

Sustainable Urban Renewal of the Old City of Mosul

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ABSTRACT

The research focuses on clarifying the relationship between sustainability and urban renewal project in the old city of Mosul, this city has a distinctive architectural character but it has lost many of its landmarks in the last war. From this point, the study began to assess the current situation of the site based on the concepts of sustainability that have become one of the basics of design at present. The research aims to clarify the ways of applying sustainability strategies in the urban renewal program of the study site on its social, economic and environmental aspects. The research adopts a data analysis system for the city in addition to the survey data that was conducted in it to determine the extent of the impact of the population of the area on this process.

Keywords:

Sustainability; Sustainable Urban Renewal; the Old City of Mosul; Urban Renewal.

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1. INTRODUCTION

The term “sustainability” was defined in design in the eighties of the twentieth century at a time when environmental problems began to swell and people began to search for solutions with longer-lasting and less damage. Sustainability is the way to secure a good life by achieving a high level of human well-being with a high level of the ecosystem that supports it [11], while urban renewal began in developed countries in the late nineteenth century. Urban renewal is a process of change in the urban environment of the city by improving or rebuilding worn out or neglected structures and service lines in all areas of the city to face the pressure of economic and social changes [8]. The urban renewal process included several theories: Historical Conservation which aims to protect heritage sites according to specific criteria [15], Rehabilitation process includes the possibility of replacing lost historical features [10] and Redevelopment which is related to the demolition and demolition operations, as it represents the demolition of entire dilapidated and dilapidated neighbourhoods and areas and their reconstruction [20]. By merging these two definitions, the term “sustainable urban renewal”

was reached: An integrated program of projects aimed at addressing and improving individual forms of sustainability and worn out areas in cities. These programs link various problems and opportunities to empower people, crystallize common visions, and foster commercial and social enterprises, It requires integration between urban decision-making and professional disciplines [9].

The city of Mosul is the centre of the Nineveh Governorate. It dates back to 6000 BC and was famous during the time of the Assyrian civilization [12]. Studies indicate that the city of Mosul is an Assyrian city, as they took the area located on the eastern bank of the Tigris River during the reign of the Assyrian monarch Tagla Tablizar (1080 BC) [21]. It went through multiple stages, as it was an important commercial and cultural centre in the region. These changes, in addition to social and climatic factors, gave rise to an architectural fabric of a distinctive character. But because of the conditions that the city suffered from in the last war and the subsequent weakness in the reconstruction; The city has become badly damaged and still suffers from many problems.

2. THE CONCEPT OF SUSTAINABLE URBAN RENEWAL

Sustainable urban renewal is defined as the process of rebuilding or rehabilitating the urban fabric and revitalizing the economy based on the local community and social capital. This program depends on three aspects: The physical environmental aspect includes topics such as infrastructures, environmental quality, soil analysis and traffic. The social aspect involves the participation of different social groups in the renewal process and the success of renewal is reflected in the community's response to problems. The economic aspect deals with economic instability that affects the process of renewal [16]. Sustainable urban renewal requires a high degree of flexibility in the application of planning and planning policies to encourage the largest number of recreational facilities in city centres [2].

3. SUSTAINABLE RENEWAL POLICIES

Sustainable urban renewal requires several things, including the ones mentioned by [14]:

Design, planning and density affect the shape of a community. The level of services and the way people interact with each other and with their environment, such as reducing energy use, contribute to achieving sustainability. Recycling buildings help reduce resource use and encourages welfare and the local economy.

4. RESEARCH PROBLEM

The research problem is summarized in the lack of available information on the current situation of the city after the events of the last war, in addition to the weakness about the information on the social and economic status of the population.

5. MATERIAL AND METHOD

The research takes a scientific approach in collecting and analyzing data in the chosen location for the study, according to the results obtained from the questionnaire and the information available from previous studies and projects for the region. The questionnaire paper for the research was distributed to a specific area in the old city of Mosul, which was identified in the alley connecting the Great Al-Nuri Mosque and the Prophet Jerjis Mosque as the heart of the old city.

The questionnaire paper contains two parts, the first discusses the social status of the population, income and education, the second part is concerned with determining the housing

condition, building materials, number of floors, number of rooms, etc.

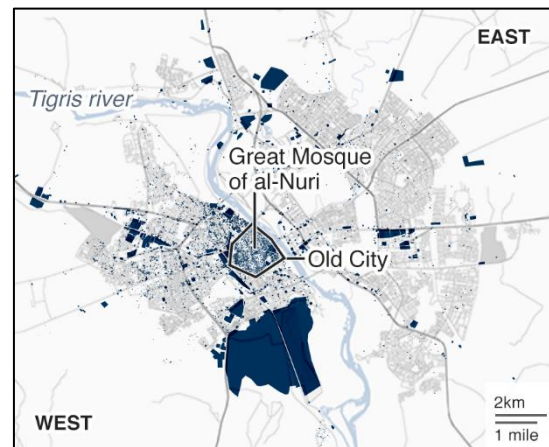


Fig.1.The Old City of Mosul [13]

6. STUDY AREA

The practical study depends mainly on the information collected from the questionnaire at the worksite, by examining several factors, including:

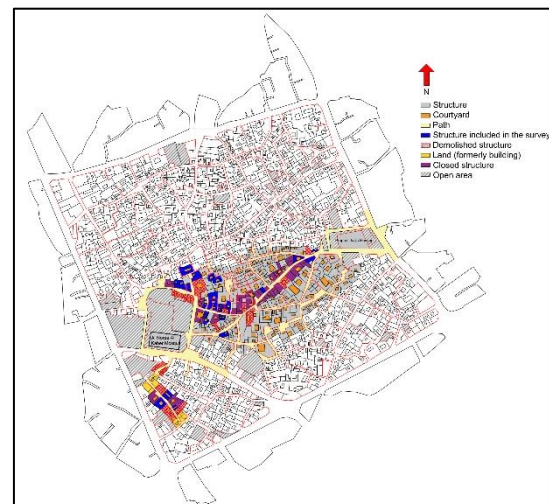


Fig.2. survey area in the old city of Mosul
[Author, 2021]

6.1. Accessibility

The alley between the Great Al-Nuri Mosque and the Nabi Gerges Mosque in the old city was chosen for the first survey. The site is surrounded by two main streets, Nineveh Street from the south and Al-Farouq Street from the west, bounded by Prophet Jerjis Street to the east and Al Makkawi Street to the north. This area is interspersed with several narrow alleys and streets that reach a meter in width or less (see fig. 3). In the second region, the streets are perpendicular

with a grid system, and the blocks are of regular shapes.

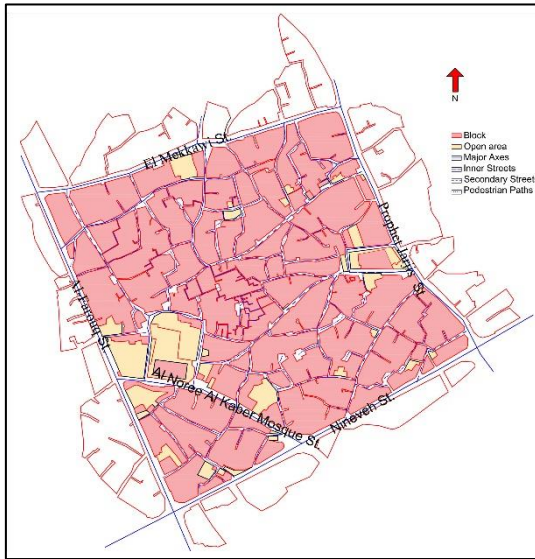


Fig.3. Accessibility map in the Old City of Mosul Survey [Auther, 2021]

6.2. Land Uses

The land uses on the site vary between residential, commercial, religious and public buildings, but the residential use covers the largest part of it (see fig. 4). According to the data obtained from the urban renewal project of the old city of Mosul 2008, the uses are distributed as follows: 83% residential, 10% commercial, 3% mix-use and 2% public buildings [19].

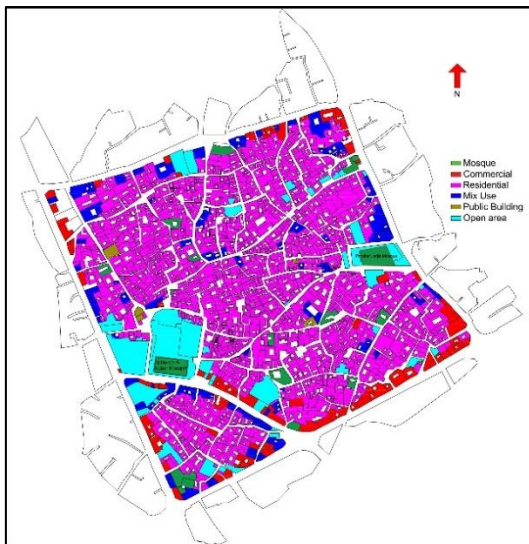


Fig.4. land use map in the Old City of Mosul Survey [Auther, 2021]

6.3. Building's Height

The building's height in the old city was known with ground floor or two floors (ground and first floor), and this height was based on all types of buildings. According to the study conducted in 2008, the data were as follows: 50.9% ground floor buildings, 46.6% ground+1, 1.9% ground+2 and 0.5% of four floors and more [19]. From the questionnaire that was conducted in the chosen location, the following results were reached: 40% ground floor, 43% ground floor + 1, 10% with ground floor +2 and ground floor +3 by 7% (see fig. 5).

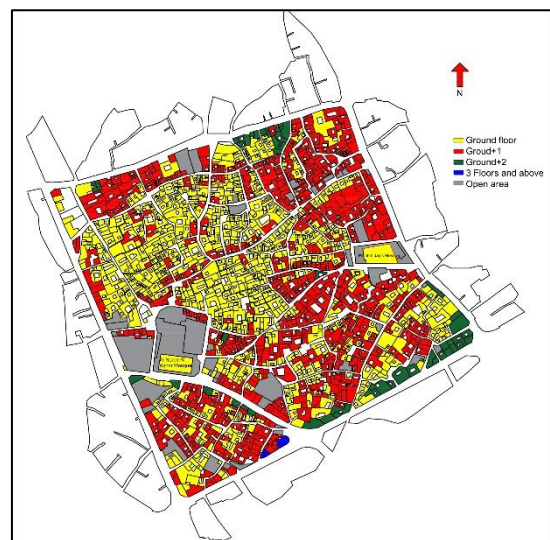


Fig.5. Map of floor numbers [Auther, 2021]

6.4. Social Characteristics, Family Structure and Property

The Mosul community has been known for its civilizational characteristics since ancient times, and this matter was reflected in many aspects of life. Old city families live in the large family house, that is, it is an (extended family). The head of the family is the father or the mother, and in the absence of the parents, the grandfather or grandmother takes over the matter. The number of children for large families is at least 4. Ownership in the old city is for rent for the most part; because most of the residents left the area after the war due to the security situation, in the second place private property followed by inheritance (see fig. 6).

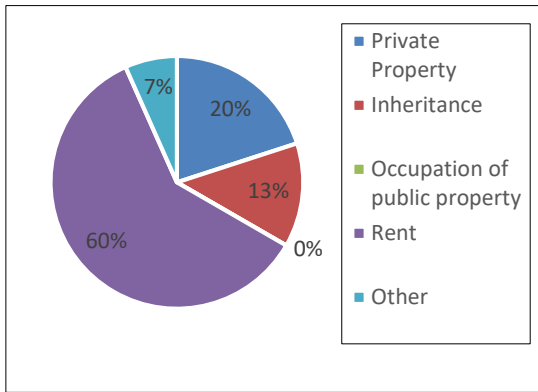


Fig.6. House Property Rate in the Old City of Mosul Survey [Auther, 2021]

6.5. Education, Economic Life and Professions

The residents of the old city of Mosul have a significant share of illiteracy (see Table 1); due to the lack of awareness about the importance of education in addition to the poor standard of living caused by the fact that the level of individuals' income is much lower than the average general income in the city (see Table 2). Families need a salary of more than one person, sometimes 3 members of the same family work to secure their living. Most of the workers are daily wage earners and simple professions such as a construction workers, a baker or a labourer in clothing stores and others. The reason for preferring housing in the area is its proximity to commercial areas and the suitability of rent values with their low salaries.

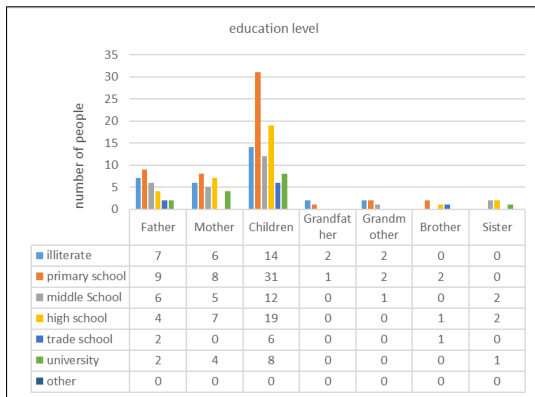


Table 1. Education levels in the Old City of Mosul Survey [Auther, 2021]

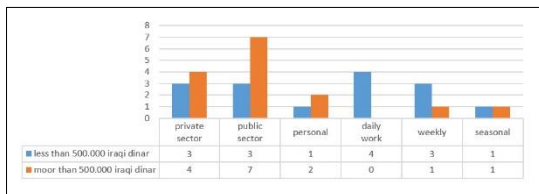


Table 2. Income levels in the Old City of Mosul Survey [Auther, 2021]

6.6. Urban fabric analysis, layouts and interfaces

The fabric of the old city can be described by the convergence of the buildings to a large extent, forming a large mass, in addition to the shape of the narrow and winding alleys, which reduces the area exposed to the sun. These elements help in resisting environmental conditions (see fig. 8). The design of the buildings is inward-oriented and the facades are minimalist in consideration of the principle of privacy. In the middle of the building is an open central courtyard on which the spaces are directed. This courtyard is used to soften the atmosphere. The iwan is a space between two rooms and it is directed towards the courtyard. The basement is a space located under the courtyard, and its windows overlook the courtyard. The number of rooms in the houses of the old city is 2-3 rooms in general and in large houses reaches 5-6 rooms.

7. CONCLUSIONS AND RECOMMENDATIONS

- The city's fabric suffers from rupture in several parts due to the bombing during the war. The site contains many buildings that have been completely or partially destroyed. In addition to the fact that these buildings are a point of a defect in the general image of the city, they pose a danger to the possibility of collapsing at any time.
- The process of historical preservation has been nominated in the process of renovation as it is commensurate with the condition of the site, the process of historical preservation aims to protect the identity of the sites according to specific criteria by the competent authorities.
- The process of preserving the identity of the old city requires adherence to the local building pattern, whether it is at the level of materials used or the pattern of the plan with the courtyard.
- Enhancing cultural activities to raise awareness of the urban and historical value of the old city and the extent of its impact on the public image of the city of Mosul.
- The compatibility of the traditional housing with the environment, where protection was achieved by reducing the impact of harsh natural environmental conditions such as hot

climate, relative humidity and intensity of solar radiation. There are many basic principles on which the architecture of the traditional buildings was based, which with some modification and development, can be indicative indicators for the design of a contemporary sustainable dwelling, such as building with local materials, ventilation and natural lighting.

- From the integration of survey results and aspects of sustainable renewal we recommend the following:

1- The necessity of enhancing the participation of the residents of the old city in the process of sustainable renewal began by studying their current needs and trying to implement them, albeit in simplified ways, to make them an essential factor in this process.

2- Providing job opportunities for the residents of the region to advance the economic reality and raise the level of individuals' income.

3- Emphasizing the necessity of education to reduce the level of illiteracy in the region, thus enhancing the cultural aspect of the population.

4- Attempting to attract the city's original inhabitants again, as they are an essential and integral part of the city's identity.

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الملخص

يركز البحث على توضيح العلاقة بين الاستدامة والتجديد الحضري في المدينة القديمة للموصل، هذه المدينة التي تتميز بطابع معماري مميز لكنها خسرت العديد من معالمها في الحرب الاخيرة. انطلاقا من هذه النقطة بدأت الدراسة بتقييم الوضع الحالي للموقع واستنادا على مفاهيم الاستدامة التي اصبحت من اساسيات التصميم في الوقت الحالي يهدف البحث الى توضيح طرق تطبيق استراتيجيات الاستدامة في برنامج التجديد الحضري لموقع الدراسة على جوانبه الاجتماعية، الاقتصادية والبيئية. يتخذ البحث نظام تحليل البيانات الخاصة بالمدينة اضافة الى بيانات الاستبيان الذي تم اجراؤه فيها لتحديد مدى تأثير سكان المنطقة على هذه العملية.

الكلمات الدالة :

الاستدامة، التجديد الحضري، التجديد الحضري المستدام، مدينة الموصل القديمة.



Fig.8. Map of Camera Position and orientation in the Old City of Mosul Survey [Author, 2021]