
Any reconstruction reports produced/published ?	Yes				
Any other information?	The Old City had been completely destroyed in the final phase of the war which was the liberation. The historic urban fabric has been suffered mostly, about 5,000 buildings in the Old City destroyed or massively damaged. (UNHABITAT, City Profile of Mosul, 2016)				

Pre-post- image



(Mosul Eye, 2021)

Appendix B: Mostar City - Bosnia and Herzegovina

Mostar is located in southern Bosnia and Herzegovina. It's known for the iconic Stari Most (Old Bridge). In 1992, because of the Bosnian War, the city's bridge was damaged with its Ottoman, Mediterranean, and western-European architectural elements (Aloul, 2007). The destruction during the war was not limited to the urban heritage, it also included the destruction or removal of cadastral and property records, plans, and maps. In 1995, the conflict has finished, and the reconstruction had started by the local people, funding by international organizations (Calame, 2005).

Mostar / Bosnia and Herzegovina	Population	104,518	Size of old town	0.076 sq km	
Type of conflict	Civil	Years of conflict	1992-1995	Situation	Over
Demolishment area information	<ul style="list-style-type: none"> - Destroyed its bridge and the historic center - The destruction was not limited to the urban heritage, it included the destruction, lost or removal of many properties' records, documents, plans, and maps 		Years of reconstruction Going or over	1995-2004	
Responsible body/bodies in reconstruction process?	UNESCO, Local expertise and agencies				
Any reconstruction reports produced / published?	Yes				
Any other information?	In Mostar, it was decided to reconstruct some of the buildings not the general pattern of the historic city, while the other buildings were to be built in complement to the city scene rather than being replicas				

Pre-images 1996



Source: <https://www.nato.int/sfor/misc/mostar/mostar.htm>

Post-images- 2015



Source: https://www.123rf.com/photo_92231117_mostar-drone-aerial-bosnia-and-herzegovina-taken-in-2015.html

Appendix C: Elblag - Poland

Elblag is located in northern Poland. It is one of the oldest cities. In 1772, it was transferred to Prussia after the first partition of Poland. Post the second World War. Again, it became a part of Poland (Urban, Postmodern Reconciliation: Reinventing the Old Town of Elblag , 2020). The war casualties were catastrophic, especially the massive destruction of the historic old centers. Its reconstruction had started in 1980 by the local government. Elblag is an increasingly popular center of both domestic and international tourism, and the reconstructed historic center is its most important attraction (Johnson, 2000).

Elblag in northern Poland		Population	119,308	Size of old town	
Type of conflict	Second World War	Years of conflict	1945	Situation	Over
Demolishment area information	- Elblag was destroyed by the end of World War II almost completely. (Urban, Postmodern Reconciliation: Reinventing the Old Town of Elblag , 2020)			Years of reconstruction Going or over	1979-1989
Responsible body/bodies in reconstruction process?	Government				
Any reconstruction reports produced/published?	Yes				
Any other information?	- The city reconstruction is the story of the efforts of a woman who emphasized the recovery of the city: Maria Hoffmann, the head conservationist of Elblag Voivodeship from 1975 to 1999, they implement the house-by-house approach in the reconstruction. (Urban, Postmodern Reconciliation: Reinventing the Old Town of Elblag, 2020)				

Pre-images



Source: <https://journal.eahn.org/articles/10.5334/ah.405/>


Post-images-current



Source: <https://journal.eahn.org/articles/10.5334/ah.405/>

Appendix D: Coventry - United Kingdom

Coventry is a city that is located in the center of England. It's well known for the medieval Coventry Cathedral. Coventry suffered from one of the most devastating aerial attacks of World War II in 1940. The city had been reconstructed as a new city depending on the principles that focus on function and user, neglecting the remained structures. By the 1960s, Coventry was a model of modern architecture differ from its pre-war image (Council, 2021).

Coventry - United Kingdom		Population	369,540	Size of old town	0.71 sq km
Type of conflict	World War II	Years of conflict	1940	Situation	Over
Demolishment area information	- Around two-thirds of the city center's buildings were damaged.		Years of reconstruction	1950-1978	
Responsible body/bodies in reconstruction process?	Government, Local community				
Any reconstruction reports produced/published?	Yes				
Any other information?	<p>Letting the decision for public opinion only to manage the tempo and character of recovery process will produce the loss of aesthetic controls</p> <p>Coventry demonstrates how reconstruction plans can take a modern strategy after conflict and total destruction</p>				
Pre-post image					

	Source: https://www.coventrytelegraph.net/news/coventry-news/coventry-blitz-then-now-photos-13897081
--	---

Appendix E: Middelburg - The Netherlands

Middelburg is a city located in the south-western Netherlands. On May 17th 1940 the center of Middelburg-Netherlands was almost entirely destroyed by a German bombing raid and reconstruction was immediately placed financing by the private owners, property was allocated to specific owners who become responsible for the repair costs according to the conducted master plan, plus the legal obligations that followed it (Calame, 2005). Those who benefited most from the revitalization, had the biggest amount of the costs. Accordingly, all citizens were supposed to donate in some form, they all participated in valuing and rebuilding their city.

Middelburg- Netherlands		Population	48,544	Size of old town	1.3 sq km
Type of conflict	World War II	Years of conflict	1940	Situation	over
Demolishment area information	<ul style="list-style-type: none"> - Reconstruction financing from the private sector. - The master plan drawn up in 1941, sought to retain the characteristic ambiance of the historic town. - Keeping the old street pattern, plus key monuments 		Years of reconstruction	1945-1965	
Responsible body/bodies in reconstruction process?	Government, Private sector				
Any reconstruction reports produced/published?	Yes				
Any other information?	<ul style="list-style-type: none"> - The city planners after the war focused on the ‘vernacular norms’ which had commanded the streetscapes of the historic neighbour before the bomb in 1940. - City stakeholders preferred flexibility feasibility of traditionalism to contemporary design in making the decision regarding the city reconstruction. 				

Pre-post image




Photographed by C.P. Snijders

Appendix F: Beirut - Lebanon

Beirut is the capital of Lebanon. Since it was one of Phoenicia's most prominent city states, it presents one of the oldest cities in the world. The medieval city sprang developed on the ruins of a rich Roman law school that had been wrecked by an earthquake on a point projecting from Lebanon's coastline. This city was largely unimportant until the Ottoman Empire named it as a regional capital in the late nineteenth century. For Lebanese inhabitants, the devastation of Beirut's central district for fifteen-year civil war was a terrible experience, and the plan for its rehabilitation has exposed them to an unbearable image of their city's future. The government become in near-total bankruptcy, which made the reconstruction plan serves no practical purpose but is a high priority for symbolic reasons, ended up in the hands of developers with only financial interests and political ambitions (Salaam, The Reconstruction of Beirut: A Lost Opportunity, 1994). In 1994, a red line has been drawn around city capitals center to ruined central business neighbor. Thus, the whole commercial portion was set for sale as an action for rebuilding the city core in the international market. The reconstruction efforts in Beirut's historic center illustrates clearly both the virtues and outcomes of post-war rebuilding that directed by free market (Calame, 2005).

Beirut - Lebanon		Population	2,424,425	Size of old town	0.12 sq km
Type of conflict	Civil	Years of conflict	1975-1990	Situation	Over
Demolishment area information	Some estimated that about 700,000 Lebanese were displaced - In 1993 after the war population was 2.7 million, which was less than three-		Years of reconstruction	1990-2005	

	quarters comparing to the pre-war situation		
Responsible body/bodies in reconstruction process?	Private sector		
Any reconstruction reports produced/published?	Yes		
Any other information?			
Pre-post-images			
	Source: https://i.redd.it/8bsjd47d3ff21.jpg		

Appendix G: Dresden - Germany

Dresden is the capital of Saxony in the eastern German state. It is distinguished by the classic architecture of its reconstructed old town. According to Paul (1990), the city was largely dominated by baroque facades and houses built during Dresden's Golden Age between the end-17th century and the end-18th (Paul, 1990). During the second world war, over 15.5 sq km in the historic city center were massively destroyed; as a result, the most stunning architectural assets in the Western world was destroyed. In 1993 the city's government decided to combine two strategies in rebuilding the city: the reconstruction of the entire fabric and the total urban renewal approach (Aloul, 2007).

Dresden - Germany		Population	554,649	Size of old town	
Type of conflict	World War II	Years of conflict	1945	Situation	Over-1990
Demolishment area information	<ul style="list-style-type: none"> - The historic city center was massively destroyed. - The most stunning architectural assets in the Western world was destroyed 		Years of reconstruction	The total reconstruction took 60 years post the war	
Responsible body/bodies in reconstruction process?	Government and citizen				
Any reconstruction reports produced/published?	Yes				
Any other information?	<ul style="list-style-type: none"> - Wolfgang Kil mentioned that during the Soviet regime, the reconstruction of the destroyed Dresden took an inactive direction. - Large areas became neglected for about 50 years post the war and the bombing. 				

Pre-post image



Source: <https://9gag.com/gag/ab5bvnB?ref=pn>

Appendix H: Warsaw - Poland

Warsaw is the capital and largest city of Poland. Between 1939 and 1944 over 84% of the city was destroyed, in which the city center had the biggest portion of the destruction. Before and during the second world war Varsovians planned and worked on recording the magnificent architecture of Warsaw wishing for reconstruction one day (Aloul, 2007). After the war, the documents were used as a base for reconstruction of the city (Calame, 2005).

Warsaw - Poland		Population	1.765 million	Size of old town	0.44 sq km
Type of conflict	World War II	Years of conflict	1939-1944	Situation	over
Demolishment area information	<ul style="list-style-type: none"> - More than 84% of Warsaw was fully destroyed, mainly its historic center damaged by 96.5% by the Nazi's (Aloul, 2007) - Regarding the architectural properties 782 out of 957 were demolished and 141 partially demolished (Tung, 2001). 		Years of reconstruction	1946-1974	
Responsible body/bodies in reconstruction process?	Local people				
Any reconstruction reports produced/published?	Yes				
Any other information?	<p>In the second World War, German national policy become the erasing of the city's culture as a way to smash the resistance spirit of local Polish people. People took it on themselves to rebuild their destroyed historical city as they were aware of their heritage value.</p>				

Pre-post image



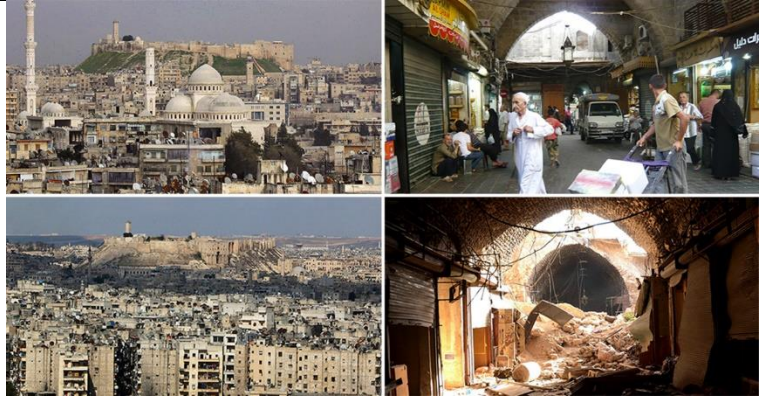
Source: <http://www.artinsociety.com/bernardo-bellotto-and-the-reconstruction-of-warsaw.html>

Appendix I: Aleppo- Syria

Aleppo is the capital of northern Syria and is known in Arabic as Halab. Since the 2nd millennium B.C., it has been inhabited. It has been located at the crossroads of various trade routes in Syria's northwestern region. The Hittites, Assyrians, Akkadians, Greeks, Romans, Umayyads, Ayyubids, Mameluks, and Ottomans all dominated to leave their imprint on the city. The city's unified, unique urban fabric includes the Citadel, the 12th-century Great Mosque, and numerous madrasas, mansions, khans, and public baths just like the city of Mosul (Zeidan, 2021).

Aleppo – Syria		Population	1,834 million	Size of old town	3.5 sq km
Type of conflict	Civil	Years of conflict	2012-2020	Situation	Over
Demolishment area information	- Old city of Aleppo has suffered substantial damage. According to preliminary estimates, about 60 percent has been seriously damaged, with 30 percent completely destroyed (Munawar, 2018).		Years of reconstruction	Under Reconstruction	
Responsible body/bodies in reconstruction process?	UNESCO, Citizen				
Any reconstruction reports produced/published?	Yes				
Any other information?					

Pre-post images



Sources: <https://metro.co.uk/2017/01/01/before-and-after-images-of-aleppo>

Appendix J: Hiroshima - Japan

Hiroshima, a modern city on Japan's Honshu Island. Because of the atomic bomb during the second world war, five square miles of the city have been destroyed. About 63% of the buildings were completely destroyed and many more were damaged (Allam Alkazei, 2018). Totally, 92% of the structures in the city were either destroyed or damaged. All local community, including the government authorities, economic circles, and citizens, worked hand in hand for reconstructing the city (Project, 2015). The war-damage reconstruction gradually became the basis for Japanese postwar history.

Hiroshima- Japan		Population	2,083,000	Size of old town	
Type of conflict	World War II	Years of conflict	1945	Situation	Over
Demolishment area information	- Over 90 percent of the city destroyed totally or partially.			Years of reconstruction	1946-1950
Responsible body/bodies in reconstruction process?	The whole local community, involving the government authority, economic circles, and citizens, worked together in the reconstruction process				
Any reconstruction reports produced/published?	Yes				
Any other information?					

Pre-post images



Source: <https://9gag.com/gag/aGdPMAw>