The need for sustainable management to document the remaining Baghdadi heritage houses

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Abstract. Heritage buildings and houses are not only places that were previously inhabited, but rather living places that reflect the behavior, culture and lifestyle of the ancestors at that time, and it is an existing means to link previous generations with future generations, but there is a clear absence of documentation of these buildings, which are characterized by being environmentally friendly and comfortable in housing. These buildings have unique architectural and engineering characteristics such as the Shanasheel, and it was necessary to document them from a while before they reached what they are now. Al-Bataween area, which was used for housing at the end of the nineteenth century and the beginning of the twentieth century, was chosen as a model for typical heritage buildings, and the houses that remained for periods of more than 100 years were photographed to show the engineering and architectural features. A questionnaire was conducted to explain the reasons for not paying attention to documenting these buildings previously when they reflected their beautiful features. The questionnaire showed a number of reasons behind the lack of interest in these important buildings. There is an urgent need to document what remains of the heritage buildings that will soon disappear.

Keywords: Sustainable Documentation, Heritage Buildings, Baghdadi Houses, Cultural Heritage.

1 Introduction

The cultural heritage of any people is like a national wealth that is transmitted from one generation to another and enters into the culture and behavior of society and the economy and is reflected in politics.

The heritage of buildings are an extension of the buildings built and developed by the Sumerians (more than 5,000 years ago), where the Sumerians were interested in building residential houses, workshops, and temples. Clay bricks, reeds, palm trunks, lime, and bituminous materials where the basic building materials for these buildings. These houses witnessed many developments over time to interact with the reality of the environment.
represented by high temperatures in the summer and to provide a suitable environment for housing in these circumstances until it became this way by the end of the Abbasid period, which extended (750-1258) AD.

This study aims to highlight the importance of cultural heritage in preserving the identity and values of society and its impact on the economy and politics. It also aims to clarify the importance of documenting the heritage buildings embodied in the Baghdadi houses, and to explain the reasons for the lack of interest in documentation through a questionnaire for a group of experts, interested and concerned in this field.

The study includes several chapters, the first chapter dealt with the concepts of cultural heritage in which cultural heritage was defined and the importance of heritage buildings was explained, as well as the risks that threaten such buildings, and the characteristics of Baghdadi houses were explained and clarified.

The second chapter explains the reasons for conducting the process of documentation and the importance of photographing in such process, as well as an explanation of the Al-Bataween area that was chosen for such process.

The third chapter dealt with conducting a questionnaire to indicate the reasons and obstacles that stand in the way of documenting such buildings by asking a number of questions to those concerned, faculty members of Engineering colleges and other engineers interested in this field.

The fourth chapter dealt with the conclusions obtained from the process of questionnaire shown below.

2 Concepts of cultural heritage

2.1 Definition of cultural heritage

Cultural heritage is a storehouse of achievements that span over centuries and which cannot be valued, as cultural heritage is a unique expression of human achievements that require its preservation from destruction and disappearance [1, 2]. In general, cultural heritage refers to the contemporary society's use of the past in shaping the national or regional image and identity, and it is a reflection of the past in the present. UNESCO has also defined it as the tangible and intangible heritage of society from previous generations that requires preserving it for future generations. UNESCO has introduced the concept of world heritage in 1972, which means a place of cultural significance to the common heritage of humanity in order to preserve and protect these sites [3].

Heritage buildings are defined as those archaeological monuments and a group of buildings and sites of heritage value that constitute the urban or historical environment [4].

2.2 The importance of the cultural heritage of buildings

The heritage buildings inhabited by the ancestors are not just places that were used for housing only, but rather they reflect the way of living, behavior, personality, culture, society style and the values known at the time [3]. Such buildings connect the current generation with the past generations, and thus they are used in several matters, including education, citizenship, identity preservation and community cohesion.

These concepts are usually adhered to socially and politically because they preserve the characteristics of society. There are also economic benefits resulting from the use of these places in media, investment and tourism.
These heritage buildings are the result of long periods spanning centuries [5] that have been developed and exploited local construction materials and expertise available at that time to comply with the conditions of society and the environment to be as comfortable as possible with the least amount of energy consumed and for this, they are considered environmentally friendly because of their design and thermal insulation and for this it can be used in education and reduce energy consumption. On the other hand, heritage houses provide a model of sustainable architecture, which is considered a treasure with its unique and beautiful characteristics [6] and these features and characteristics attract most of those involved in architecture, tourists, and those interested in this regard, whether they are from inside or outside Iraq, and there are many signs in this regard, especially regarding Al-Shanasheels and Mashrabiya [7].

“These buildings do not belong to us only… they belong to our forefathers and they will belong to our descendants unless we play them fals”[8].

2.3 Baghdadi heritage houses

Perhaps one of the most prominent and famous heritage buildings that had to be documented long ago because of its possession of distinguished architectural facades and successful engineering designs are the Baghdadi heritage houses, especially those that were owned by well-off people such as property owners, politicians, merchants, and others.

The old Baghdadi houses were familiar during the time of the Abbasid state in Baghdad (750-1258) and extended for a long period until it reached its best form in the thirties and forties of the last century. And after the establishment of the republican regime in Iraq in 1958, a large urban movement began to appear, represented in building houses that included gardens and a garage for cars, with relatively large areas, and new designs coming from the West, represented by the existing homes that abandoned the inner courtyard. Thus, these traditional houses disappeared, to be replaced by modern houses that lacked the thermal insulation and privacy that were present in the traditional houses [9].

The Baghdadi houses were and still provide comfortable housing, especially in hot climates, where most of the houses consisted of one or two floors and were built using mud bricks and wooden columns and previously roofed using sections of palm trunks, mats of reeds and mud armed with reed fibers. But later, the roofing was done using iron sections and bricks. An open courtyard (yard) from which you can see the sky and is surrounded by many rooms and the courtyard is lined with brushed bricks [10] as shown in fig. 1. There is a basement or what is known as the cellar, which they used to store materials as well as to sleep during the summer days because it is characterized by a mild climate in summer and winter.

![Fig. 1. The Baghdadi House includes an inner courtyard open to the sky.](image-url)
The most prominent characteristic of these houses is that they contain shanasheels or mashrabiya that were built for the rich because of the high cost, which is considered a masterpiece. They are balconies usually made of wood with inscriptions and decorations that highlight the facade of the second floor in an elegant architectural way and extend over the street or alley or inside the inner courtyard of the house. These shanasheels prevent direct sunlight from entering the house to reduce the heat inside the house, as well as to the alley through the shade it provides. Thus, it protects pedestrians from the hot summer sun and winter rains as shown in fig. 2. Wood is a lightweight material with high thermal insulation and can be easily engraved. It was customary to put pottery jars in it to cool the water through the air passing through it from the outside. Shanasheels or mashrabiya have spread in Iraq, the Levant, Egypt and some neighboring countries.

Their use in various buildings has proven to be very effective in achieving a comfortable and effective internal environment despite the extremely hot. External conditions. And it was possible through these shanasheels and mashrabiya to control the amount of light and air flow [11].

Fig. 2. Shanasheel in the heritage Baghdadi houses.

2.4 Risks that threaten heritage buildings

Mesopotamia witnessed, since ancient times, the presence of a number of ancient civilizations in the center and south of the region. The main construction unit used in it previously and now was the bricks made of clay, that do not have a great durability like rocks, and this is one of the reasons for the disappearance of a number of buildings of this civilization, unlike what exists in other civilizations such as the Greeks, Romans or the Egyptian civilization. On the other hand, these buildings are exposed to many risks and threats, such as misuse, as happens when the number of tourists increases to visit sites, poor maintenance, exposure to termites, humidity, fire and exposure to different environmental conditions [12]. Therefore, these buildings require good management that continuously monitors and performs the necessary maintenance work in a timely manner. Most of the heritage buildings in Iraq date back to the middle of the nineteenth century and the
beginning of the twentieth century. They usually do not exceed two floors in height, and today they have become old and damaged, and many of them have become unusable ruins and waste and garbage collection areas due to negligence or leaving the owners of these buildings for maintenance due to the high cost. As for what remains of these buildings, some of them are used by the poor classes of society for housing [13] and others are used as stores or small workshops. In general, these buildings are on their way to extinction soon because of the reasons shown below:

- The weakness of the durability of the building materials in these buildings to survive.
- Weakness in the interest in the process of reconstruction and maintenance, as it requires material and technical capabilities and materials commensurate with the nature of these buildings.
- Economic reasons that call for the owners of these buildings to remove them and replace them with modern, economically feasible buildings.
- The works of municipal projects and services and the expansion of some roads require the removal of some of these buildings in whole or in part.
- The works of building additions, modifications, or maintenance of these buildings, partially or completely, in an unstudied manner and not subject to technical standards and considerations, as they are heritage buildings.
- Exposure to natural disasters such as earthquakes, floods, etc.
- Exposure to armed conflicts, as happened in both Iraq and Syria, in terms of the destruction of buildings and cultural heritage sites by ISIS [14], [15].

The process of rehabilitation and maintenance of these buildings, especially the architectural and technical facades, which usually determine the importance of these buildings, requires great financial and technical capabilities for the required materials and skills, and calls for the intervention of government agencies as well as the owner and the rest of the other concerned authorities [16].

3. Documenting heritage buildings

3.1 Reasons call for documenting heritage buildings

Heritage places are considered a living part of any society, and separating society from its heritage has negative effects [17]. Documentation is a major and necessary step for understanding and appreciating the meanings and values of cultural heritage. The documentation process is a moral requirement. UNESCO’s selection of World Heritage Sites depends on the basis of their distinguished universal value. Interest in documenting buildings is usually due to the scarcity and uniqueness of these buildings [18]. The documentation process must include all the required images that show the details of the buildings, their architectural facades, and the construction method, with all the information fixed as much as possible. Also, if any plans or sections are available, they must be saved with the images in stored files with the dates mentioned. Three-dimensional shapes can be made to better illustrate the building features. The process of documenting heritage and old buildings is a required and necessary process in general, and it must be preceded by planning for all elements and providing all the required supplies and techniques that are involved in the documentation process [19]. This process must be accurate through the use of cameras and other devices, and this process is required even for buildings that do not suffer from extinction and disappearance, due to their importance and historical value in society and for fear of natural and geographical disasters in the region [20].
There are several reasons that call for speedy documentation of what remains of the heritage buildings in Iraq before they disappear from view, as shown below [3, 21]:
- For economic purposes, as the documentation process is usually used in the media to attract tourists.
- For political and social purposes represented in the nation’s past and its cultural identity.
- To conduct periodic monitoring and carry out the required maintenance process to keep these buildings for the largest possible period of time.
- To obtain the accurate and required information that determines the sustainable and appropriate use of these buildings.
- To conduct a feasibility study on keeping or removing buildings that is nearing the end of their construction life.
- Transferring pictures and scenes of these dilapidated buildings to future generations to enhance understanding and awareness of heritage buildings and to enhance knowledge of the behavior and culture of ancestors.
- Benefit from the characteristics of the art and the engineering and architectural flair of these buildings in the academic education of those concerned.
- Documenting heritage buildings should be considered a priority before any repair, alteration, or other intervention, or when considering total or partial demolition, destruction, or abandonment, or when the heritage is at risk of damage from human or natural external forces.

3.2 The importance of photography in documentation

Housing has been linked in the distant past with art since ancient times, as cave dwellers thousands of years ago left drawings documenting the nature of life and the process of hunting animals on the walls and ceilings of these caves, which still exist to this day [22]. Buildings and the architecture of facades were also associated with the beginning of photography at the end of the nineteenth century, as images were documented and preserved throughout history for the purposes of design, transfer, understanding and realization of ideas until the beginning of the twenty-first century when digital methods developed. At the beginning of photography, architecture was one of the main successful subjects for photography, as the images of buildings and architectural features were clear because the buildings remained stationary during long exposures so photography has shown the fine details of architectural art and more than any other means, and save the trouble of going and presence in the place [23].

Photography has developed through digital photography instead of using film, and other methods and devices have recently appeared that use lasers and others in measuring, photographing and digital scanning to represent buildings in three dimensions. However, photography still plays a major role in the documentation process until now. An example of this has been the documentation of buildings that witnessed a great change in the United Arab Emirates in the last hundred years [24]. It is also possible to carry out the process of photographing and documenting buildings, as well as collecting images to form a three-dimensional shape through digital cameras and through mobile phones, effectively, and some software and applications can be used for that. Despite the simplicity of photography, it is preferable to use people with experience in selecting cameras and lenses and using applications to document all construction details of materials, art, construction method, highlighting its historical and cultural importance, and keeping that with mentioning the date and all the required information and details.
3.3 Documentation of Al-Bataween area

Al-Bataween area is located near Baghdad city center as shown in fig. 3. In the nineteenth century, it was an agricultural area close to the Tigris River. At the end of the nineteenth century and the beginning of the twentieth century, it was divided in an organized manner into residential areas and streets, and services were delivered to it. There were also some families of Christians and Muslims.

Fig. 3. Al-Bataween area.

After the events of 1948, when the Jews began to emigrate out of Iraq, the rest of the families began to own and occupy the houses previously inhabited by Jewish families. Such area used to have the most beautiful facades and engineering designs in Baghdad that carries many artistic features and may not be present in this size and organization in other places that had to be documented previously, but most of them are now ruins and uninhabitable. The remaining houses are now inhabited by poor families from Iraq, as well as refugees from Sudan, Syria and Egypt, and the area has become dangerous and infested with drugs, gangs, beggars, and so on and many houses have become a place for landfills and debris as shown in fig. 4.
A number of the remaining heritage houses have been photographed to show their artistic features and the shanasheels built of bricks engraved with decorations and wooden windows as shown in fig. 5.

The photos were taken with a small camera (Sony H55) so as not to attract attention in this insecure area in two stages, the first time was in October 2016 and the second time was in June 2022 to compare the two cases and found that a number of these buildings have disappeared as shown in fig. 6.

Now the Municipality of Baghdad does not allow construction, restoration or sale operations, as it is considered a heritage area.

There have been studies to rehabilitate the area and invest it in tourism, but there are several obstacles that prevent this, the most important of which is the inability to obtain the materials, skills and technical expertise necessary for that [25].
4 Methods (Questionnaire)

In order to find out the reasons for the lack of interest in documenting heritage buildings and houses in Iraq, a five likert scale questionnaire was conducted to find out these reasons. The intention was to take the opinion of a number of the residents of the Al-Bataween heritage area in this regard, and they are of course poor and beggars, but when photographing the buildings there, the residents of the area objected to the issue of caring for this area, and they wanted to build new buildings suitable for housing in the sites of these old heritage buildings, which have become ruins and their walls are eroded by moisture and termites.

Therefore, the sample was selected from those interested and experts, especially members of the faculty of colleges and universities concerned with this subject, where 78 questionnaires containing a number of questions were distributed, and 72 of them were analyzed according to the SPSS 14.0 program.

Sample analysis according to age, experience and academic achievement are shown in fig. 7, 8 and 9 respectively.

Statistical results for 12 questions are shown in Table. 1 in which Mean (M), Standard Deviation (S.D), Relative Importance index (RII), were used in data analyzing. The results are arranged in descending order according to their rank.

![Fig. 7. Ages of the sample.](image1)

![Fig. 8. Experience of the sample.](image2)
Fig. 9. Academic achievement of the sample.

Table.1. Presents Statistics information: Mean (M), Standard Deviation (S.D), Relative Importance index (RII), were used in data analyzing.

<table>
<thead>
<tr>
<th>Rank</th>
<th>Questionnaire questions</th>
<th>Mean</th>
<th>S.D.</th>
<th>RII</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>It is essential to focus on documenting heritage structures as part of preserving and</td>
<td>4.231</td>
<td>0.788</td>
<td>0.865</td>
</tr>
<tr>
<td></td>
<td>studying the historical identity to leverage past knowledge and expertise</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>There is a pressing requirement to document heritage residences because of their swift</td>
<td>4.108</td>
<td>0.802</td>
<td>0.831</td>
</tr>
<tr>
<td></td>
<td>decline in interest and preservation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>absence of documentation can be attributed to the disinterest of government entities</td>
<td>4.051</td>
<td>0.830</td>
<td>0.810</td>
</tr>
<tr>
<td></td>
<td>in the matter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>The government’s failure to document is a result of the lack of enthusiasm among</td>
<td>3.982</td>
<td>0.861</td>
<td>0.794</td>
</tr>
<tr>
<td></td>
<td>officials and decision-makers for the task</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>lack of documentation is due to the lack of interest of those concerned and interested</td>
<td>3.869</td>
<td>0.874</td>
<td>0.783</td>
</tr>
<tr>
<td></td>
<td>in these heritage buildings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>lack of documentation by those concerned and interested is due to the absence of</td>
<td>3.815</td>
<td>0.893</td>
<td>0.764</td>
</tr>
<tr>
<td></td>
<td>support and incentives</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>the documentation should have been carried out a while ago and before the features of</td>
<td>3.729</td>
<td>0.974</td>
<td>0.742</td>
</tr>
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<td></td>
<td>the heritage buildings were damaged</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>lack of documentation may be due to the poor people's lack of interest in such buildings</td>
<td>3.680</td>
<td>0.981</td>
<td>0.736</td>
</tr>
<tr>
<td>9</td>
<td>political and economic conditions and the wars that passed through the country</td>
<td>3.401</td>
<td>1.007</td>
<td>0.708</td>
</tr>
<tr>
<td></td>
<td>weakened the interest of the poor in society in documenting such buildings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>failure to document is due to the lack of technicians and specialists in this field</td>
<td>3.146</td>
<td>1.102</td>
<td>0.684</td>
</tr>
<tr>
<td>11</td>
<td>there is a need for awareness and education on the importance of documenting heritage</td>
<td>3.086</td>
<td>1.183</td>
<td>0.658</td>
</tr>
<tr>
<td></td>
<td>buildings</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>there is a necessary need to provide technicians, experts, supplies and equipment to</td>
<td>2.972</td>
<td>1.203</td>
<td>0.639</td>
</tr>
<tr>
<td></td>
<td>document these buildings</td>
<td></td>
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</table>
5 Discussion and Conclusions

Through the results of the questionnaire, it is clear that there is a clear lack of interest in documenting heritage buildings, and that they should have been documented previously before the state they have reached now. In general, the documentation process for the remaining of these buildings should be carried out as quickly as possible before their final demise. It was found that the reason for the lack of interest in documenting these buildings is mainly due to:

- The government side, due to the lack of interest of officials and decision-makers in all previous and current periods of government in general.
- Those concerned and interested in documenting heritage buildings, as there is a clear lack of documentation due to lack of support and lack of incentives.
- Lack of interest on the part of the poor segment of society, which is a wide segment and is expanding day by day, and this is a result of the effects of the political and economic conditions and the wars that the country went through/
- It was also found that there is a lack of techniques required for documentation as well as experts and specialists who carry out documentation work. This result from the absence of awareness, culture and curricula required to attract these experiences and skills. These results are cleared as shown in fig. 10.

Fig. 10. Reasons for lack of documentation of old Baghdadi heritage buildings and houses.

There is an urgent need to develop awareness and culture and develop school curricula to enhance links with cultural heritage, especially heritage buildings, preserve national identity, and understand and realize the values, morals, style and personality of the society of the ancestors, especially at a time when these features and values began to be absent and these buildings, which are the summary of achievements that lasted for long periods of time, began to disappear to be replaced by extraneous ideas, culture and lifestyle that do not fit with our community.

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Conflict of interest
“The authors declare that there are no conflicts of interest regarding the publication of this manuscript”.

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