INTRODUCTION

The heritage this notion constitutes a real potential of the development, it is a means to fulfill a number of the artistic, aesthetic needs, and it is therefore a source of several values of existence. Heritage is a testimony to history and to being a landmark in time and space; it is a source of inspiration for architecture and urban planning (Hanafi et al., 2021). The heritage remains a common and ethical notion that has moved from individual value to collective value, from sectoral to global (Hammoudi, 2014). Cultural heritage is divided into two main chapters: tangible and intangible. It is an evolving resource that supports identity, memory, and a sense of belonging (Jong, s. 2018)[1].

This heritage is necessary to adapt and deal with this hostile environment even in its spatial and social dimensions (Cheikha, H. Zmerili, N. 2018 - 2019). Heritage enables social cohesion, enhances social well-being, improves the attractiveness and creativity of regions, and promotes socio-economic regeneration and poverty reduction. It increases the long-term benefits of tourism. We must take up the challenge of conserving this fragile and non-renewable resource for present and future generations.

In this paper, we will study the tangible heritage built. The urban or architectural heritage, constitutes the memory of a city, in other words a testimony of its landscape character, as the overall landscape reveals the typical image of a city (Cady, 2017). Built heritage is part of the history and memory of a city, and history would be discontinuous without it (Wang, 2011). Urban heritage, in the minds of most planners and managers, is monuments (Steinberg, 1996) [2]. The urban heritage in Algeria represents an extremely varied reality of the Sahara [3]. The Ksour represents a heritage of undeniable wealth. Historic preservation and heritage conservation are two mainstream concepts related to the sustainability and renewal of historic houses (Kan, and all. 2022). The Ksar is an ancient name of the Saharan city. It represents the ancient Medina in the desert melted, in the highest point of land for defensive reasons; and surrounded by oases that make the source of life [4]. Occupying strategic places at the...
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crossroads of caravan routes (Cote, 2005), and forming a long chain of ksour; which extends from southern Morocco through the ksour of Algeria to southern Tunisia.

The ksour are the testimony of an ancestral urban civilization with multiple cultural varieties. Identity is a sharing of the past (Koolhas, 2011). The ksourien architecture represents a heritage of undeniable wealth (Gherraz and all, 2022). Heritage cities evolving simultaneously with population growth sublimate a complex phenomenon of "economic, cultural, political, social, environmental and original heritage" domains (Hamma, 2017). Because it has become a “structurally unfinished project, that is to say open and capable of guaranteeing critically” (Gregotti, 2007). The heritage, which is “a good that constitutes the collective memory of a group” (Maude, 2018).

Charles Celestin Jonnart showed a particular interest in the Moorish style and subsequently made it official in 1905. It was for economic, political and cultural purposes that the governor instructed architects to honor the Moorish aesthetic, advancing a new neo-Moorish cultural and architectural Algeria identity, (Benbouaziz & all. 2022), a new style had appeared in Algeria, which created the present problem of urban and architectural identity. The search for originality in architectural style becomes our responsibility “the reason for this protection is the threat of loss or destruction of familiar landmarks in space and time” (Germann, G., Schnell D., 2014).

There are multiple levels of urban and architectural preservation to preserve a range of buildings, to preserve the architectural privacy of a single building, and to preserve heritage elements, including building materials and techniques (Cady & all. 2021). This article deals with the problem of the restoration of ksour in Algeria qualitatively. It is about knowing the value of architecture and its role in the memory of society. In addition, the real causes that gave rise to the mediocrity and architectural ambiguity of the restored ksour have been studied.

The hypothesis put forward is to consider that this problem is results from the exclusion of citizens during restoration interventions. The potentials of the two studied ksour were represented, the degree of feasibility of their restoration was verified and the motives emanating to this success were sought; for the purpose of establishing a framework that will serve as a guide to future restorations, which will also revitalize the development of training activities for tourism purposes. Sustainable tourism includes any commitment to develop this sector; thus it aims at socio-economic benefits. In Algeria, this sector is framed by the master plan of tourism development horizons 2030. The restoration of Ksar Taghit and Ksar Beni Abbas, Fig. 1, are targeted by this program of sustainable tourism, which justifies the interest of our study, Fig. 2.

Figure 1. situation of the city of Bechar and the city of Bnis Abbas

Figure 2. situation of Ksar Taghit and Ksar Bni Abbas,

https://journals.openedition.org/tem/7867, with Authors intervention

**METHODOLOGY AND MATERIAL**

The present research is developed based on a documentary context, in particular of historical documents using three approaches. Firstly, to opting for a historical approach, develop the analytical aspect, supported in a second time, by a typological approach. Finally, analyze the architectural aspect and specify the design features of the city and the houses are the façades or interior design by taking photos and interviewing the inhabitants, to finally make a feasible comparison and shed light on the feasibility factors of the restoration.

**CASE STUDY**

As part of a study tour in southwest Algeria, we targeted Ksar Bni Abbes and Ksar Taghit, we found two (02) different modes of preservation of urban and architectural heritage of Ksour; the results obtained gave a distinct feasibility.
**Ksar Taghit**

The Ksar Taghit was built in the 11th century on a rocky mound at the foot of the great western erg [5], surrounded by walls, Figs. 3, 4. This location avoids the consequences of the floods of the river “Zouzfanâ”, to be more secure. It was classified as national heritage in 1999; with 120 houses currently deserted by its inhabitants. The latter have restored their houses and transformed them into spaces reserved for economic and tourist activities including tearooms, rest areas and guesthouses. The Ksar is a center of seasonal tourist attraction at the national and international level during the month of March and especially at the end of December.

**Ksar Bnis Abbas**

Bnis Abbas is the capital of Saoura, located 247 km south of Bechar; our Ksar is built since the 18th century, and this site was chosen by human groups, following the presence of a source of abundant and fresh water. Because often, the water of the Sahara is slightly brackish (Alkama.D. 2006). The Ksar is integrated on the line of force of the slope upwards; it is melted with an almost rectangular shape after the Ksar of Taghit and to the other ksour of southwestern Algeria, Figure 5.

**RESULTS AND DISCUSSION**

**About of the Ksar Taghit**

**The Constituents of Ksar Taghit**

Ksar Taghit is built by fundamental elements; a Mosque, “Djemâa” [6], “Zgag” [7], the residences, a well [8], “Derb” [9], Drieb [10], and a defensive wall, two (02) doors.

**Building Products from Ksar Taghit**

The construction of the Ksar Taghit is carried out by three (03) natural biological products; earth, stone, and palms.

**Construction System of Ksar Taghit**

The entire structure is made of palm trunks and leaves to strengthen the buildings. The posts are made of palm tree trunks; the floor is also made of palms trunks and leaves.

**The Urban Composition of Ksar Taghit**

The Ksar only communicates with the outside world through two gates: one giving south to the cemetery, the other
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north to the palm grove. The Ksar of Taghit is organized around the Mosque, which by its centrality and its size appears as the ordering element of all this urban organization. The exceptional element plays the role of landmark and symbol with a single minaret that makes the visual signal designating the Mosque. The single Mosque is associated with three nearby public squares that called "Djemāa".

The "Djemāa" is an institution and its urban interpretation is the space where the assembly of notables who managed the community’s interests met. This space seems to be the privileged place of rest, meetings and commercial exchanges. The “Djemāa” is also the center of articulation of four “Droub” or districts of the Ksar. It is accessible from all sides of the Ksar. There is a rational relationship between the three plazas constituting the “Djemāa”, based on a geometric layout: the three spaces are identical in their shape and size. They are differentiated by their position. Inversion, rotation and translation have been used in their design, the main axis of the Ksar named “Zgag”, Fig. 6.

Figure 6. Articulation diagram of the spaces of Ksar Taghit, Authors

**Sequential Study of the Composition Axis**

We have noticed that there is a play of light, dark / light in the “Zgag”, it invites visitors to orient themselves towards one of the two doors of the Ksar. The “Driebs” leading to the different “Droub” constitute more important dark passages and All along the route, going from the south gate to the north gate, the user instinctively maintains the same orientation by always taking successive deviations to the left. This central axis connects the plazas of “Djemāa”, the Mosque, and the various “Droub”. Few houses have direct access to this axis, Figs, 7, 8.

Figure 7. The Gathering spaces, Authors  
Figure 8. dedicated spaces for public and private use, Authors

**Urban composition of the Ksar Taghit**

The Ksar is composed of three urban element; ordering elements, exceptional items, and elements currents.

**Ordering Elements**

The hierarchy of spaces is conceived by order; Zgag, Derb, Drieb and Eddar [11]. The urban organism at the scale of the Ksar is “Zgag” the main axis that crosses the three “Djemāa” squares, and the organizer of the Ksar. The path that orders the houses is “Drieb”. On the scale of housing, it is “West Eddar” [12], which plays the role of ordering element and distributor of “Biout” [13]. “West Eddar” is a multifunctional element, articulating the interior space, and it has exceptional functions in the daily life of citizens.
Exceptional Items
The exceptional element of the Ksar is the Mosque its spiritual element, the entrance door of the “Derb” is the second exceptional element. The third exceptional element at the level of the house is the staircase.

Elements Currents
The current elements are the houses, all repetitive that respond to different types.

The Geometrical Frame
The geometric framework of the Ksar is structural, based on the plot and road layout. It develops and is presented on a grid in which all forms of space are inscribed. Constitutes an orthogonal, two-dimensional east west, north-south grid. The spacing of the grid is explained by the span of two to three meters of the girders networked. The Ksar of Taghit responds to a spirit of planned system.

Architectural Composition of the Houses
“Eddar”, refers in its mode of organization to the oriental house. It is an introverted house built on two levels, with an interior courtyard. A single door on the blind exterior wall allows contact with “Eddar” and “Zgag” through “Skiffa”[14].

Organization of an Ordinary House in the Ksar of Taghit
"West Eddar” Fig. 9, the multifunctional space at the first floor level. It makes the distribution thanks to its central position, it is the most enlightened and airy place by “Ain-Ed-Dar”[15], then it has predictive for the domestic activities such as weaving, cooking, sorting dates, Around the “West Eddar”. We found the “Biout” [16], “Kousina”[17], Fig. 10, “Beyt El Aoula” [18], et “Beyt El Diaf” [19], Fig. 11, “Beyt Echiah”[20].

Organization of a Tourist House in the Ksar of Taghit
The Ksar of Taghit is fully restored. This restoration is done by the inhabitants of this Ksar, they used local materials, plus other durable materials; stone for the walls, electricity for artificial lighting, and they introduced sanitation for the evacuation of wastewater .. etc. With respect for the original appearance of the Ksar.

These inhabitants made this restoration for tourist reasons in order to preserve and revalorize the urban and architectural heritage of Ksour. One inhabitant took the initiative to restore his house and reserved a part for the exhibition, Fig. 12, and sale of crafts, Figs, 13, 14.
ABOUT OF THE KSAR BNIS ABBAS

The Current State of the Ksar

In 1957, the colonial installation of the indigenous population spread out on the plateau, which deserted the inner part of the Ksar of their inhabitants. In the post-colonial period and via the zoning system that was established in the urbanization program, the occupation of the plateau was accelerated by a voluntary intervention. It was during this period that the Ksar was uninhabitable. Currently the Ksar is abandoned in poor condition.

The Constituents of Ksar Bnis Abbas

Ksar Bnis Abbas is constitute by fundamental elements, Fig.15; a Mosque, Fig. 18,"Djemâa",Fig. 16,Rahba, "Zgag", the residences,a well, "Derb", "Drieben", a defensive wall and four control towers, Fig. 17, four (04) doors.

Building Products from Ksar Bnis Abbas

Three (03) natural biological products carry out the construction of the Ksar Bnis Abbas,; palms, stone, and earth.

Construction System of Ksar Bnis Abbas

The entire structure is made of palm trunks and leaves to strengthen the buildings. The posts are made of palm tree trunks; the floor is also made of palms trunks and leaves.

Sequential Study of the Composition Axisof Ksar Bnis Abbas

The urban space of the Ksar of Bni Abbas is structured by the mosque located in the heart of the Ksar surrounded by three (03) "Zgags"; structuring the space. The first "Zgag" connects the first door with the second one, passed by "Rahba" and "Djemâa", the second "Zgag" connects the second door with the third door, and the third "Zgag" connects the first door with the fourth door. A defensive wall, with four (4) control towers, surrounds the Ksar, Figs.19, 20.
Ksar Bni Abbas is also composed of three urban elements: the command elements, the exceptional elements and the current elements.

**Ordering Elements**

Zgag, Derb, Drieb and Eddar constitute the hierarchy of spaces the three “Zgag” orders the mosque Rahba, “Djemâa”. Derb orders the agglomeration and “Drieb” which orders the houses. At the scale of the habitat, it is “West Eddar”, which plays the role of ordering element and distributor of “Biout”.

**Exceptional Items**

The exceptional element of the Ksar is the Mosque its spiritual element, Rahba is space of commerce service; “Djemâa” is a space for meetings, and four (4) towers for the control of the security of the Ksar.

**Elements Currents**

The current elements are the houses, with different types, fig. 21.

Figure 21. Space interior - exterior of Ksar Bni Abbas, https://www.pierreseche.com/AV_2012, with Authors intervention

**The Geometrical Frame**

The structure of the Ksar is based on the layout of the plots limited by the grid of the paths. It is presented by a grid. It is an orthogonal grid. The Ksar of Bni Abbas responds to a spirit of planned system.

**Architectural Composition of the Houses**

The composition of the house “Eddar”, of Ksar Bni Abbas resembles the composition of the house of Ksar Taghit introverted system built on two levels, with a courtyard inside. A single door on the blind exterior wall allows contact “Eddar” with and “Zgag”.

**Organization of an Ordinary House in the Ksar of Bni Abbas**

The central space in the house is “West Eddar”. It distributes the spaces; “Biout”, “Beyt El Dialf”, “Beyt El Aoula”, “Kousina”, and “Beyt Echiâh”. It is located below “Ain-Ed-Dar”.

**Organization of a Tourist House in the Ksar of Bni Abbas**

Within the framework of the preservation and the revalorization of the national urban heritage are architectural Ksourien; thus for tourist economic reasons; the project of the restoration of the Ksar Bni Abbas was launched by the State. Given its historical and strategic value in the Saoura. They established an improvement on the functional level. However, unfortunately the result was undesirable.

A change in the urban and architectural design has been distinguished. They have built a tourist village made up of bungalows, each of which includes:

- A kitchen.
- Bedrooms.
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- A bathroom.
- A sanitary.

They used new materials, which are:
- The ceramic in the water rooms, Fig. 22.
- Cement.
- Ornamented wood in the Moroccan style, Fig. 23.

Besides, they have installed networks such as:
- Sewerage networks.
- Drinking water networks.
- Electricity networks, Fig. 24.

The result of the restoration of Ksar Bni Abbas

The Ksar of Bni Abbas has lost its historical value; the external image represents its Saharan architectural vocabulary while inside we have a paradox, materials and construction techniques not compatible which deteriorates the image of the Ksar. Therefore, they did not preserve this heritage and replaced it with other constructions that do not correspond to our traditions, Figs, 25.26.27.

Comparison Between the Two Case Studies

Status of Specimens

We will present the administrative statue with the size of the specimens in Table. 1:

Table 1. Status of specimens

<table>
<thead>
<tr>
<th>statue</th>
<th>Ksar</th>
<th>Bni Abbas</th>
<th>Taghit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative</td>
<td>wilaya</td>
<td>Chief of Daïra</td>
<td></td>
</tr>
<tr>
<td>State of Ksar</td>
<td>In ruins</td>
<td>Gradient</td>
<td></td>
</tr>
<tr>
<td>Type de préservation</td>
<td>Rehabilitation of a large part of the Ksar</td>
<td>Restoration of some housing and public space.</td>
<td></td>
</tr>
<tr>
<td>Result</td>
<td>No success</td>
<td>Success</td>
<td></td>
</tr>
</tbody>
</table>
Composition Urbaine

The urban composition of the two specimens is presented, in Table. 2:

Table 2. The urban composition

<table>
<thead>
<tr>
<th></th>
<th>Ksar</th>
<th>Bni Abbas</th>
<th>Taghit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Components of the set</td>
<td>Ksar, colonial district, and the sprawl</td>
<td>Ksar, extension, social housing, housing estates</td>
<td></td>
</tr>
<tr>
<td>Size of the Ksar</td>
<td>About ten dwellings</td>
<td>About a hundred dwellings</td>
<td></td>
</tr>
<tr>
<td>Remarkable elements</td>
<td>The Mosque</td>
<td>Djemâa</td>
<td>The Mosque</td>
</tr>
<tr>
<td></td>
<td>Rhaba</td>
<td>Covered and open passage</td>
<td>Covered and open passage</td>
</tr>
<tr>
<td></td>
<td>control towers</td>
<td>The enclosure wall</td>
<td>Djemâa</td>
</tr>
<tr>
<td></td>
<td>The enclosure wall</td>
<td>The medersa</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Covered and open passage</td>
<td>The Ksar built on a rock</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The palm grove</td>
<td>The palm grove</td>
<td></td>
</tr>
<tr>
<td>space prioritization</td>
<td>Zgag –Rahba- Djemâa- Derb - Drieb - Eddar</td>
<td>Zgag - Djemâa - Derb – Drieb - Eddar</td>
<td></td>
</tr>
<tr>
<td>State of the Palmeraie</td>
<td>very good condition</td>
<td>poorly maintained</td>
<td></td>
</tr>
</tbody>
</table>

CONCLUSION

The Ksar is an agrosystem that integrates the complementarity of water, the palm grove, and the indigenous habitat that influences the feasibility of the habitat/inhabitant relationship with a rationality of space and climatic comfort juxtaposed with rites and daily uses. Subsequently the Ksaris not intended to become a hotel or a vacation village for foreign tourists. On the other hand, it is an open-air museum a very rich architectural vocabulary.

Especially the awareness of the need for preservation of a Ksar requires indeed:

- A real attachment of the population to these ancient elements.
- A knowledge of their value and symbolism -other than by the frequency of tourist visits
- Aperception of what the enhancement could bring to the citizens, notably through economic spin-offs.

Too many daily survival concerns beset the inhabitants of the ksour for them to be able to broaden their assessments. Because a wide information, a participation in the projects, an interest in the activities of accompaniment of the future restored set are always beneficial.

NOTES

[1] It plays a key role in the achievement of sustainable development.
[2] This concept often excludes historic towns and residential areas, which represent urban heritage.
[3] The first studies carried out by the French military officers Martin in 1908, and Echallier in 1972, particularly in the South-West, reveal the unity and the differences, the unity appears above all in the process of implantation, the localization, and the organization model of the streets. The differences relate essentially to the morphology of the fundamental unit making up the Ksar.
[4] The grounds were often rocky and very high.
[6] Rahba, it is the public place.
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[8] The well serves as a public fountain.
[13] Chicane entry space designed to break the view to the heart of the house and preserve privacy.
[15] Beyt is room; the plural is "Biout".
[17] Small pieces are provided for grain storage, dates, fodder and water jars.
[18] Living room; one for men other for women.

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22. https://journals.openedition.org/tem/7867, consulted on 19 / 09/2022


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