

Kenadsa: Reinventing Saharan Tourism in the Face of the Health Crisis

Soraya Kadri¹, Abdelmalek Benaradj², Badia Belabbas³, Ratiba Wided Biara⁴

¹ Lecturer, Department of Architecture and urban planing, University of Tahri Mohamed Béchar, BP 417 Avenue de l'indépendance, Bechar 08000 Algeria. kadri.soraya@univ-bechar.dz

² Lecturer, Department of Architecture and urban planing, University of Tahri Mohamed Béchar, BP 417 Avenue de l'indépendance, Bechar 08000 Algeria. benaradj.abdelmalek@univ-bechar.dz

³ PhD student, Department of Architecture, University of Mohamed Kheider Biskra, BP 417 Avenue de l'indépendance, Biskra 07000 Algeria. badia.belabbas@univ-biskra.dz

⁴ Full Professor in Architecture, Department of Architecture and urban planing, University of Tahri Mohamed Béchar, BP 417 Avenue de l'indépendance, Bechar 08000 Algeria. biara.wided@univ-bechar.dz

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Abstract

The COVID-19 pandemic has triggered an unprecedented systemic crisis, bringing the global tourism sector to a standstill. In Algeria, this disruption calls for a critical examination of the resilience of Saharan destinations. Kenadsa, a town on the edge of the Saoura region, offers a unique case study thanks to its hybrid “polyptych” of heritage. This article aims to identify post-crisis tourism revitalization strategies for Kenadsa by drawing on its endogenous potential. The research adopts a multidimensional qualitative approach that combines historical literature review with a series of non-directive interviews with local stakeholders (authorities, recent graduates, and former miners). This approach allows for a comparison between the intrinsic value of the heritage and the social perception of the region. The study reveals that Kenadsa has three major areas of appeal: a spiritual center (Zawiya Ziania) and an abandoned coal-mining industrial zone. The findings show that the ksar’s spatial organization—with its system of natural ventilation in the courtyards and the hierarchical flow of traffic—provides natural health benefits superior to those of modern urban models. The field survey highlights a strong local desire to transform these assets into economic drivers. The transition to a post-COVID tourist destination in Kenadsa is based on a strategic two-pronged approach: the digitization of cultural offerings and the adoption of “slow tourism.” The revitalization of the industrial wasteland and the ksar, as part of a sustainable development project, is helping to shift the focus from transient tourism to a destination that embodies resilience in terms of both cultural heritage and public health.

Keywords: Saharan tourism, health transition, Kenadsa, urban resilience, industrial heritage, vernacular architecture.

1. INTRODUCTION

The COVID-19 health crisis has caused an unprecedented disruption in the global tourism industry, resulting in massive economic losses and a profound shift in traveler behavior. In Algeria, the Saharan tourism sector—a potential pillar of the economy—has been hit hard by border closures and travel restrictions.

Yet this period of forced stagnation serves as a “moment of reflection” for urban planners and architects. The goal is to transition from mass tourism to resilient and sustainable tourism. The case of Kenadsa, located in the Saoura region, is exemplary. A former spiritual crossroads thanks to its Zawiya Ziania and a coal-mining industrial center since 1917, Kenadsa possesses a unique “polyptych” of heritage.

Challenge: How can Kenadsa’s architectural and spiritual heritage be transformed into a viable and safe tourism product in a post-pandemic context?

1.1. Systemic Impacts of COVID-19 on the Global Tourism Industry

The emergence of the COVID-19 pandemic in late 2019 triggered an unprecedented global health crisis. To curb the spread of the virus, most countries implemented drastic measures: closing national borders, imposing strict lockdowns, and imposing severe restrictions on movement. The tourism sector, whose very essence relies on the free movement of people, found itself at the center of a global standstill.

This crisis has caused a major structural disruption, calling into question health, economic, urban, and architectural paradigms. The impact has been particularly devastating for nations whose economies depend on international trade flows [1]. Beyond the purely economic aspect, the pandemic has profoundly altered travelers' psychology and mental well-being [2]. This destabilization manifests itself across four main dimensions:

1.1.1. Decline in global tourism activity

The sudden suspension of economic activity triggered a chain reaction:

- **Disruption of traffic flows:** Coordinated border closures and a near-total halt to global air traffic.
- **Cancellation of events:** Systematic cancellation of cultural and sporting events and planned trips, leading to prolonged underutilization of infrastructure.

1.1.2. Major Economic and Financial Impacts

Macroeconomic indicators reflect the severity of the shock:

- **Plummeting revenues:** The loss of tourism-related export revenues is estimated at \$1.2 trillion [3].
- **Employment crisis:** While the sector accounts for one in ten jobs worldwide [4], (2020), approximately 120 million direct jobs have been lost [3].
- **Local precariousness:** Massive disinvestment has led to an immediate deterioration in the living conditions of households whose domestic economy depended on tourism services [5].

1.1.3. Supply Crisis and Structural Bankruptcies

The sector has witnessed an unprecedented weakening of the business landscape:

- **Business closures:** Permanent or temporary closures of hotels, restaurants, cultural venues, and leisure complexes.
- **Disinvestment:** Halting of infrastructure development and maintenance projects, jeopardizing the quality of future offerings.

1.1.4. Exacerbation of Social Vulnerabilities

As UNESCO points out, the crisis in cultural tourism has hit local communities particularly hard. This vulnerability is particularly acute among women, young people, and workers in the informal sector. In light of this alarming situation, new strategic approaches have emerged, aimed at reinventing the tourism model by balancing public health requirements with economic resilience.

2. The Algerian Sahara: A Mosaic of Heritage Potential

2.1. A Multidimensional Heritage "Polyptych"

The Saharan region should not be viewed as a monolithic expanse, but rather as a layering of historical [6], cultural, and technical strata. In Kenadsa, this complexity forms a "polyptych" in which each element enhances the region's appeal.

2.1.1. Overview of the Study Site: Kenadsa

Located at the gateway to the Algerian Sahara, in the Saoura region, Kenadsa (Figure 1) is distinguished by its unique historical trajectory. Once a major trans-Saharan crossroads, the city evolved from an influential spiritual center, thanks to the Zawiya Ziania, into a coal-mining industrial hub as early as 1917 [7]. This evolution has left behind a hybrid urban landscape, transforming the city into an "open-air museum" where vernacular traditions coexist with vestiges of industrial modernity.

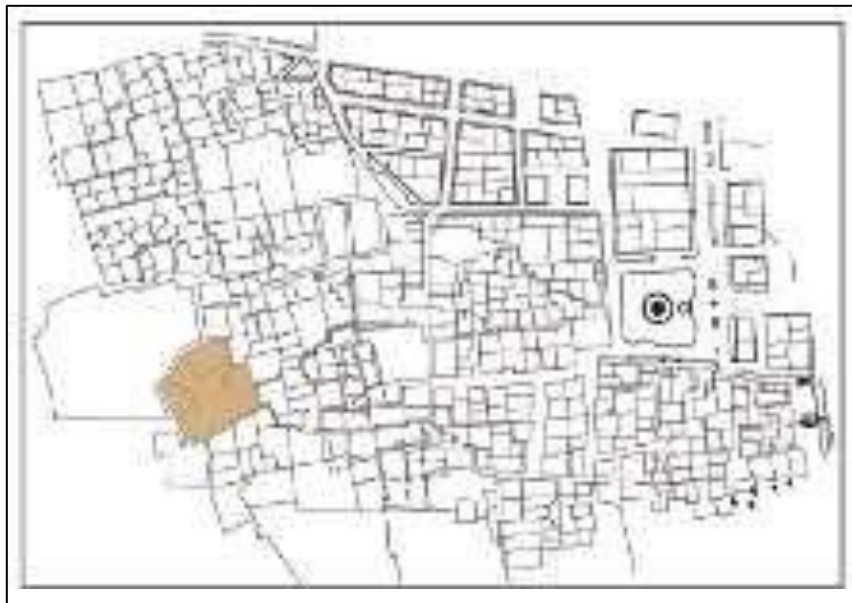


Figure 1: Map of the Kenadsa ksar [11]

- **The Spiritual and Vernacular Dimensions: Architecture in the Service of the Sacred**

Southern Algeria is a land of contrasts, defined by a duality between harsh climatic conditions and scenic beauty. It was at the confluence of ancient caravan routes that the ksour were established, historically serving as strategic outposts and places of refuge (Figure 2).



Figure 2: The location of the Ksar relative to the palm grove (Google Earth, 2021).

Within this typology, Kenadsa stands out as the archetype of the “ksar-zawiya.” As Moussaoui points out, the urban space there is characterized by a profound intertwining of the secular and the sacred: the zawiya is not merely a building; it is the structuring element of the city [8]. This historical influence, which began in the 17th century, ensured the city’s intellectual and economic hegemony for three centuries, while safeguarding trade routes against the hazards of the desert.

Morphologically, Kenadsa is distinguished by the delicacy of its ornamentation and the quality of its traditional architecture (Figure 3).



Figure 3: Zawiya Ziania in Kenadsa (Authors, 2016).

While the brotherhood’s headquarters continues to attract pilgrims, its architectural “hallmarks” have now become a major draw for tourists, showcasing exceptional local craftsmanship (Figure 4).

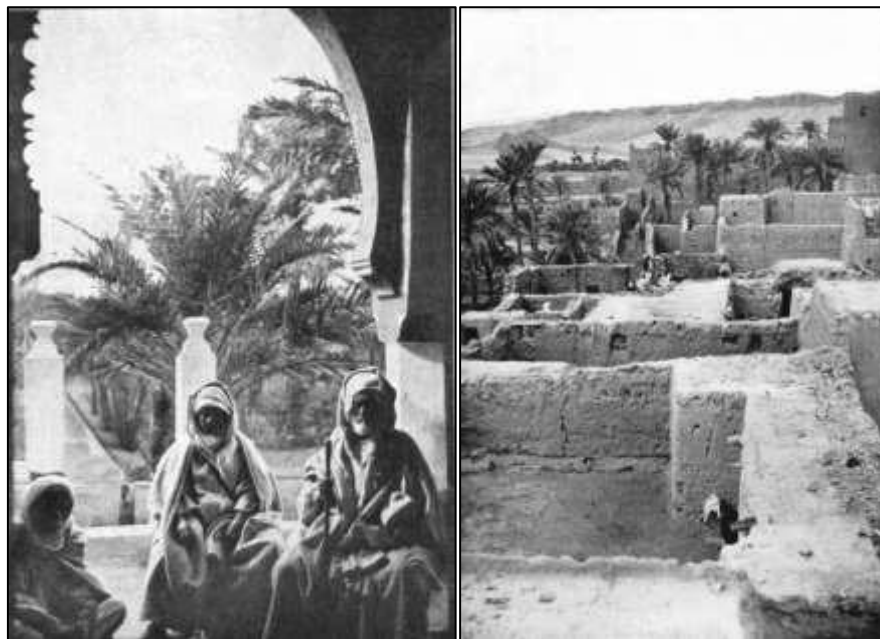


Figure 4: Old photographs of the Ksar of Kenadsa.

• **The industrial aspect: from the coal-mining era to a site of historical significance**

The turning point of 1917, marked by the exploitation of coal deposits, brought Kenadsa into the global dynamic of the Industrial Revolution. According to Duranton (1999), the emergence of such urban centers was then closely linked to the proximity of energy resources[9].

This activity gave rise to suburban development, which expanded on the outskirts of the traditional town center. Within a few decades, the Houillères du Sud had built a truly cosmopolitan mining town [10], equipped with modern amenities: a train station, an airport, a movie theater, and a swimming pool (Figure 5).



Figure 5: Industrial Heritage in Kenadsa

However, the advent of the oil and gas era in the Algerian Sahara brought this production to an abrupt halt. This shutdown gave rise to a unique industrial landscape. Today, this site of industrial heritage complements the local vernacular, offering a rare historical depth that enhances Kenadsa's potential as a popular tourist destination.

2. METHODOLOGY

To address this issue, the study adopts a multidimensional qualitative approach.

Literature review: Historical and architectural analysis of the vernacular (ksour) and industrial structures in Kenadsa.

Field observations: Photographic and cartographic surveys of the ksar and the industrial zone.

Non-directive interviews: A series of interviews was conducted with various local stakeholders (APC officials, recent graduates, former miners) to gather their perspectives on heritage preservation and tourism. This flexible method allows interviewees to engage with the subject and express deeper needs, such as the link between heritage protection and job creation.

3. RESULTS

3.1. A Hybrid Heritage Potential

The study identifies three major heritage layers in Kenadsa:

3.1.1. Spiritual and Sacred Heritage: The Zawiya Ziania shapes the urban landscape, where the secular and the sacred merge.

3.1.2. Vernacular architecture: The "Douria," a type of dwelling centered around the master of the Zawiya, attests to exceptional traditional craftsmanship and codified hospitality.

3.1.3. Industrial heritage: The mining infrastructure (train station, airfield, cinema) resulting from coal mining now forms a unique industrial landscape, albeit one that is no longer in use.

3.2. Perceptions of the Local Population

The use of non-directive interviews revealed that the people of Kenadsa view their heritage not only as a legacy of the past, but as a genuine instrument of identity and a lever for economic survival. Residents view the rehabilitation of the ksar and industrial wastelands as a major economic driver. However, local leaders highlight a glaring lack of hospitality infrastructure (hotels, services).

Analysis of the verbatim transcripts highlights three major dimensions:

3.2.1. Recognizing the "ingenuity of our ancestors": For the descendants of miners, preserving these historic buildings is an act of historical justice. This heritage is seen as a testament to the exceptional skill of our ancestors in coping with the harsh conditions of the Saharan environment.

It is through this transformation that we come to realize the importance of the "*works of the past*," which must be carefully protected and preserved as a testament to the "*ingenuity of our ancestors*." (grandson of a miner)

"*Harnessing this cultural heritage potential from a tourism and economic perspective will help sustain the tourism industry and diversify revenue streams, thereby opening the region up to the outside world.*" (An APC official).

3.2.2. The Heritage-Employment Correlation: A strong consensus is emerging among unemployed youth and older residents: the preservation of the ksar and the industrial wasteland as heritage sites is seen as the solution to local unemployment. Since mining operations ceased, working-age residents have been forced to leave the city every morning to work elsewhere; “developing tourism” is viewed as the means to keep the population in place.

“We believe that the ksar, as well as the industrial wasteland, require a concerted effort to transform them into tourist destinations. The resulting project will obviously serve as a source of income for local residents” (an unemployed young person living in Kenadsa).

“By protecting and promoting our heritage, we will indirectly create jobs for young people,” adds (an elderly person).

3.2.3. Infrastructure deficiencies: The officials of the APC (Communal People's Assembly) and the residents highlight a paradox: a desire to open up externally but a total absence of formulated hotel projects. The residents then suggest alternative solutions, such as the restoration of traditional “douiriats” for home stays, promoting immersive tourism.

“No hotel development project is currently formulated,” says one official.

“Either invest in hotels or restore the douiria to accommodate tourists” (resident of the ksar).

“As a product to showcase, we need to think of a tourist route punctuated by historical sequences, that is, to map out an itinerary starting from the washhouse, going through the daïra, the museum, up to the ksar and the oasis” (words of a young architect).

4. DISCUSSION

4.1. Resilience through vernacular architecture

The vernacular architecture of Kenadsa responds not only to aesthetics but also to rigorous climatic engineering, which becomes fully meaningful in a post-Covid health context (need for ventilation and natural regulation).

The traditional architecture of Kenadsa offers natural solutions to health challenges. Thermally efficient materials and the arrangement of spaces around the “Wast dar” (central courtyard) promote natural air renewal, thus limiting the risk of infection. The urban planning of the ksour, with its hierarchy from the public square (Rahba) to the private cul-de-sac, allows for a smooth and segmented management of people flows.

4.1.1. Materials and Their Thermal Performance

- **Raw Earth (Toub):** The basic material of ksourian structures, it has high thermal inertia. It helps smooth out temperature fluctuations between day and night, providing essential passive thermal comfort.
- **Palm and Tamarisk Wood:** Used for floor and roof joists, it offers structural flexibility and resistance to local climatic attacks.
- **Lime and Sand Plasters:** These coatings allow walls to “breathe,” preventing moisture buildup and promoting a healthy environment.

4.1.2. Spatial Devices and Sanitary Management

- **(Wast-el-Dar Central Courtyard):** This architectural feature acts as a true thermal lung. By creating a light and air well, it ensures constant air renewal through natural convection, thus minimizing the risks of pathogen or viral stagnation.
- **La Douiria:** A specific type of dwelling in Kenadsa, it is characterized by ornamental richness and a spatial organization structured around a sumptuous central room. Historically, it served as a “charity house” or an “institute,” which demonstrates its intrinsic capacity to accommodate flows of people while respecting a certain hierarchy of space.

The urban hierarchy (Rahba to the dead-end): The organization of spaces, from the large public square (Rahba) to narrow and private dead-ends, allows a smooth and segmented management of the crowd, facilitating the implementation of physical distancing measures without undermining the social bond.

4.2. Post-Covid Development Strategies

To revitalize Kenadsa, three strategic areas are proposed:

4.2.1. Digital Tourism: Use digital technologies to promote local crafts, music, and folklore through illustrative videos and online training.

4.2.2. 'Slow Tourism': This concept, born in Italy, is particularly suited to the Sahara. It favors slow exploration (by bike, camel) and environmental respect, naturally ensuring physical distancing.

4.2.3. Tourism Development of Wastelands: Transform former mining sites into museums or cultural centers to create a complete tourist route from the mine to the ksar.

5. CONCLUSION

The Covid-19 pandemic acted as a powerful revealer of the structural fragilities of global tourism, striking with particular acuity the fragile ecosystems of the Sahara. However, beyond its restrictive dimension, this health crisis functioned as a catalyst, highlighting the urgent need to strengthen the resilience of oasis territories. It opens up an unprecedented field of opportunities for redefining modes of heritage valorization, notably through digital hybridization and the functional reconfiguration of public spaces. In this perspective, the enhancement of Kenadsa's heritage cannot be limited to a fixed conservation or museum approach. It must be at the heart of an integrated territorial socio-economic development project. By establishing a synergy between designers (architects and urban planners), decision-making bodies, and local communities, Kenadsa is able to emerge as a paradigm of the sustainable tourist city. This development model manages to reconcile the imperatives of health security with the preservation of socio-cultural identity.

Relying on this reflective framework, this article presents operational strategies aimed at revitalizing Saharan tourism. The analysis focuses on the heritage site of Kenadsa, characterized by its triptych of ksar, oasis, and industrial heritage, to make it a destination of excellence suited to the new challenges of the post-Covid era.

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