THE IMPORTANCE OF SOCIAL SUSTAINABILITY FOR CONSERVING CULTURAL HERITAGE IN SOUTHERN ALGERIA: A CASE STUDY OF THE M'ZAB VALLEY

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Abstract

The M'Zab Valley, located in Ghardaïa in southern Algeria, was classified by UNESCO as a world heritage site in 1982. The M'Zab valley has benefited from numerous restoration, rehabilitation, and consolidation projects to ensure the preservation of its monuments and historical sites. This article focuses on social sustainability, a key element of sustainable development and a crucial component of cultural heritage protection. The study aims to identify and assess social sustainability in two fortified villages (Ksour) in the M'Zab Valley. The research uses the case study method in the M'Zab valley's unique social context, taking into account several indicators: social networking, safety, and security, sense of attachment, quality of the home, and quality of life, measured through a survey of 200 households. Results show that the indicator that locals value most is "quality of housing", whereas "participation" is less significant. Only 5.0% of residents of Al-Atteuf and 7.0% of those in Beni-Isguen express a need to leave or change residences. This article also contributes to highlighting the Mozabite community's advantages and challenges, especially after the social and cultural changes that society has undergone.

Keywords: Social sustainability; M'Zab Valley; Cultural heritage; Conservation; Fortified villages; Mozabite community

Introduction

Heritage represents a symbol of a community's identity, cohesiveness, and collective memory. It is rich and diverse, and each type has several values. Social sustainability is one of the key pillars of sustainable development that extends globally. It refers to how people and communities interact with others and work to accomplish the goals of the development strategies they have selected for themselves [1]. It is also the capacity to preserve a person's quality of life and a specific status in society presently and in the future [2]. Urban social sustainability concentrates on the sustainability aspects that are linked to the built environment [3]. It ensures that residents have access to services and affordable homes, encourages interaction between people and community participation in a secure and healthy environment, and generates a feeling of fulfillment and honor in the community [4].

Various studies have been conducted to evaluate social sustainability. The assessment methodologies differ according to the scale and context of the study. Colantonio considers that the assessment of social sustainability depends on environmental impact assessment (EIA),

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social impact assessment (SIA), and strategic environmental assessment (SEA) [1]. Ghahramanpouri assessed the social sustainability of modest units for the physical environment based on a literature review and a survey conducted among 227 people [5]. M. Reza Shirazi and Ramin Keivani proposed a qualitative "meta-analysis" for evaluating a neighborhood's social sustainability [6].

In Algeria, there is little research on social sustainability. We found Naceur Farida's study [7]. She examined how residents use their neighborhood spaces in Algerian property homes, and she surveyed residents by questionnaire on the perceived suitability of these spaces for social interaction. S. Khettab and N. Chabbi-Chemrouk [8] evaluated the sense of place in the Algerian seaside city of Tipaza. The article examined the "socio-cognitive dimension" through the structural methodology. Mohammed Hadji *et al.* [9] evaluated residential satisfaction using the city of Boussaâda as an example, conducting a comprehensive study of the home setting. Toufik Mezerdi *et al.* [10] evaluated the impact of the environmental and social quality of traditional houses with a patio in the center on the satisfaction of the occupants as well as on their perceptive behavior through the case of the M'chouneche oasis. The survey was used as a data collection method.

Despite the importance of the M'Zab Valley's protected area, no study serves to investigate social sustainability. Our study fills this gap in a framework adaptable to the local heritage context. Therefore, the article's goal is to identify and then assess the social sustainability in the Ksour (Ksar means a fortified village or miniature city. The plural is ksour) of Beni-Isguen and Al-Atteuf, especially as the Ksour is experiencing significant social challenges and changes, especially with the spread of globalization and major urban expansion, which may affect its long-term sustainability. The paper also examines how the Ibadites (Muslims) have addressed urban social sustainability in their medieval ksour. The context is different from that of developed countries and is located in a geographical area with distinct socio-economic and environmental characteristics. This paper is significant because it allows us to link and understand the relationship between social sustainability and heritage preservation, particularly considering the marginalization of social sustainability compared to methods for heritage preservation like restoration or rehabilitation.

Case study

The wilaya of Ghardaia is an Algerian Saharan city. Previously, it served as a link between North and South Algeria, as well as a major economic center [11].

The Halga of Azzaba (Mozabite religious institutions are active in governing social, cultural, and economic affairs) defined the territory to be urbanized before the establishment of the Mozabite ksour. It is made up of groups of Achair (fractions) [12]. The Achira has a distinct neighborhood [13]. The city has gates that are closed and supervised by guards. Ibadite urban planning is based on communal living and solidarity. It is perfectly adapted to the inhabitants who chose the M'Zab [12].

The chosen study zone includes Ksar Al-Atteuf (Fig. 1a), located between 32° 28' 28" N and 1° 36' 56" E. It was created in the 10th century in 1012 by the Ibadites coming from the Wadi Miya following the fusion of the locality of Ayerm nTelezdit with two others: Ayerm Nuxira and Ayerm n'Sula [14]. Urban growth in the M'zab valley has its beginning at the ksar [15]. It is bounded west by the ksar of Bounoura and has a population density of approximately 20.90 inhabitants/ha. The city has an organic form characterized by a compact urban morphology. The road system is hierarchical: streets, alleys, and dead ends.

The case study area of Ben-Isguen (14, 52 ha) (Fig. 1b) is located between N32° 28' 26.9 "E and 3°41' 45.5" with a surface area of 180, 61 ha [16]. It is bounded by the Ksar of Bounoura and the Ksar of Melika. All the streets lead to the triangular marketplace, where every day in the late afternoon, except on Fridays, the ancestral auction takes place [15]. The city of Beni-Isguen is revered as a sacred place. But this image is new. In the 19th century, Melika was recognized as the Mzab's religious center, whereas Beni Isguen was the defensive capital of the M'Zab valley [17]. Due to its exclusivity in learning and protection of the Ibadite ideology, Mozabite reformists never had much impact. It had the position of the "learned" city and the protector of the "dogma" [18].

In both case studies, numerous social, cultural, and economic changes occurred.

Fig. 1. Satellite photos of case study localization, a: Ksar of El-Atteuf (right),b: Ksar Beni-Isguen (left).

Methods

Due to the absence of a universal definition of social sustainability and the disparate socioeconomic conditions of different nations, there is limited consensus on approaches for evaluating urban social sustainability [19]. Researchers have also noticed a change in the social sustainability indicators, which have transitioned from concrete to intangible [1].

Drawing on Shirazi and Keivani [6], this article is based solely on how people interact with their constructed environment. It is based on six indicators, namely: quality of the home, social networking and interaction, sense of attachment, safety and security, quality of life within the ksar, and participation.

First, bibliographic research is crucial to defining our problem and the theoretical framework. Then, we made a field visit to the study areas. A survey was carried out over four months (between March and June 2022), targeting residents of the Ksar of Al-Atteuf and the Ksar of Bani-Isguen in the Mzab valley. A total of 200 Mozabite households were interviewed (100 families in each Ksar). The locals selected come from various educational and cultural backgrounds, as well as varied genders, and ages. Contrary to men, who were approached directly and aleatory, it was challenging to speak with Mozabite women and ask them to fill out a questionnaire. Contacting Mozabite women was made possible through the OPVM and members of regional religious and cultural organizations.

For this reason, questions were asked according to our study context and the Mozabite Ibadite community. First, questions were asked about the relationship of the inhabitants with the built environment: the organization of spaces within the ksar (streets, different services, lighting), the quality of public spaces and green spaces, threats, and dangers, local religious and cultural organizations, and the feeling of security and satisfaction within the ksar. Other questions were asked about the relationship of the Mozabites with their dwellings: the

organization of interior spaces, the surface and maintenance of the house, and the feeling of intimacy, attachment, and security inside the house. Finally, the relationship of the inhabitants with each other: the relationship with friends, neighbors, and guests. The appropriate measures used to evaluate each indicator are shown in Table 1.

Results and discussion

The results include the analysis of survey data for each indicator. We divided indicators into three categories: interaction among residents, Interactions of individuals with their built environment, and individuals' relationships with housing. Questions were asked and conducted in line with the case studies we chose.

Table 1. Survey questions

Category	Indicators	Description
	Répondent ID	Age, instruction, sex, and profession.
Interaction among residents	Social interaction	Engagement with neighbors and friends (visiting friends, getting assistance)
	Security and safety	Security during the day and night Threats and dangers in outdoor spaces
Interactions of individuals with their built environment	Sense of attachment	A sense of belonging, satisfaction, and security within the ksar
	Participation	Involvement in the religious and cultural institutions of the community
	The quality of life within the Ksar	Management of outdoor spaces (public spaces, services, streets, lighting) Perception of the quality of outdoor space Places for men and women
Individuals' relationship with housing	The quality of the home	The organization of spaces in the house (surface, maintenance), Inhabitants' comfort with a feeling of belonging and privacy, The need to change or leave home.

Interaction among residents

This category includes one important indicator, which is social interaction.

"Social interaction" refers to a person's behavior towards a group of people [20]. It may lead to strong social networks and a better quality of life [21].

In this study, we measure social interactions using variables such as visiting friends and communicating with neighbors.

First, it is essential to understand that the Mozabite community treats friends and neighbors differently. Good neighborliness, respect, and getting help from neighbors are sacred among the Mozabites. According to Table 2, 75.0% of Mozabites in El-Atteuf have a good relationship with their neighbors, compared to 81.0% in Beni-Isguen. Also, 26.0% of inhabitants in El-Atteuf and 24.0% of inhabitants in Beni-Isguen communicate daily with neighbors and ask for help when needed.

Table 2. Interaction among residents

Indicator	Measures	El-Atteuf		Beni-Isguen	
Interaction among residents	Positive interactions with neighbors (%)	75.0%		81.0%	
	Everyday communication with neighbors (%)	26.0%		24.0%	
	Requesting assistance from neighbors (%)	21.0%		19.0%	
	Friendship visits (%)	Men	Women	Men	Women
		18.0%	8.0%	33.0%	9.0%
	Meeting with friends during holidays or in free time (%)	82.0%		67.0%	
	Friends in the Ksar (%)	60.0%		62.0%	

More than 60.0% of the inhabitants of El-Atteuf and Beni-Isguen, their friends, reside inside the Ksar. As for visiting friends, it varies according to gender and time. Men can visit friends at any time, while women are often in their free time and on holiday, and there are no friendships between women and men in all the Ksour of the M'zab valley, which explains the low percentages of women in the two Ksour (8.0%in El-Atteuf and 9.0% in Beni-Isguen).

Individual's relationship with housing

The quality of the home is the significant indicator included in this category. A person's quality of life is significantly influenced by their level of residential satisfaction. Housing is typically where residents feel safe, sanctuary and contentment [22]. The degree of residential satisfaction frequently affects residents' choices over whether or not to remain in a neighborhood [23]. Furthermore, it is critical for decision-makers [24].

The Mozabite houses are sober and of a small surface. The courtyard is in the center, and rooms surround it. Tizefri is a room for the women's guests and the gathering of the family in the evening. On the first floor is the L'AAli, reserved for men. Currently, many married couples live in houses independently.

As shown in Table 3, most residents in both communities are comfortable with their housing conditions and sense of privacy. This comfort relates to various home qualities, such as spouse independence from the family home, furnishing the house with multiple furniture and electrical appliances, and maintaining the house. It can be noted that most of these factors did not previously exist in the traditional Mozabite house, which means that the inhabitants adapted the houses to their needs. But some of these changes reached the point of adding a floor to enlarge the house, causing a deformation of the external facades.

Table 3. Variables used to measure house quality.

Indicator	Measures		El-Atteuf	Beni- Isguen
House quality	Inhabitants' comfort (%)	Satisfied	68.0%	75.0%
		Dissatisfied	21.0%	17.0%
		Neither Dissatisfied Nor Satisfied	11.0%	8.0%
	The house size is well suited to the composition of your family (%).		57.0%	62.0%
	Independent house		58.0%	61.0%
	Equipped and furnished house		78.0%	82.0%
	The feeling of belonging and privacy (%)		81.0%	87.0%
	The need to change or leave home (%)		5.0%	7.0%

Dissatisfaction zones include the house lighting and the surface of the rooms, especially when the family gets together. For instance, during the COVID-19 health crisis, some households moved to their homes in the oasis because they preferred the homes' vast rooms and fresh air. Most of the residents who express their need to change their houses are young. The elderly do not want to leave their homes and their ksour, and it is difficult to persuade them to leave.

Interactions of individuals with their built environment

This category includes four indicators: security and safety, sense of attachment, participation, and quality of life within the Ksar.

Several urbanized areas have made safety their primary focus. It's due to concerns about crime and also to promote urban tourism [25]. In almost every city, criminality and fear of violence are among the main issues that harm societal development [26].

Place attachment is the capacity of a place to satisfy people's requirements and needs [27]. It refers to how an area affects its residents' social, emotional, and cultural levels [28].

Residents' participation is a decision-making process in environments that influence citizens [29]. According to Wandersman, some people prefer to participate passionately in decision-making while others opt not to [29].

Quality of life includes factors that affect citizens' social and environmental comforts, such as happiness and contentment [5]. The liveliness and social standing of the city are impacted by its quality of life. It affects both crucial facets of the city's economy and its rivalry [30].

Compared to the case of Al-Atteuf, Table 4 shows that Beni-Isguen appears to be a relatively safer place for locals, women, children, and both day and night. Also, 48.0% of the inhabitants in Al-Atteuf complained about poor street lighting during the night.

Table 4. The variables used to evaluate the safety indicator.

Indicator	Measures	El-Atteuf	Beni- Isguen
Safety and Security	During the day (%)	97.0%	98.0%
	During the night (%),	48.0%	52. 0%
	Children's safety within the Ksar (%),	74.0%	77.0%
	Women's safety within the Ksar (%)	76.0%	86.0%
	Threats and dangers in outdoor spaces (%)	15.0%	10.0%

Table 5 shows that the inhabitants of both case studies were strongly committed to their Ksar. That shows how much pride and a sense of belonging the Mozabite Ksours provide. Residents' desire to stay in the neighborhood is correlated with their sense of attachment to the community [31]. 57.0% of the inhabitants in Al-Atteuf, compared to 59.0% of the inhabitants in Beni-Isuen, evaluate life in these areas as good. The residents of the Ksar expressed their satisfaction with various Ksar characteristics, such as neighbors, maintenance of public spaces, and services within the Ksar, as reasons to preserve their local communities and cultural heritage. Despite their annoyance regarding street lighting and narrow streets.

Local religious and cultural associations in the M'Zab Valley play a crucial role in managing the affairs of society and maintaining its security and stability. Participation in associations and institutions is subject to certain conditions and is not accessible to all, especially concerning religious institutions, such as the AZZABA for men and TIMSSIRIDIN

(Mozabite female leaders who were in charge of women's moral, social, and cultural issues) for women.

Table 5. Evaluation of the sense of attachment, participation, and quality of life indicators

Indicator	Measures		El-Atteuf	Beni- Isguen
Sense of attachment	A sense of belonging (%)		75.0%	77.0%
	A sense of pride (%)		88.0%	81.0%
	Members of a local organization (%)		2.0%	3.0%
Participation	Existence of institutions specializing in the management of men's and women's social, religious, and economic affairs (%)		100.0%	100.0%
	Active in social and religious affairs (%)		97.0%	98.0%
	Sanctions for those who do not comply with the instructions of these institutions and associations (%)		87.0%	85.0%
	Perception of satisfaction (%)	Satisfied	64.0%	67.0%
		Dissatisfied	16.0%	15.0%
Quality of life within the ksar		Neither Dissatisfied Nor Satisfied	20.0%	18.0%
	Having access to the services necessary for a comfortable life (%)		43.0%	48.0%
	Management of public places (%)		27.0%	36.0%
		Excellent	11.0%	14.0%
	Ksar evaluation (%)	Good	57.0%	59.0%
		Adequate	22.0%	11.0%
		Bad	10.0%	23.0%

According to Table 6, quality of housing is the indicator that residents value most, followed by quality of life inside the Ksar. It's interesting to see how locals prioritize their sense of attachment over safety, social interaction, and participation. In the Ksar Al-Atteuf, social interaction is more significant than security, whereas the opposite is true in the Ksar of Beni-Isguen. In both study cases, participation is the less relevant indicator.

Table 6. Classification of indicators.

	Indicator	Social interaction	Safety and Security	Sense of attachment	Participation	Quality of life within the ksar	House quality
Order	Al Atteuf	4	5	3	6	2	1
	Beni-Isguen	5	4	3	6	2	1

Results show that despite some difficulties residents encounter, including a lack of public spaces for women, street lighting, and the narrowness of some houses, the Ksour satisfies the families' requirements. Most residents (85.0% in Al-Atteuf and 90.0% in Beni-Isguen) confirmed no incidents of violence or danger in outdoor spaces. For this reason, most interviewees do not think of moving and would prefer to stay in their current area.

Conclusions

An architecture well adapted to human beings depends on the existence of pre-existing morale [32]. Sustainability refers to the relationship between people's needs, wants, motivations, identities, and the environment [33]. In the M'Zab Valley, social sustainability is about the effectiveness of the traditional Mozabite ksour in resisting, functioning, and satisfying residents' requirements in the long term. They have created a strong and viable community compatible with the Ibadite values, religious beliefs, and principles based on equality, solidarity, and social cohesion. Social sustainability allows the Mozabites to protect their living spaces and practices, thus preserving their cultural heritage.

This study aimed to highlight the importance of social sustainability in preserving cultural heritage in the Ksar of Al-Atteuf and the Ksar of Beni-Isguen in the M'Zab Valley. Although the Mozabites have a strong sense of belonging to their homes and the Ksour have a high level of security, the study showed that a set of dilemmas and challenges face Mozabite society.

The practices of the population have undergone numerous changes, in particular, at the level of housing, which represents the most significant indicator (the modification of how homes are organized inside, adding spaces, the deformation of the main facades with electric cables and air-conditioning units), which indicates the desire of the Mozabites and their need to keep up with the pace of time and current technological development.

One of the most crucial justifications for doing this study was due to these unplanned and chaotic changes, which may have an impact on the future viability of the ksour and degrade the Mozabite house's historical identity. The results also showed the role played by religious institutions in decision-making and the management of society's affairs, which weakened the participation of the population and the expression of their opinions, which is why participation was the lowest indicator.

Finally, through this study, we suggest a balance between preserving heritage and meeting the long-term needs of society, as well as encouraging people's participation and inclusion in decision-making. Moreover, it is crucial to promote interactivity, particularly among women, and respond to their needs.

Acknowledgments

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