

Reviving the Traditional House Architecture in Irbid City, Jordan

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ABSTRACT

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This study highlights the importance of reviving the traditional houses architecture in Irbid city, Jordan. Every region has its architectural character, which is often influenced by the local context (the natural and cultural environments), particularly in Irbid city, which contains many traditional houses constructed hundreds of years ago. Between 1930 and 1960, most of these houses had been demolished and replaced with new constructions. The objective of this study was, thus, to propose plans and actions for reviving the traditional house as a cultural heritage. This paper presents a review of relevant literature, emphasizing the preservation concept and the heritage types; then, it briefs the history of Irbid city and highlights its population growth and urban composition. A field survey was conducted in the city. Based on it, four houses were selected to represent the different types of heritage houses, with emphasis on their design, building components, the technology used in their construction, the building materials, handling of the openings (arches), the ornaments of the buildings, and the urban form and its relationship with sustainability. The discussion in this paper summarizes the lessons learned from applying low technology in house construction and using natural building materials that can be recycled to achieve the sustainability of architecture. In addition, the discussion points out the challenges faced in the preservation of heritage. Afterward, the researchers suggest plans and actions that contribute to preserving this city's identity and heritage and conserving its heritage sites for future generations.

1. INTRODUCTION

Usually, the local context, i.e., the natural and cultural environments, influences building design. This study presents an overview of the traditional house architecture in Irbid city, Jordan, and highlights the roles of the Jordanian Department

of Antiquities (JDA) and Jordan Green Building Council [1] in preserving heritage. The study also presents examples of heritage preservation from other Arab countries. After that, the study gives recommendations to improve architectural heritage preservation and enhance the sustainability of architecture.

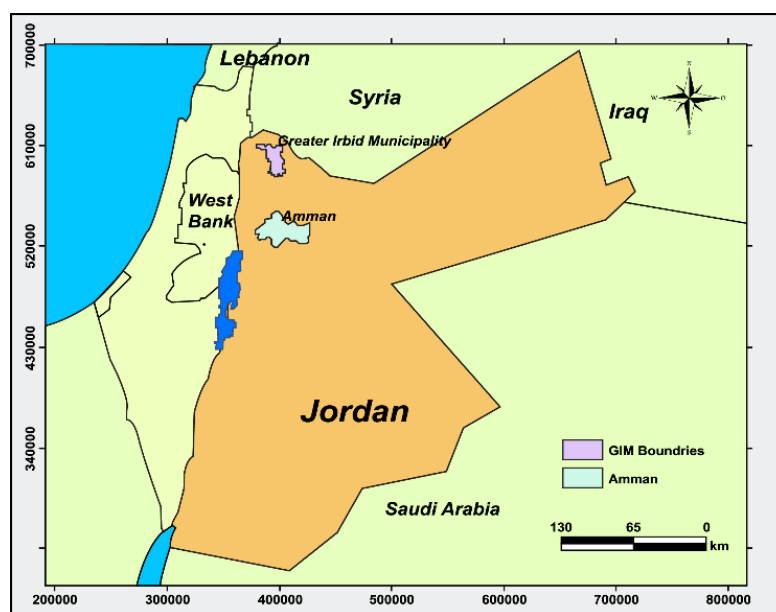


Figure 1. Map of Jordan [2]

The Hashemite Kingdom of Jordan lies in the Middle East region. It is located south of Syria, west of Iraq, and northwest Saudi Arabia (Figure 1). The country rests on a plateau with an altitude of 700–1,200 m above sea level. It is divided into ridges by valleys and gorges, with mountain areas west of this plateau, descending from the Jordan Rift Valley, Jordan valley, and the Gulf of Aqaba in the Red Sea [2].

Jordan has two characteristic climatic regimes, the Mediterranean climate regime, and the arid climate regime. The Mediterranean climate prevails in the northern and western parts of the country, while the arid climate prevails in the remaining parts of the country. In general, the weather is dry in summer and wet in winter. Snow falls intermittently during winter on most mountains and highlands in the north, center, and south of the Kingdom. Sometimes, it is heavy and may accumulate for hours to days.

2. METHODOLOGY

In this study, the researchers first reviewed the literature to identify the preservation concepts and heritage types and determine the role of the Ministry of Tourism and Antiquities in preserving the architectural heritage. The review was also intended to develop insight into architectural heritage preservation projects in other Arab countries. The architectural heritage of Irbid includes public buildings, courts, guesthouses (Madafah), public squares, and residential buildings. The researchers then conducted a field survey of the architectural heritage in this city. During the survey, the researchers analyzed the designs, spatial organizations, and construction systems of the various architectural buildings in the city. Then, and based on this survey, they selected four houses for this study: Dar-Alsaraya, Beit Arar, Al-Beit Al-Nabulsi, and Beit Al-Shrairie.

This paper also highlights the problems concomitant with the architectural heritage preservation process and efforts and

the challenges these efforts face. It also takes advantage of the lessons learned from the preservation of the traditional houses as a cultural heritage, with particular attention paid to the lessons learned from the application of low technology in house construction and the use of natural building materials that can be recycled to achieve sustainability of architecture. Because of the field survey and analysis and the learned lessons, the researchers propose plans and design ideas to preserve the identity of the city of Irbid and conserve the architectural heritage houses in this city for future generations.

3. PRESERVATION CONCEPT

Heritage is the remarkable record of culture and civilization that merits preservation from destruction. The basis of the preservation concept is conservation of both the built and cultural heritage and development of the look of the place in terms of surrounding nature, identity, and access to new economic sources that support the social capital of the heritage site and improve the tourism opportunities. In the Second International Congress of Architects and Technicians of Historical Monuments, organized by the International Council of Monuments, the Venice Charter articulated that "preservation aims to protect the heritage, which acts as a bridge between generations and the past" [3]. In addition, the United Nations Educational, Scientific, and Cultural Organization defined heritage benefits as cultural values found in contemporary human life and conveyed to the next generation [4].

In other respects, in 1972, the World Heritage Convention identified two categories of heritage. The first is the 'cultural heritage,' which concerns tangible items, such as memorial buildings. The second category is 'natural heritage,' which includes outstanding physical, biological, geographical, and biodiversity features in areas of significant aesthetic value [3], as illustrated in Figure 2.

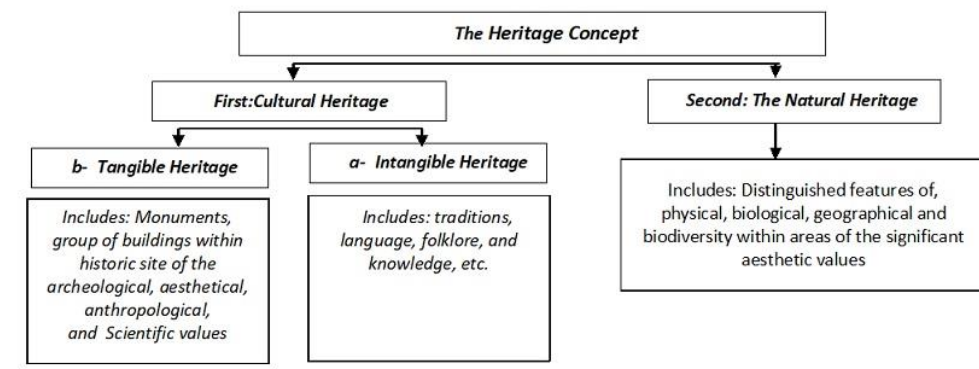


Figure 2. The heritage concept

4. HERITAGE TYPES

Heritage preservation refers to the process of protection of heritage from damage. Heritage can take several forms like buildings, sites, natural environment, agriculture, and crafts, including documents, books, and pictures. Furthermore, cultural heritage related to living is found in developed societies. The traditions and places with aesthetic value are expressed in intangible and tangible forms [3]. Entertainment and preservation have been implemented with a sense of privacy, identity, and continuity, which explains why human

communities of individuals and founders care much about preserving their buildings and intangible and tangible heritage.

5. PRESERVATION PROJECTS IN OTHER ARAB COUNTRIES

5.1 Khan Al Saboun (Saida Soap Museum (Auda Museum))

Khan Al Saboun (Saida Soap Museum) is located in Sidon

city, south of Lebanon. The Soap Museum, also commonly known as Auda Museum, is famous for its characteristic building and soap industry. It was an old soap factory built during the seventeenth century. The museum displays the stages of soap making and some art crafts found during excavation on site. The factory building consists of bearing walls and groined vaults that reflect the standard traditional construction systems in that era [5], as illustrated in Figure 3.



Figure 3. Internal view of Saida Soap Museum

5.2 Damascus Historical Museum (Al-Bayt Al-Shami)

Damascus Historical Museum, also known as Al-Bayt Al-Shami, is located in the Saroja Market. It is a preservation of the old city of Damascus, formerly owned by Khaled Bek Al-Adm, a former president of Syria. It contains a rich collection of colorful decorations and stones assembled in water fountains. It dates back to about 200 years ago. In 1969, it was annexed to the General Directorate of Antiquities and Museums. During the period 1970-1980, it was restored as a museum of the old city of Damascus to preserve the city's historical identity and present it as an example of the old Damascene house with its distinctive style and decorations. This museum has an area of 3,136 m². It consists of six rooms, a kitchen, and a bathroom and contains skylights, fountains, stalactites, and a floor paved with dark basalt integrated with pink stones. Furthermore, it has a large Iwan overlooking the house courtyard [6] (Figure 4).



Figure 4. Al-Bayt Al-Shami: The courtyard [6]

5.3 Anbar office

Anbar Office is one of the models of ancient Damascene houses. It is closed from the outside and open to the interior. It dates back to the beginning of the twentieth century and has an area of 5,000 m². This office has a section that dates back to Baroque art in the mid-nineteenth century. Anbar is the name of the family of the original owner of the office, Youssef Anabar. However, this office was confiscated from him by the Ottoman authorities. It served as the royal office until 1921. In 1940, it was converted into a high school and, later, into a feminist art school. It was restored in 1974 and opened in 1988 as the palace of culture and the Old Directorate of Damascus headquarters (Figure 5).



Figure 5. Anbar house [7]

6. HISTORY OF IRBID CITY

The excavations in Irbid indicate a historical and agricultural settlement in ancient times inhabited by humans since the first Bronze Age, 2500 BC, through the Iron Ages, and the Greece, Roman, Byzantine, Islamic, and Ottoman eras. Until 1884, Irbid was a small village of 130 houses and 700 inhabitants. At the beginning of the twentieth century, and under the British mandate, it became an administrative center for the northwest of Jordan. Until 1948, Irbid was an essential commercial station after Haifa city in Palestine. Many immigrants came from Damascus and the West Bank of Jordan. By 2019, Irbid became an important commercial center. Having a population of 650,000 capita, it ranked as the third-largest city in Jordan after Amman and Zarqa in terms of population [8].

7. LOCATION AND IMPORTANCE OF IRBID CITY

Irbid is part Horan Valley. It lies within the Yarmouk River basin in the north of Jordan and southwest of Syria. The city derives importance from the fact that Greek, Roman, and Islamic civilizations settled and left historical and archaeological sites behind them. It was an important communication hub and a gateway to Egypt, Hijaz, and Palestine, especially when Irbid was administratively linked with Damascus. It had a positive impact on the cultural and scientific movement as well. It also contains several Islamic buildings, such as Dar Al-Saraya, converted into a museum [8].

Irbid is ranked as the second Jordanian city in importance after Amman, the capital of Jordan, in terms of population, economic activities, and educational activity. It lies to the northwest of the Kingdom of Jordan, almost 85 km to the north of Amman. In 1922, it had a population of 3,500 per capita. However, the population of Irbid and its suburbs and adjacent areas is 1,000,000 per capita. The noticeable increase in the population of Irbid is due to the secure access to water from Ain Rajoub in 1932 and the establishment of the Yarmouk University and Jordan University of Science and Technology. The area of Irbid City was 28 km², and it is currently 410 km², constituting 25% of the area of the Governorate of Irbid.

8. POPULATION AND URBAN GROWTH OF IRBID CITY

8.1 Population growth

Irbid City's population increased, mainly due to water availability from the Spring of Rahoub and, after 1932, from the Blue Spring. Additionally, the population increased due to the arrival of Palestinian refugees to this city in 1948 and 1967. Another reason for the high increase in the population of Irbid

is the annexation of Al-Bareha village to Irbid, peasants' migration to the city, and establishment of Yarmouk University in 1976, and Jordan University of Science and Technology in 1986 [9]. The increase in the city's population was also affected by somewhat recent fluxes of refugees to the country as a result of the Gulf War and the internal Syrian war. While this city had a population of 206,000 capita in 1991, it had a population of 650,000 capita in 2005, thus making it the third-largest city in Jordan in terms of population. Table 1, Figure 6, and Figure 7 demonstrate the rapid urban growth in Irbid City from 1924 to 2017. It can be seen in Table 1 that whereas the urban area expanded by only 0.87 km² during the period 1924-1953, it expanded by 37.25 km² between 2000 and 2017 [10, 11].

Table 1. Urban growth in Irbid City from 1924 to 2017 [10]

#	Year	Expansion in Urban Area – (km ²)
1	1924 - 1953	0.87
2	1953 - 1970	18.96
3	1970 - 1985	30.66
4	1985 - 2000	35.28
5	2000 - 2017	37.25
	Total Area	123.0

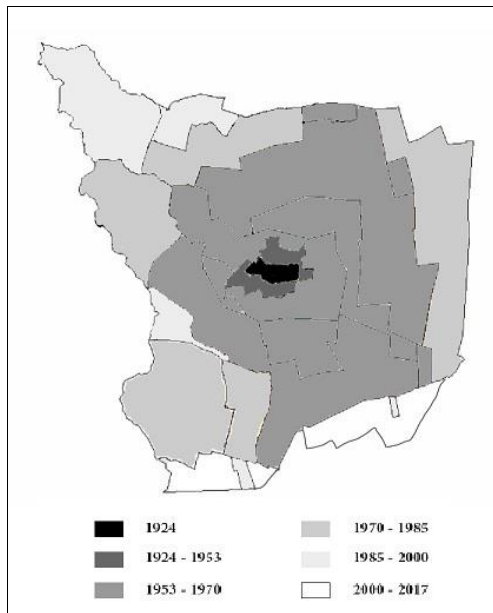


Figure 6. Urban growth in Irbid City during the period 1924-2017 [11]



Figure 7. Urban growth in Irbid City [12]

8.2 The urban composition of Irbid City

In general, the architectural character of the houses in Irbid City is represented by houses consisting of one floor or two floors built of stone and wall surfaces having more expansive areas than the openings, which are commonly surrounded by

ornaments and buildings and topped by pitched roofs covered with red tiles. The pointed arches and the ornaments characterize the openings and windows. Despite differences and variations in form and size between houses, they look consistent and give the city a distinctive architectural character (Figures 8 a and b). Furthermore, the city appears homogenous in its general urban composition. The texture is integrated with the context of the landscape and the surroundings. The houses group stacked populations individually or contiguously in a gradient that is consistent with the site's topography and slopes and interspersed with roads and corridors.

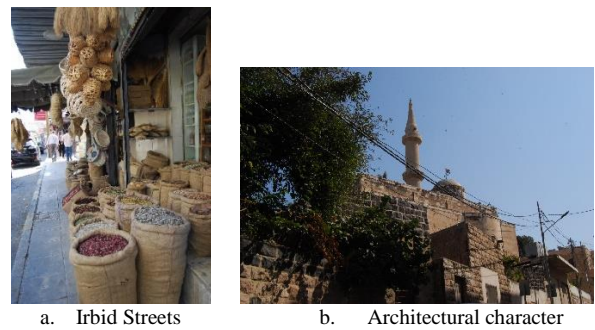


Figure 8. The streets and architectural character

8.3 The Role of the Ministry of Tourism and Antiquities in restoration of heritage houses

The Ministry of Tourism and Antiquities amended and enacted the Law on the Protection of Urban and Urban Heritage No. (5) of 2005 through the definition of construction and heritage sites. This ministry activated the Heritage Protection Fund. The Tourism and Antiquities Department of the Ministry of Tourism has acquired many Ottoman-era archaeological houses and Shami-style houses. Some of those houses have been preserved and reused as museums.

Irbid city contains several traditional houses. Those houses are constructed above the ground level, and they often consist of one floor or two floors. In general, their designs are similar to the design of the Damascene House in Syria and Palestine; the house elements are open to the central open court, which has a water fountain in rectangle, U, or L shape. (Figures 9. a, b, c, and d) display the different traditional house plans in Irbid City [11]. The four examples selected for the study represent the different types of house designs.

Table 2 describes the four heritage house examples selected by the researchers for this study. The construction system of the house consists of stone-bearing walls and groined vaults. The walls from outside contain cornices as ornaments to emphasize the importance of the wall.

The historical records of houses in Irbid reveal the construction methods and style, where the houses are organized in one line or two lines and narrow passages. The house rooms are generally located in a row, and they open to an open court, in which there is a room of water well and more than one. Usually, the rooms are oriented to the west, containing small openings for lighting. The building materials consist of stone and clay; the walls are built of black stones, and regularly-hammered white stones are cemented with mud as the bonding material. The ceilings use oak and bamboo wood, and arches top the doors and windows [8]. The internal surfaces of the house walls are covered with a flat layer of clay

to protect the walls from the summer heat and winter cold. The builders of these houses came from Palestine and the Mount of Lebanon. This house style prevailed until the late 1920s.

8.3.1 Dar Al-Saraya

Dar Al-Saraya lies at the south-eastern end of Irbid Hill (Tel Irbid). It is considered one of the most prominent heritage buildings in this city. *Saraya* is a Persian word that means the king's court. It was constructed by the Turkish engineer Sinan Pasha in 1851 to be the seat of the Ottoman administrative ruler. Later, this building was used as a police center and prison before restoring and repairing it. Lately, it has been

used by the Department of Public Antiquities (DPA) as a museum of the city of Irbid. The building does not have a specific architectural model and does not relate to a single construction period [13].

The building has a rectangular shape consisting of two floors, and it has two entrances, a northern entrance, and a south-eastern entrance. Furthermore, it has a stone inscription of verses in Arabic dating back to 1304 H. Figures 10 a and b. present different outside views of Dar Al-Saraya Museum, whereas Figure c. displays the interior of the building and the elements of the construction.

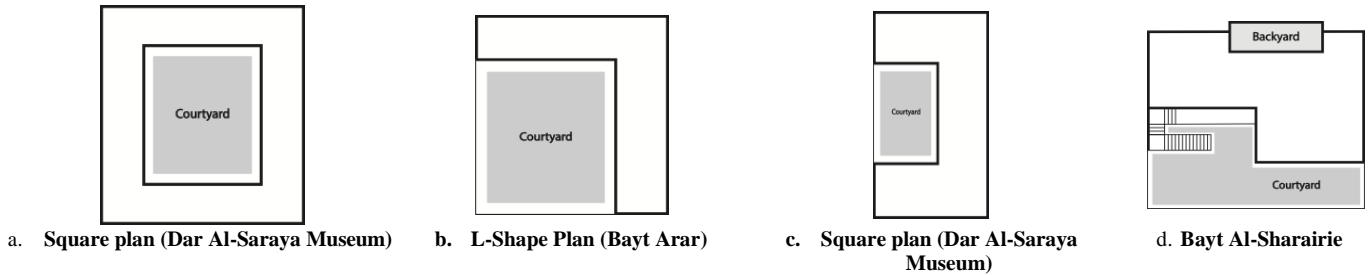


Figure 9. Different types of traditional house plans in Irbid City

Table 2. Selected examples of traditional houses in Irbid City [8, 13]

House Name	Location	Date of Construction	Architectural Style	Building History and the Present Use
a Dar Al-Saraya Museum	Behind the Town Hall	1886	It is typical of the caravanserai established along the Syrian pilgrimage route.	- 1886 - Used as a prison until 1994
b Bayt Arar	Located off Al Hashemi Street	1890	Old Damascene-style house	- After the Great Arab Revolution, British political advisor, Major F.R. Somerset, occupied the house - Used as hospital and clinic - 1930 Arar family return - 1944-1950 Elementary school - Occupied by British Advisor Summer Smith - 1989 Used as a Cultural Center
c Albayt Al-Nabulsie	Near Irbid Hill area (Tel Irbid)	1920	Old Damascene-style house	- 1965 Turned into girl's school - At present, preserved by Irbid Governorate
d Bayt Al-Sharairi,	Near the Town Hall	1908	Old Damascene-style house	-1908 - The family lived in the house until 1985 - The building was unoccupied until 1992 - Used as a workshop until 2000 - A decision was taken to use the building as a museum for the 40 most famous political figures in Irbid City



a- The front elevation and main entrance



b- The triple arches



c- The groined vaults

Figure 10. Dar Al-Saraya Museum: The facades and construction system

In 1994, the Department of Antiquities rehabilitated this building to become a museum. This process divided the rooms into halls with a unique name assigned to each room to indicate the corresponding construction, or historical, time as follows: Irbid Hall, Antiquity Hall, Mining Hall, Classical Period Hall, Sculpture Hall, and the Islamic Period Hall. This museum also contains mosaics and pottery pots [14].

8.3.2 Bayt Arar

The Arar family constructed bayt Arar in 1890. Later, it was occupied by British Advisors. In 1930, it was used as a hospital. This building, located in Tel Irbid in the southwest part of this city, is a small house that consists of three adjacent rooms. The upper floor of the rooms is built of stone and clay, while its exterior is constructed from black stone, and its roof is made from clay supported by metal bridges. Only one room was left and used by a craftsman [15]. The main entrance, the courtyard, wooden ceiling, and window types of this house are shown in (Figure 11. a, b, c, d, and e) respectively.

The house was passed on to different residents and was later given by the sisters of the late poet Mostafa Wahbi Al-Tal as a gift to the Jordanian Ministry of Culture to preserve the house and reuse it as a cultural center. However, the Al-Tal family retrieved this house and returned to it in 1930. After that, they moved the poet's remains and buried them in the

Iwan of the house.

8.3.3 Albayt Al-Nabulsi

Albayt Al-Nabulsi is located in the oldest area in Irbid (Tel Irbid). The Al-Nabulsi family built it after they left Palestine in 1920 and was used as a school for girls in 1965. The design of the house followed the Shami style. It was constructed from carved stone with stained glass on the exterior facades. Its interior windows, decorated with lemon trees, overlook the open courtyard. This building has four entrances; three from the east side and one from the south side. A staircase separates the two-story building to form a separate house [11] (Figure 12 a, b, and c) show the exterior façade, the inner courtyard, and the colored glass windows. Lately, the Municipality of Irbid took charge of this house, and the Ministry of Tourism rehabilitated it and the adjacent land. Recently, it has been converted into a public park funded by the Ministry of Tourism.

8.3.4 Bayt Al-Sharairi

Bayt Al-Sharairi is located east of the Hill of Irbid (Tel Irbid). It was constructed in 1908 and was the seat of the Arab Government of Honor. Initially, it was the property of Colonel Khalki Al-Sharairi, who used to be one of the historical figures of Irbid.



Figure 11. Bayt Arar



Figure 12. Albayt Al-Nabulsi

Al-Sharairi family lived in the house until 1985. It was then abandoned till 1992 and used as a workshop in 2000. Later that, it was used as a museum for the 40 most famous political figures in Irbid [13] (Figure 13 a and b) portray the exterior of this house after being renovated by manipulating its space and using glass decoration.

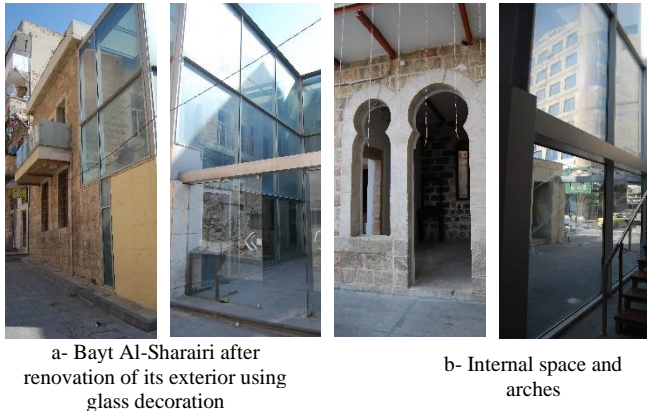


Figure 13. Bayt Al-Sharairi

9. SPATIAL ORGANIZATION AND THE CONSTRUCTION SYSTEMS AND MATERIALS OF THE TRADITIONAL HOUSE

9.1 Spatial organization of the traditional house

The traditional house commonly consists of one floor or two floors, and it is usually entered from its main gate, which leads to the central courtyard surrounded by the house spaces. The courtyard provides privacy for the house and continuous cross ventilation. The Iwan overlooks the courtyard and is used for visitors while providing privacy for the house residents. On the other hand, the upper floor includes bedrooms and family living rooms.

9.2 Construction system and building materials

The construction systems of the traditional houses used to use low technology and stone or clay as the bearing wall material. The ceilings usually consist of flat wooden roofs. All building materials are natural materials with zero carbon emission and can be recycled and reused. A flat layer of clay covers the internal surfaces of the house walls to protect them from the heat in summer and cold in winter.

9.3 Openings and ornaments

The triple-pointed arches characterize the house facade. They provide natural light and cross ventilation.

9.4 Urban composition of the Old City

The urban composition of the old city consists of narrow paths and commercial areas that are separated from the residential areas to provide privacy for the residents [16].

10. TRADITIONAL HOUSE AND SUSTAINABILITY

The concept of sustainable design and green construction is

still evolving in Jordan. The development of further understanding of the aspects of sustainability will be anticipated to raise the value of traditional architecture. Moreover, an understanding of the aspects of sustainability in the traditional architecture, spatial organization, construction systems, building materials, opening treatments, ornaments, and urban form and their relationship with the environment and sustainability will raise the value of the traditional architecture. Since 2009, the date of the foundation of Jordan Green Building Council, the green building concepts gained impetus for improving the opportunity to create sustainable and more energy-efficient spaces through many aspects of sustainable design. The goal of the green building concept is to raise awareness about sustainability and preserve the traditional architecture and protect the environment [1].

The present study included four carefully-selected heritage houses to serve as example case studies based on analysis of their designs, components, and building materials. In effect, the local, natural, and cultural contexts have influenced the design of the traditional house. These houses often open internally toward the courtyard to provide privacy for the house residents. The Iwan is used for visitors, and it provides additional spaces for family activities.

The design and plan analysis results in this study uncover that the traditional houses in Irbid City followed the principles of sustainable architecture because the used building materials produce almost zero carbon emission, and the courtyard and openings allow for natural lighting and cross ventilation, which results in energy saving. In addition to this, the traditional houses follow the principles of sustainable architecture because:

- The house elements and their organization fulfil socio-economic and cultural needs.
- The inner courtyard provides privacy and crosses ventilation.
- The house's construction materials mainly comprise stone, clay, and wood, which result in zero-carbon emission and can be recycled.
- The opening treatments allow for privacy, cross ventilation, and adequate natural lighting.
- The use of stone in the construction of the walls protects against temperature extremes.

The Islamic context influenced the house design and architectural elements in such a way as to provide harmony with the local environment and culture, conserve energy, allow for recycling of the building materials, and reduce the environmental hazards. The construction process used low-technology and natural building materials; stone or clay.

The builders came from Palestine and the Mount of Lebanon. This house style remained in use until the late 1920s (Ammon News, 2010). Moreover, local interest in sustainable architecture in Jordan has grown, driven by the establishment of the Jordan Green Building Council and the applications of Green Building Criteria [1].

11. DISCUSSION

The population of Irbid City has significantly increased, affected by fluxes of refugees to Jordan from neighboring countries, particularly during the years 1948, 1967, and 1991, and have negative bearings on the built environment of this city and its heritage sites and buildings. The Department of

Tourism and Antiquities made special efforts to preserve the heritage sites such as Dar Al-Saraya, which has been preserved and is presently functioning as a historical museum. Though, in the case of some of the other preservation projects, for example, Bayt Al-Sharairie, the project objectives were not fulfilled, primarily because of the lack of pre-plans for preservation. In consequence, such houses are still facing problems. For instance, some heritage houses in Irbid suffer from neglect, and many houses of archaeological nature are closed. The majority of the residents of Irbid do not know anything about them. Their sites are unknown to the residents and even to the traffic police. Albeit the city has produced many Jordanian intellectuals and writers, the city is absent from the cultural scene in Jordan.

The Department of Tourism and Antiquities acquired many archaeological houses built in the Ottoman era, followed the Shami style, and turned them into museums and seats for cultural forums. However, these actions are not enough because the qualified heritage buildings suffer from a scarcity of cultural and tourist activities. The interest of the Municipality of Irbid and the Ministry of Tourism in these sites is shallow. Maintenance, repair, and development works stopped in these sites due to funding.

Despite the promises of the Municipality of Irbid and the competent authorities to restore the abandoned heritage houses in the city, nothing has been achieved on the ground, and the promises remain unfulfilled. Moreover, many abandoned heritage houses are unhealthy. They affect the surrounding environment and constitute a source of risk to the citizens, especially the children and women, and citizens complained about the disposal of domestic garbage and commercial wastes in these houses and asked for the removal of these houses. It is worth highlighting that many heritage houses are located across the tourist routes that the Ministry of Tourism hopes to activate. In its extended effort to restore the heritage houses, the Department of Tourism and Antiquities finalized a study for the development of Irbid City center. The study disclosed that while there are 30 buildings with historical importance and value in the city, only two or three were preserved [17].

12. CONCLUSION

Irbid city contains hundreds of historic buildings and sites. From 1930 to 1960, the rapid urban growth caused by population growth and immigration to the city led to the destruction of most of these buildings and their replacement with new constructions. Lately, the Jordanian Department of Antiquities has tried to preserve the remaining heritage buildings by reusing them as cultural heritage (museums). However, most of these buildings are still ignored and not preserved according to the conservation standards due to the lack of the required funds and plans and people's limited awareness of the city's heritage.

Preservation of cultural heritage is critical for the conservation of the city's identity, documenting critical historical eras in Jordan and conveying them to the next generations. Moreover, the revival of the historical buildings and sites can contribute to promoting tourism in Jordan.

In other respects, there are lessons to be learned from studying the traditional houses in Irbid City that followed the principles of sustainable architecture. One of these lessons is that the local interest in sustainable architecture in Jordan has increased since establishing the Jordan Green Building

Council in 2009. Furthermore, historical and heritage buildings reflect Jordan's critical historical eras and are considered a national heritage to be preserved.

Proposed plan for enhancing the preservation of the historical and heritage buildings

Activate and apply the Urban Heritage Protection Act No. 5 of 2005 through the clear-cut definition of construction and heritage site and increase the heritage protection fund.

Enhance building capacity to protect urban heritage in all provinces of the Kingdom.

Benefit from the experience of Amman and other Arab cities in the preservation of the urban and cultural heritage.

Change the land use plan for the heritage houses and change the functions of these houses to allow the private sector to market traditional crafts and textiles and run museums, cafes, and restaurants in these historical buildings.

Raise interest of the Municipality of Irbid, the Ministry of Tourism, and the Department of Antiquities in heritage houses and their restoration and maintenance and provide the necessary funding.

Communicate with the house owners and discuss whether to renovate their houses or demolish them and coordinate efforts with the municipality in this regard.

Encourage tourism by preparing a map showing cultural stations and public transport buses connecting houses.

Introduce new sites as a tourism product for tourist groups.

Encourage domestic tourism by encouraging the local people to visit new sites in Jordan, especially those suitable for families and the school and university students.

Raise tourism awareness and improve the ability of the tourism agencies and entities to deliver their tourism products and services.

Introduce ecotourism to the Jordanian citizens and create a more direct approach to new environmentally friendly internal tourism patterns.

Provide sustainable tourism models along the tracks (e.g., home rehabilitation - community rehabilitation - product marketing).

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