



## AN APPROACH FOR PRESERVING OTTOMAN CULTURAL HERITAGE UNDER THREAT IN YEMEN: A CASE STUDY " THE OLD CITY OF SANA'A "

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### ABSTRACT

Cultural heritage is one of the human development aspects throughout the historical ages. Yemen is one of the wealthiest regions with cultural heritages in the Middle East, due to its important geographical location linking India, China, Africa, and the Mediterranean countries. Sana'a developed through successive Islamic eras, one of the most important of them was during Ottoman period. During their presence in Yemen, Ottomans were interested in constructing different types of buildings and bringing about a great civilizational and architectural renaissance in various regions of Yemen, especially in the city of Sana'a. However, cultural heritage in Sana'a was badly damaged during the Yemeni conflict, including Ottoman heritage. This study proposes an approach for preserving the building's cultural heritage under threat. This approach was based on the European Standard (EN 16096:2012 (E)), Conservation of cultural property - Condition survey and report of building's cultural heritage. The methodology used will help preserve the cultural heritage in Sana'a by assessing the damage caused by the war in Sana'a, and appropriate proposals were made. This study considered a group of Ottoman structures in the old city of Sana'a as a case study. It shows the war-affected historical sites in all Yemeni cities. During the period of Ottoman rule in Yemen, various facilities were built in most regions of Yemen, most of which were concentrated in the old city of Sana'a. Ottoman establishments were counted in the old city of Sana'a, where there were twenty-eight of them, twenty-one installations still in existence, and seven destroyed and no longer existing.

### KEYWORDS:

Yemen, Sana'a, Preservation, Ottoman Cultural Heritage, Cultural Heritage Under Threat.

### INTRODUCTION

Cultural heritage degradation harms communities and endangers the world's long-standing peace [1]. In conflict-ridden cities, the fabric of human civilization is increasingly threatened by forces that deny the existence of heritage. On the other hand, the universal heritage presents a positive view of human nature [2]. Heritage cities have become battlegrounds after seeing the size, tenacity, and recent catastrophic events [3]; they have been drastically altered through the devastation of their social, cultural, and physical surroundings [4].

Historic cities summarize the legacy of different civilizations. Sana'a's city retains buildings that reduce this legacy from the old city's history, which preserved its urban fabric and architectural style (residential and religious buildings, markets, streets, and squares), providing a vivid example of Islamic cities in the Middle East Ages [5]. Sana'a maintains a cultural heritage

belonging to the successive Islamic periods, the period of Ottoman rule was one of the most important. The actual Ottoman rule of Yemen began in 1538 AD during the reign of Sultan Suleiman. From that date, Yemen began a new phase with Ottoman rule [6]. Ottomans considered that Yemen is a trust of the Prophet Muhammad and it is an important site for protecting Islamic holy sites such as Mecca and Medina. Ottoman cultural heritage was distributed in various Yemeni cities, such as Sanaa, Zabid, Aden, Taiz, and other cities, concentrated in the old city of Sana'a. During this period, Sana'a continued to expand and entered a new phase of expansion and development. Then, a new neighborhood was established called Bir al-Azab [7].

Ottomans left their mark in various fields, the most important of which was their interest in urban affairs. During their reign, Sana'a was beautified, and roads were paved [8]. In addition, Ottomans in Yemen

applied Ottoman laws and regulations and tried to establish architectural facilities and introduce some cultural elements during their period [6].

This heritage has come under threat and neglect as part of Yemen's diverse heritage. Cultural heritage in Yemen is subject to neglect, erosion, natural disasters, dismantling, and looting that have accelerated in the recent period [9]. In addition, in the current period since 2015, Yemen has been subjected to a continuous war that has destroyed many heritage buildings in various regions of Yemen.

The main objective of this study is to set a practical strategy for preserving Ottoman cultural heritage under threats in the historical city of Sana'a, which will be the nucleus for preserving this heritage completely in Yemen, using a specific standard methodology that facilitates the preservation process.

There are no previous studies mainly aimed at preserving Ottoman cultural heritage in Sana'a. However, studies of the architectural and cultural heritage in Sana'a have included a wide range of historical and analytical topics. These studies played an important role in the details of the restoration campaign and restoration efforts that put back the city of Sana'a to its current state.

The most comprehensive of these studies is Michel Lambracus' 2015 book "Building a World Heritage City". In this book, the interest was in the complex process that encouraged the preservation of cultural heritage in the old city of Sana'a and its inclusion as a UNESCO World Heritage Site. In addition, the conservation and preservation of societies with living heritage and the political changes during preservation were debated [10].

In his publication in 2017, Yemeni Architectural Heritage Under Threat, Trevor Marchand, author of "Minaret Building and Apprenticeship in Yemen," presents different cases of Yemeni architecture where architecture was deliberately targeted during the war. He touched upon the most wonderful treasures of architecture in the world found in Yemen and merged traditional architecture with natural conditions. He illustrated this with pictures of various sites destroyed or affected by the recent war in Yemen [9].

Mohamed Enab 2017, in his article entitled: Ottoman Mosques in Sana'a, Yemen Archeological and Architectural Study, in which he discussed the patterns of Ottoman mosques in the city of Sana'a [11].

In 2017, Yasemin BARLAK provided a historical account of the city of Sana'a and its containment of Ottoman architectural facilities and monuments in her publication *An Arab Ottoman city in Yemen: Sana'a*, which the city of Sana'a still retains to this day [12]. She based her article on a historical narrative that explains Sana'a's social, religious, and cultural life before and during Ottoman period.

These sources helped establish a theoretical structure that dealt with the old city of Sana'a and Ottoman cultural heritage under threat. There are publications on various facets of heritage and warfare, such as the built environment and government

legislation, but none on saving Yemen's Ottoman heritage in the city of Sana'a, which is under threat.

#### **ARCHITECTURAL HERITAGE UNDER THREAT IN YEMEN**

Cultural heritage does not belong to the nation in which it resides; cultural heritage is universal. All countries are interested in and share their cultural heritage. Yemen's cultural heritage is as unique as universal, and those who value it most (often intuitively) are Yemenis themselves [13].

Yemen is one of the oldest civilizations globally, and it has a rich and varied cultural heritage. In addition, "Yemen has one of the great architectural treasures in the world" [9]. Unfortunately, the Ma'rib Dam is one of the archaeological sites damaged during the recent war in Yemen. The dam — the world's oldest and a historic architectural wonder built by the ancient Sabaeans in the ninth century BCE — was extensively harmed in airstrikes just two months after the Saudi-led intervention in Yemen began in May 2015. It is one of the most famous and oldest heritage sites in the Arabian Peninsula [14].

According to archaeologist Lamia Al-Khalidi, Coalition bombs struck the old city of Sana'a in March, June, and September 2015, aimed at two neighborhoods. The collateral damage of bombing raids in Sana'a city has done additional damage to the houses in the old city. Additionally, in June 2015, the I.S. destroyed an ancient mosque, Qubbat al-Mahdi (1750 ce), in old Sana'a. In May 2015, Saudi coalition bombs also hit the historic city of Zabid, which houses eighty-six mosques and were Yemen's capital between the 13th and 15th centuries. The force of the explosions brought down many historic homes. In November 2016, al-Qa'ida damaged the picturesque old town of Shibam in Hadramawt, known as the Manhattan of the desert, for its fourteen-story mud skyscrapers [13].

Many other sites, some of which figure on Yemen's World Heritage Tentative List, have similarly suffered damage, including the Citadel of Taz, the archaeological site of the pre-Islamic walled city of Baraqish, the archaeological sites of Marib from the end of the 2nd millennium B.C., and the Great Dam of Marib, a marvel of technical engineering. Movable heritage has also suffered severe losses, as in the case of the Dhamar Museum, which used to host a collection of 12,500 artifacts, and was destroyed in May 2015 [15].

In addition to the 78 confirmed sites, irreparable damage has been done to art, museum collections, and archeological sites due to collateral damage done by ground fighting and aerial bombing, lack of conservation, and looting of sites by locals and foreign forces [13].

In August 2020, heavy rains resulted in the almost total collapse of several inhabited buildings in the old city of Sana'a. In a statement issued by the "General Organization for the Preservation of the Historic Cities of Yemen" (GOPHCY), a call for help was directed to all international organizations, led by UNESCO and World Heritage Centers, to save the historic city of Sana'a, whose buildings suffered

collapses due to the continuing rains [16].

We find that cultural heritage in Yemen is in danger due to internal wars and external aggression, which have destroyed many heritage sites throughout the country. While the war continues, the danger to cultural heritage continues. Cultural heritage sites around the country will not be preserved, so it is important to raise awareness of risks and establish measures that will help them track cultural heritage until it's not lost.

**METHODOLOGY**

This paper examines cultural heritage under threat, and this issue is specifically studied in the context of Ottoman heritage in the city of Sana'a. The study included important historical buildings built in Ottoman era, which consisted of military, religious, service, residential, and educational buildings.

This study started by defining the problem and goal and then analyzing the resources. It also followed the descriptive and analytical approach to studying Ottoman cultural heritage in Sana'a. Data were collected and discussed from theoretical references and previous studies related to the subject of the study. This study concurs with the European Standard (EN 16096: 2012 (E)). The condition of the building, the level of damage, and the type of intervention required to protect the structure or element can be assessed and determined.

Analysis and assessments of the information gathered by field survey and various references were performed based on the standard. Ottoman cultural heritage was identified in the city of Sana'a. Furthermore, the damage to buildings as a result of the conflict was identified. In addition, the data were taken by taking pictures of the heritage buildings intended for the study, and with the help of engineering

programs, such as AutoCAD, Google Earth, Photoshop, and Excel, drawings and analyses of maps, buildings, and data. Based on the evaluation and analysis, suggestions were made to preserve and pursue the threatened Ottoman cultural heritage in Sana'a.

**SURVEYING AND CLASSIFICATION OF CULTURAL HERITAGE IN SANA'A**

During the period of Ottoman rule in Yemen, great importance was attached to building facilities of all kinds. Religious, military, administrative, civil, and others. Health services and pharmacies were established. Yemen's Islamic Architecture did not know the existence of hospitals or other health facilities except during the second period of Ottoman rule in Yemen [17].

There are many buildings and archaeological sites in Sana'a, and there is no doubt that they represent a sincere architectural production that expresses the civilizational stage that the city of Sana'a went through during that period[6]. Despite the historical importance of these facilities, they did not find the necessary attention. Instead, they suffered from deterioration and neglect and destruction. Instead, they suffer decline, abandonment, and destruction. Thus, this study was conducted on the Ottoman building in Sana'a. Ottoman cultural heritage was surveyed and classified through a specific methodology: Functional type of origin and the arrangement of the building according to the date of construction. In addition to who built it and the current state of the building, does it still exist or not exist? Buildings that do not exist were identified through the sources that mentioned this phenomenon or through old photographs and maps. Through the field survey, it was compared to reality, identified on the map, and classified in the table. It is illustrated in Table 1 and is identified on the map (Figure 1).

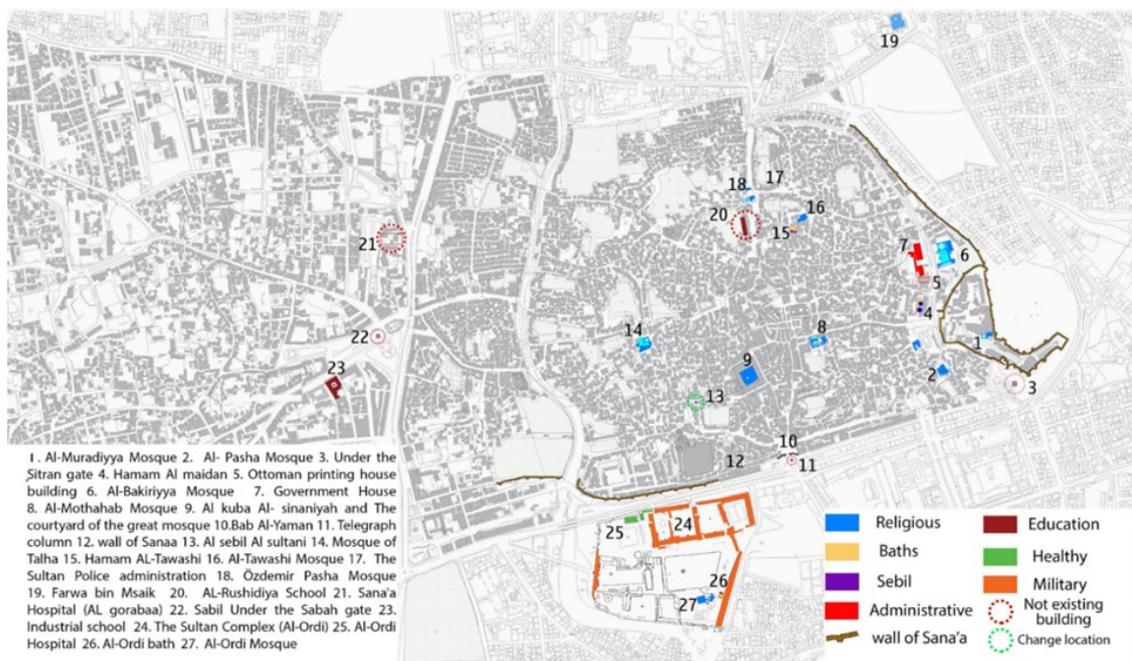


Figure 1. Map of old Sana'a shows Ottoman Structures

Table 1. Classification of Ottoman Structures in the city of Sana'a

Building type	Name of the structures	Date of building	Founder	current situation
1-Religious	1- Al-Muradiyya Mosque	(984-985 A.H)	Murad Pasha	Existing
	2- Al-Mothahab Mosque	Last 10 A.H – 16 A.D	Pasha Sinan	Existing
	3- Jannah Mosque	Last 10 A.H – 16 A.D	Pasha Sinan	Existing
	4- Al-Bakiriyya Mosque	1005 A.H – 1579 A.D	Hassan Pasha	Existing
	5- Özdemir Pasha Mosque	The mid- 12th A.H - 18 A.D	Özdemir Pasha	Existing
	6- Al-Tawashi Mosque	1028 A.H – 1618 A.D	Al-Tawashi	Existing
	7- Mosque of Talha	1029 AH- 1619- 1620 A.D	Mohamed Pasha	Existing
	8- Al-Ordi Mosque	1318 A.H – 1900 A.D	sultan Abd Al-Hamid II	Existing
2-Educational	9- AL Rushidiya School (College of Administrators, Accountants, and Senior Staff)	Last 10 A.H – 16 A.D	Özdemir Pasha	Not existing
	10- Industrial school	1320 A.H – 1903 A.D	Hussein Hilmi Pasha	Existing(Military Museum)
3-Military	11- The Sultani Complex (Al-Ordi)	1301 A.H – 1 883A.D	sultan Abd Al-Hamid II	Existing (Complex of the Ministry of Defense)
	12- The Sultan Police administration	1322 A.H – 1905 A.D	sultan Abd Al-Hamid II	Existing (Bab Shaoub Traffic administration)
	13- Government House The old building	1299-1302A.H-1881-1883A.D	Muhammad Izzat Pasha	Existing (National Security Building)
4-Administrative	14- Government House The new building	1316-1318 A.H -1898-1900A.D	Hussein Hilmi Pasha	Existing (National Security Building)
	15- Al-Ordi Hospital	1301 A.H – 1 883A.D	sultan Abd Al-Hamid II	Existing
5-Health	16- Sana'a Hospital (AL gorabaa)	1317A.H -1899A.D	Hussein Hilmi Pasha	Not existing (Republican Hospital)
	17- Under the ̣Sitran gate	984-985 A.H- 1577- 1578 A.D	Murad Pasha	Not existing
6- Sebil	18- Under the Sabah gate	-----	Amir Iskandar Pasha	Not existing
	19- Al sebil Al Sultani	-----	sultan Abd Al-Hamid II	Existing (It has been moved from its place to another place)
	20- Hammam Al maidan	988-1012A.H-1580-1603A.D	Hassan Pasha	Existing
7-Baths	21- Hammam Al-Tawashi	1028 A.H – 1618 A.D	Al-Tawashi	Existing
	22- Al-Ordi bath	1318 A.H -1900 A.D	Abdullah Pasha	Existing
	23- Ottoman printing house building	1295 A.H -1877 A.D	Ahmed Mukhtar Pasha	Not existing
8-Others	24- Shrine in the cemetery of Farwa bin Msaik	949A.H – 1586A.D	Hassan Pasha	Not existing
	25- Telegraph column	1901 A.D	sultan Abd Al-Hamid II	Not existing
	26- Restoration of the city wall of Sanaa	1036 AH- 1627A.D	Mohamed Pasha	Existing
	27- Restoration of Bab Al-Yemen (Bab Al-Yemen Gate)	1292-1297A.H-1875-1880A.D	Ahmed Faydi Pasha	Existing
	28- Al Kuba Al- Sinaniyah and the courtyard of the great mosque	1012A.h -1604A.D	Sinan Pasha	Existing

#### EVALUATION STANDARD OF OTTOMAN STRUCTURES IN THE OLD CITY OF SANA'A

Sana'a has many buildings and structures that were built during Ottoman period. Most of the buildings and facilities are located inside the walls of the old city of Sana'a, and they still maintain their structures in good condition. Some have been restored and converted into important museums or government buildings. Some of them were affected or destroyed due to the situation in Yemen in recent years.

In this part of the study, a detailed analytical study was made of the buildings and facilities constructed during this period in Old Sana'a. This study was carried out according to a specific methodology that included documentation and evaluation and made

proposals and recommendations based on them. It was based in part on the European Standard (EN 16096:2012 (E)), Conservation of cultural property - Condition survey and report of built cultural heritage [18]. This criterion can be applied to all components of the architectural heritage of historical and cultural value.

Accordingly, the case evaluation depends on the classification of the concerned case is classified into two categories, the Condition Classification (CC1-5), which depends on a comprehensive evaluation of the damage situation at the site, and the category of the necessity of response (urgency class (UC1- 4)) that depends on setting a time frame for repairing the damage on the element or building, (Table 2).

**Table 2. Condition classification (CC) and Response Class (UC)**

Condition classification (CC)			Response Class (UC)		
CC1	No symptoms	without symptoms of substantial change	Uc1	Long term	from 3 years
CC2	Minor symptoms	Superficial symptoms without major changes (loss < 20%)	Uc2	Intermediate term	1- 3 years
CC3	Moderate symptoms	limited damage / loss of surface (loss < 50%)	Uc3	Short term	within 1 year
CC4	Major symptoms	Serious damage / effects on the environment / substantial loss / danger of fall (loss > 50%)	Uc4	Urgent and immediate	within 3 months
CC5	Total loss	Complete physical damage of a building / a Component / element (loss > 90%)			

Specific colors and numbers have been proposed to facilitate managing historical preservation according to its importance and mention the levels of evaluation. According to the proposal, it is used to determine the

preservation and restoration methodology for the element under threat by the evaluation status (CC1-5) and the response category (UC1- 4) (Table 3).

**Table 3. Levels of evaluation by the evaluation status (CC) and the response category**

Response \ Condition	Condition				
	CC1 No symptoms	CC2 Minor symptoms	CC3 Moderate symptoms	CC4 Major symptoms	CC5 Total loss
Uc1 Long term	1	2	3	4	5
Uc2 Intermediate term	2	4	6	8	10
Uc3 Short term	3	6	9	12	15
Uc4 Urgent and immediate	4	8	12	16	20

Based on Table 3, the overall evaluation and classification (R.C.) are done based on the balance and weighting of risks and the degree of risk resulting from the comparison of the evaluation status (CC1-5) and the response category (UC1- 4) for all the elements as shown in (Table 4).

**Table 4. Overall classification and recommendation (R.C.)**

Classification	Scope of potential interventions
R.C. 1	No measures
RC 2	Maintenance
RC 3	Moderate repair / further investigation (sometimes additional investigations / expert opinions are necessary)
R.C. 4	Extensive intervention/ Basic repairs/ based on diagnosis
R.C. 5	Rebuilding / reconstruction

**APPLIED STUDY**

The analytical and theoretical study was followed by an empirical study through an empirical application of the methodology on a group of Ottoman buildings in Sana'a. Five different models of buildings will be surveyed (Table 5). According to the standard evaluation model, after determining the location of the damage in the building plan, it will be evaluated according to the following: the type of building, the location of the damage, and determining the cause of the damage other than from the type and area of the damage.

The classification of the case and the extent of the response will be determined through these data. Comparing them will determine the quality of the intervention and the recommendation to protect the building (Table 6).

The study will assist urban and spatial planning decision-makers to make restoration and rehabilitation decisions to reach the city's recovery and development.

Table 5. Selected Structures with the location of the damage

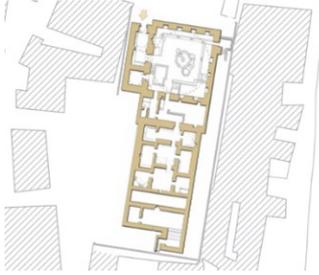
Structure	Location of Damage
1. Al-Bakiriyya Mosque	 <p data-bbox="845 622 1145 645">LOCALIZATION OF DAMAGE</p>
2. Al-Ordi Complex	 <p data-bbox="829 721 949 817">LOCALIZATION of DAMAGE</p>
3. Government House (National Security Building)	 <p data-bbox="842 1093 954 1198">LOCALIZATION OF DAMAGE</p>
4. Hammam Al maidan	
5. Al sebil Al Sultani	

Table 6. The approach was applied to the selected structures

Structure	Al-Bakiriyya Mosque	Al-Ordi Complex	Government House	Hammam Al maidan	Al sebil Al Sultani
Type	Ottoman Mosque	Ottoman military facility	Ottoman military facility	Ottoman Hammam	Ottoman Sabil
Damaged sections	Domes	Gates, The Western Qishla, The second Qishla and Hospital	The old and new building	none	Wall
Cause of damage	Rain and other weather factors.	Effects of war: aerial bombardment, projectile holes, shrapnel	Effects of war: aerial bombardment, projectile holes, shrapnel	Rain and other weather factors.	Rain and other weather factors.
Kind of damage	Falling off the outer plaster of the domes and the tank.	Significant damage	Significant damage	Falling off the outer plaster of the domes.	Cracks in the bearing walls and falling some stones.
Scope of damage	In general, minor surface damage	The building was severely damaged, partially collapsed, and destroyed by the aerial bombardment. Loss of components or building elements detach from the building and fall off.	The building was severely damaged, partially collapsed, and destroyed by the aerial bombardment. Loss of components or building elements detach from the building and fall off.	In general, minor surface damage	In general, minor symptoms
Condition Class	No symptoms <b>CC1</b>	Major symptoms <b>CC4</b>	<b>(CC3)</b> Major symptoms	No symptoms <b>CC1</b>	No symptoms <b>CC2</b>
Urgency Class	from 3 years <b>UC1</b>	Short term, within 1 year <b>UC3</b>	<b>(UC3)</b> Short term, within 1 year	from 3 years <b>UC1</b>	from 3 years <b>UC2</b>
Recommendation class	<b>(RC1)</b> No measures	<b>(R.C. 4)</b> Major intervention based on diagnosis	<b>(RC4)</b> Major intervention based on diagnosis	<b>(RC1)</b> No measures	<b>(RC2)</b> Maintenance

**RESULTS AND DISCUSSION**

While some ottoman buildings in Sana'a were affected by the wars in recent years and required urgent intervention, it was found that most of them are in good condition.

In this paper, twenty-eight Ottoman facilities

were enumerated in the old city of Sana'a, categorized by type into different fields (Figure2), of which twenty-one are currently in existence, of which one has been relocated to another location. Of the buildings that were counted in the city, seven were no longer present and were demolished after Ottomans left Yemen.

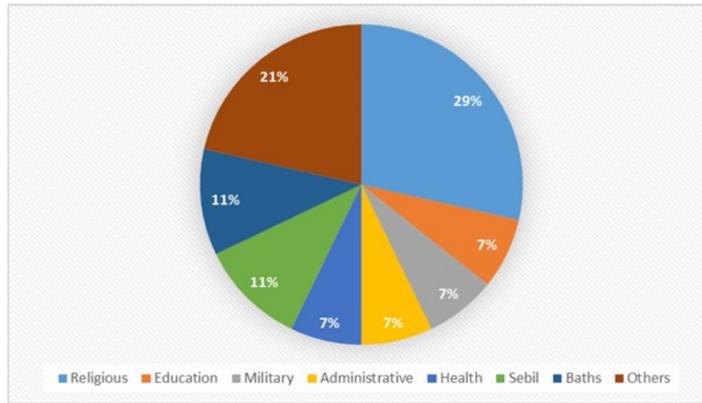


Figure 2. Categorized Ottoman structures by type

The previous analysis gave an overview of the extent of the damage and the priorities for the intervention. However, to achieve more accurate results, it was necessary to obtain accurate figures of the damaged structures, their type, and the level of intervention

(Figure3). Therefore, tables and figures relating to the type of buildings damaged, according to their number and levels of damage, have been prepared to make the process more realistic and achievable.

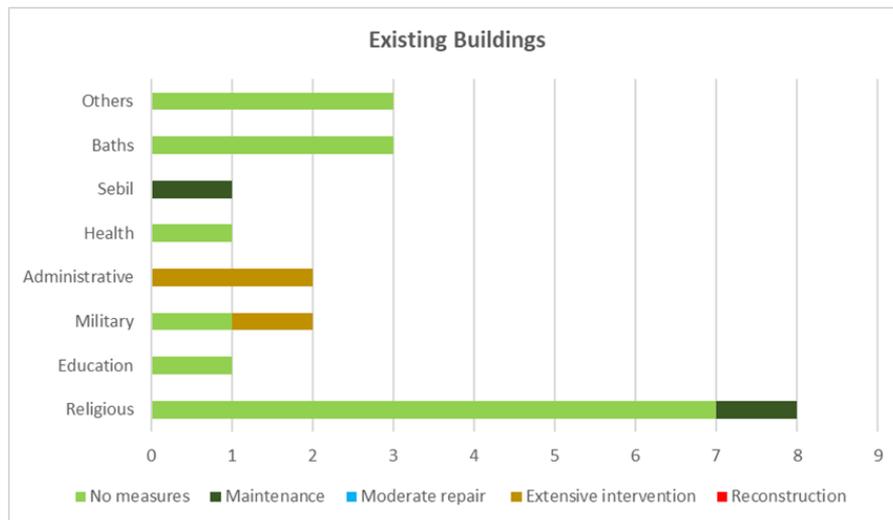


Figure 3. Recommendation of rehabilitation based on number of buildings, type, levels of damage and type of intervention

Through analysis, existing buildings endangered two of them during the last war. They were directly affected by aerial bombardment and needed urgent intervention to protect them. The rest of the buildings, although affected by various weather factors, especially the torrential rains that hit the city during the last two years, are in good condition and need medium or long-term protection.

The evaluations made in this study on Ottoman cultural heritage in the old city of Sana'a showed the condition of the buildings, the damage caused to them and their evaluation, and the level of intervention and protection.

As a result of this analysis, most of Ottoman facilities in the old city of Sana'a are in good condition and need long-term maintenance within the assessment (RC1). However, two of these buildings, Mosque of Talha (Qubbat Talha) and Al sebil Al Sultani (Sabil Al-Abhr), require moderate maintenance under the RC2 classification. Also, Al-Ordi Complex and Government House (National Security Building) were

directly threatened and destroyed by aerial bombardment in 2015 Therefore, it needs basic repair and reconstruction within the RC4 classification.

### CONCLUSIONS

Yemen's cultural heritage is being neglected and eroded by natural factors and war. Although Yemen has witnessed wars and instability for many centuries, the last war was the most destructive of its heritage.

As a result of this war, historical sites in all Yemeni cities were affected. In addition, the destruction extended to cultural heritage sites registered on the UNESCO World Heritage List, such as Sana'a, Zabid, and Shibam.

During the period of Ottoman rule in Yemen, various facilities were built in most regions of Yemen, most of which were concentrated in the old city of Sana'a.

Ottoman establishments were counted in the old city of Sana'a, where there were twenty-eight of

them, twenty-one installations still in existence, and seven destroyed and no longer existing. The classification followed a certain methodology that depended on the type of building, the date of construction, and who built it. In addition to the current status of the building.

The methodology used in this study, which was conducted on Ottoman buildings in the old city of Sana'a, showed its suitability to determine the condition of the buildings, the damage caused to them and their evaluation, and the extent of the building's need for intervention and protection. What facilitated this was the assessment and classification according to the degree and color resulting from the comparison of the classification status and response range developed from the European standard.

The analysis was carried out using tables and determination of the color according to the condition of the building and the extent of the response that made it possible to assess the degree of intervention to preserve the structure. Thus, it is easier for authorities and officials to take the appropriate preservation decisions.

The important advantage of this method includes the possibility of adaptation - such as changes in the type of facility and a different level of damage - while maintaining the structure of the action. Thus, the methodology used to evaluate different architectural heritage elements can be applied, such as buildings, bridges, archaeological remains, and other buildings with architectural, cultural, or historical value.

#### REFERENCES

- [1] UNESCO, "The 1954 Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict and its two (1954 and 1999) Protocols," UNESCO, 2010.
- [2] R. E. Train, "Remarks of the Honourable Russell E Train World Heritage Convention 30," no. November. pp. 1-3, 2002.
- [3] S. Graham, "Cities as battlespace: The new military urbanism," *City*, vol. 13, no. 4, pp. 383-402, Dec. 2009, doi: 10.1080/13604810903298425.
- [4] C. Grodach, "Reconstituting identity and history in post-war Mostar, Bosnia-Herzegovina," *City*, vol. 6, no. 1, pp. 61-82, Apr. 2002, doi: 10.1080/13604810220142844.
- [5] A. M. Amer, "The Provision of Educational Needs of the Old City of Sana'a According to the Concept of Sustainable Preservation," *Arab Am. Univ. J. Res.*, vol. 2, no. 2, pp. 70-92, 2016.
- [6] A. A. I. AL-Thor, "Ottoman ruler and their main construction, Ottoman periods rule at the first and second to Yemen 1538 -1635 / 1873," *J. King Saud Univ.*, vol. 22, no. 2, pp. 127-149, 2010.
- [7] Al-Taher Engineering Consultancy, "Foundations of Architectural Design and Urban Planning in the Islamic Ages - Sana'a Case Study." Organization of Islamic Cities and Capitals, Saudi Arabia, 2005.
- [8] O. Abaza, *Ottoman Rule in Yemen (1872-1918)*. Egyptian General Organization for the Book, 1986.
- [9] T. H. J. MARCHAND, "Yemen's Architectural Heritage Under Threat." *British-Yemeni Society*, pp. 26-34, 2017.
- [10] M. Lamprakos, *Building a World Heritage City*. Routledge, 2016.
- [11] M. A. A. El Rahman, "Ottoman Mosques In Sana'a, Yemen Archeological And Architectural Study," *Journal of Islamic Architecture*, vol. 4, no. 3. p. 124, 2017, doi: 10.18860/jia.v4i3.3533.
- [12] Y. BARLAK, "An Ottoman-Arab City in Yemen: Sana'a," *Sinop Univ. Fac. İlahiyat*, vol. 30, pp. 333-354, 2017.
- [13] L. Khalidi, "The Destruction of Yemen and Its Cultural Heritage," *Int. J. Middle East Stud.*, vol. 49, no. 4, pp. 735-738, Nov. 2017, doi: 10.1017/S0020743817000691.
- [14] F. Deknatel, *Tearing the Historic Fabric: The Destruction of Yemen's Cultural Heritage*. Accessed May 1, 2018. <https://lareviewofbooks.org/article/tearing-the-historic-fabric-the-destruction-of-yemens-cultural-heritage> Los Angeles Review of Books, 2017.
- [15] UNESCO, "Gallery: Heritage at Risk in Yemen," [WWW.UNESCO.ORG](http://WWW.UNESCO.ORG), 2016. <https://en.unesco.org/galleries/heritage-risk-yemen>.
- [16] A. Nagi, "Yemen's Old City of Sana'a: Stripped of Its Identity," Malcolm H. Kerr Carnegie Middle East Center, 2020. <https://carnegie-mec.org/2020/09/14/yemen-s-old-city-of-sana-stripped-of-its-identity-pub-82687>.
- [17] S. Al-Fakih, "Ottoman Health Facilities in Sana'a: Archaeological and Architectural Study, The Military Hospital as a Model," 2nd INTERNATIONAL Symp. YEMEN UNDER OTTOMAN RULE (1833-1924), 16-18 November, İstanbul Univ., 2017.
- [18] European Standard, *Conservation of cultural property - Condition survey and report of built cultural heritage*. 2012.