ISSN: 0369-8963

Algerian Saharan City's Urban Landscape: A Vision Unveiled - The "Al-Ashash" District in Oued Souf as a Model

Ali GHERBI [1], Alkama DJAMEL [2], Sofiane BENSEHLA [3]*

[1] Batna-1 university, Child, City and Environment Laboratory, Batna, Algeria.
Email: ali.gherb@univ-batna.dz
2 Department of Architecture, University of Guelma - 8 Mai 1945, Guelma. PB 401, (24000), Algeria.
Email: alkama.djamel@univ-guelma.dz
[3] Department of Architecture, University of Guelma - 8 Mai 1945, Guelma. PB 401, (24000), Algeria.
Email: bensehla.sofiane@univ-guelma.dz

Abstract

The development of urban architecture in the southeastern region of the Algerian Sahara has been influenced by several factors, including urban expansion and multiple interventions in both the built and natural environment. This research aims to assess the hypothesis that the utilization, integration, and development of traditional architectural planning methods and characteristics can enhance the landscape of Oued Souf city within its environmental context. The study indicates that landscape deterioration is likely caused by neglect and indifference to the principles, values, characteristics, solutions, and elements that, in the past, formed the solid foundation on which desert architecture was built, resulting in the unique and incomparable landscape we have today.

Keywords: Algeria, Saharan city, El-Oued, architectural characteristics, AL-Ashash, Urban landscape, Architectural expression.

Introduction

The contemporary exploration of diverse geographical environments has significantly contributed to the understanding of various architectural contexts (Pallasmaa, 2012). It is widely recognized that the constructed environment should seamlessly harmonize with its natural surroundings (Beatley, 2011). This harmony becomes even more pronounced when we consider the rich legacy of architectural and urban achievements bestowed upon us by preceding generations, in stark contrast to prevailing modern trends (Zandieh & Seifpour, 2020). In response to these considerations, numerous scholars have embraced a range of methodologies that encompass design and planning concepts. Their central focus revolves around the integration of ancient architectural and urban characteristics, intending to enhance and enrich the urban landscape while respecting its environmental context (Foruzanmehr & Nicol, 2008; Ivashko et al., 2021). Furthermore, it has become evident that there is a need for creative approaches that integrate historical elements into modern frameworks. At this stage, several key factors should be considered in the process, including climate, cultural traditions, and construction methods (Hawkes, 2007).

The field of architecture and urbanism in the Arab world has faced multifaceted challenges, navigating the realms of development, modernity, and the rich tangible and intangible heritage of the Arab region. Notable examples include the New City in El Gourna (1945-1947) designed by Egyptian architect Hassan Fathi (Elleh, 2011), the American University in Egypt envisioned by architect Abdel Halim Ibrahim (Asfour, 2007), the renowned El Shadirji (1995) in Iraq, and several other noteworthy projects. Internationally, architects such as Charles Correa, Aldo van Eyck, Samuel Mokbi, and others have made substantial contributions (Giamarelos, 2022). Brian Edwards, a pioneer in sustainability, emphasizes that traditional architecture successfully

3* bensehla.sofiane@univ-guelma.dz (corresponding author)
 https://doi.org/10.37896/pd92.5/92511

integrates social sustainability with the environment, resulting in an architecture that harmoniously blends with its surroundings (Edwards & Turrent, 2002). According to Al-Obaidi et al, designers and creators should draw upon diverse architectural and urban elements inherited from previous generations (Al-Obaidi & Al-Sharif, 2018; Talee & Shareef, 2021). This integration with modern principles and societal needs is crucial. Paul Oliver's "The Encyclopaedia of Traditional Architecture" sheds light on the underlying rationales for its success, emphasizing its integration with environmental resources, climate considerations, and societal needs (Oliver, 1997). Numerous studies have delved into the fundamental planning methodologies in Arab architecture. One study reveals that Arab architecture derives inspiration from a variety of conceptual foundations, encompassing religion, tradition, customs, and societal culture (Shahda & Noseir, 2021). Another study highlights the adaptability of architectural heritage to desert environmental characteristics and recommends integrating these values into construction techniques (Bagader, 2017; Farrag et al., 2016).

In Algeria, current research on desert architecture has predominantly focused on descriptive investigations and challenges related to desert urban design (Addoun & Hadeid, 2019; Benslimane et al., 2020; Maffei et al., 2021).. However, a critical question arises: to what extent can the integration of traditional spontaneous architectural elements enhance the desert cityscape? In the southeastern region of Algeria, Oued Souf emerges amidst golden dunes, adorned with an abundance of domes (Eberhardt, 1990, 2023). At its urban core, the Al-Ashash quarter serves as the central nucleus of El-Oued city, surrounded by vital establishments. This district showcases meticulously crafted traditional human constructions, representing the architectural heritage of the Algerian Sahara in Oued Souf.

Nevertheless, the Al-Ashash neighbourhood is currently experiencing a decline in its integration with the surrounding environment, primarily due to expansions and distortions. Consequently, it has become imperative to explore mechanisms and strategies to rectify the prevailing situation. This article contends that outdated planning approaches and the revitalization of traditional architectural and urban elements do not inherently conflict with future prospects. A comprehensive assessment is essential, aimed at mitigating the distortion of the urban landscape and enhancing the overall appearance of the Al-Ashash neighbourhood. This endeavour seeks to bestow upon Oued Souf a dignified architectural and urban status.

Furthermore, this article aims to elucidate the impact of traditional planning methodologies, architectural structures, and urban elements on the development of small communities in the southeastern region of Algeria. It underscores the significance of these elements in reinvigorating contemporary production by revitalizing old strategies and preserving the tangible and intangible heritage of past societies.

The study approach

This study aims to assess the hypothesis that the incorporation of traditional architectural planning methods and characteristics can enhance the landscape of Oued Souf city within its environmental context. To achieve precise scientific results, the study followed a structured approach consisting of the following steps; first, the identification of Oued Souf city's geographical location and its distinctive attributes, including its current state characterized by spontaneous and traditional architecture. Second, comprehensive documentation of the characteristics, expressions, architectural principles, and design elements inherent in vernacular architecture. This documentation involved referencing archival materials such as old photographs, documents, and maps. Then, the study conducted a descriptive and critical analysis of the current state of spontaneous traditional architecture and urban planning, including their expansion beyond historical boundaries. This analysis utilized systematic observation methods to collect diverse data and was recognized as an approach to enhancing and beautifying the cityscape.

Study area

The city of Oued Souf, often referred to as the "City of a Thousand Domes," is located in the heart of a vast sandy desert in the southern region of Algeria, as shown in Figure 01. It sits in close proximity to the eastern border of Tunisia, approximately 58 kilometers from the Tunisian frontier,

 https://doi.org/10.37896/pd92.5/92511

ISSN: 0369-8963

and is situated 630 kilometers to the south of Algeria's capital. Oued Souf currently covers a land area of 44,585 square kilometers and is positioned at an altitude of 80 meters above sea level (Kholladi, 2005).

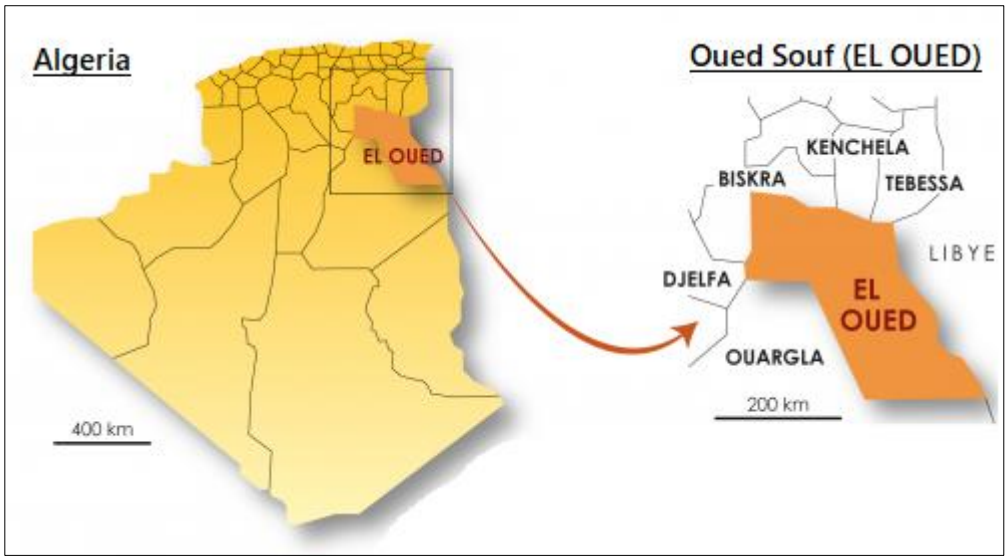

Figure 1. Geographical location and proximity of Oued Souf (Kadri & Chaouche, 2018).

Oued Souf, nestled amidst an expanse of dunes, palm oases, and agricultural lands, is characterized by a harsh desert climate. Summers are scorching and dry, while winters can be cold and severe, with temperatures varying considerably. In July, the average maximum temperature climbs to approximately 40.54 degrees Celsius, while in January, it plunges to around 5.15 degrees Celsius (refer to Figure 2). The annual average temperature hovers at 21.26 degrees Celsius. Humidity levels in the region fluctuate, reaching a low of 27.7% in summer and a high of 57.5% in winter. Precipitation is a rare occurrence, with an average annual rainfall of just 3.80 mm, primarily due to the city's distance from the sea. Rainfall exhibits significant variability and, during exceptional periods, can lead to torrential downpours, resulting in soil erosion and the degradation of green spaces. The region's climatic conditions are characterized by an extraordinary scarcity of precipitation, with an annual average not exceeding 76 mm (See Figure 2). Additionally, the area is marked by intense sandy winds, particularly the Saharan wind, which blows at velocities ranging from 13 to 16 km/h, predominantly in a northwestern direction during the spring. This wind is notably hazardous, often leading to the phenomenon of sand burial. Another prevailing wind, the Al-Shahili, carries scorching hot air masses with speeds oscillating between 10 and 17 km/h, originating from the south and prevailing throughout the summer months. These climatic conditions play a significant role in shaping the environmental context of Oued Souf (Boudalia et al., 2023).

Overview the Historical Development and Urban Landscape Changes in Oued Souf city

The historical development of Oued Souf can be divided into several distinct period according to (Ali, 2016):

The Pre-Colonial Period (Before 1890): During this time, the city lacked clearly defined boundaries, but it had a central nucleus with buildings dating back to the 16th century. The city gradually expanded around mosques and the market, mainly to the north and west. It was surrounded by palm trees and sand dunes.

https://doi.org/10.37896/pd92.5/92511

ISSN: 0369-8963

Figure2. A map of El oued city before 1890 (Ali, 2016).

The Second Period (1890-1911): This era marked the French occupation of Oued Souf. The colonization process began in 1854 and intensified in 1887. The colonizers established a planned colonial neighbourhood to the south of the Old City, with the goal of creating an administrative centre and connecting the North and South. This affected the continuity of the old urban fabric, especially as the colonizers sought to separate the two areas and constructed four observation towers around the city. Significant urban development occurred during this period, particularly in the North and South directions.

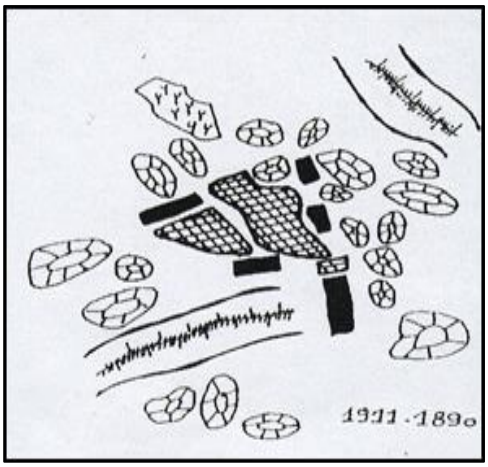

Figure3. A map of Oued souf city between 1890-1911 (Ali, 2016).

The Third Period (1911-1945): In 1945, the colonizers created a new neighbourhood in the southwest and built individual-style housing south of the Old Town, adopting a chessboard-like design. The colonial fabric featured perpendicular and wide axes to facilitate supply and transportation, incorporating local architectural elements and the old fabric. Expansion occurred spontaneously around palm oases and major axes, characterized by randomness and a lack of planning.

 https://doi.org/10.37896/pd92.5/92511

ISSN: 0369-8963

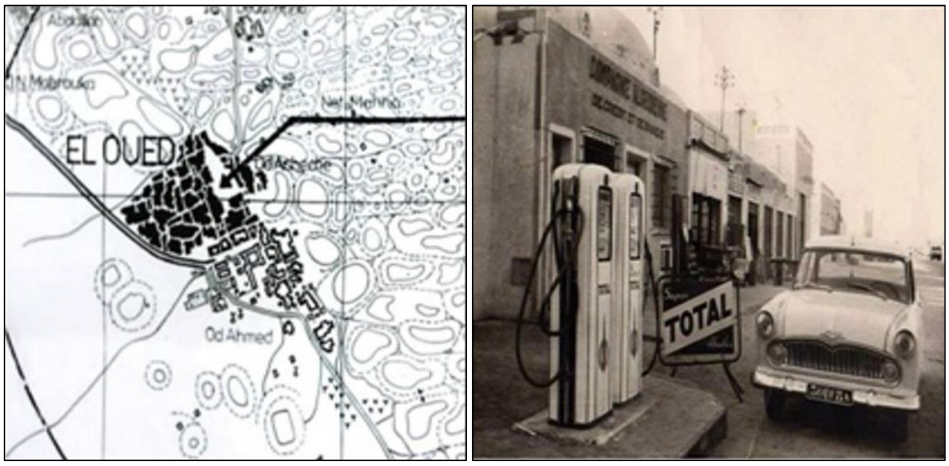

Figure 4. A map and a picture of Oued souf city between 1911-1945 (Ali, 2016).

The Period from 1962 to 1977: This period brought relative stability, with an influx of nomads and the return of refugees to the city, leading to rapid urban growth along the main axes. The city began expanding significantly along important axes in 1974, accompanied by a substantial population increase of 13.85%. However, this expansion was spontaneous and lacked advanced planning.

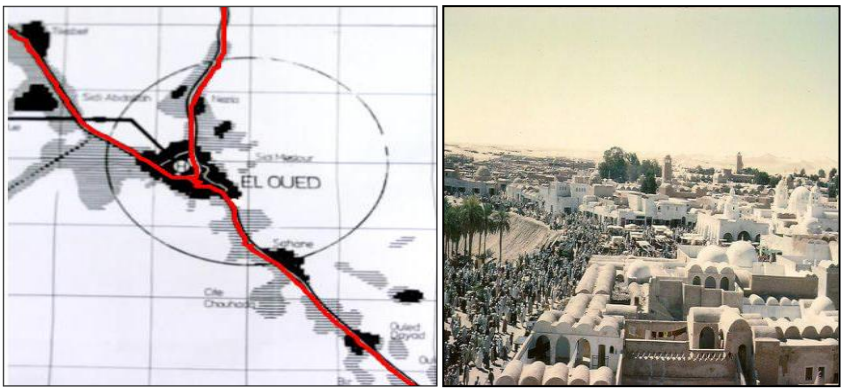

Figure 5. A map and a picture of Oued Souf city in 1962 (Ali, 2016).

The Period from 1987 to 1998: Oued Souf continued to experience urban growth in all directions. This phase featured harmonious and integrated urban development, including structured and planned individual housing in the northwest and the creation of semi-collective housing areas like the New Urban Residential Area (ZHUN) in the southwest. Despite some organization, individual dwellings in chaotic layouts appeared in certain expansion areas on the urban periphery. The city underwent significant development and rapid urban growth, particularly in the western and eastern regions. This expansion was substantial, with the exploited area increasing from 522 hectares in 1987 to over 1,000 hectares today, representing half of the total expansion over the previous thirty years.

https://doi.org/10.37896/pd92.5/92511

ISSN: 0369-8963

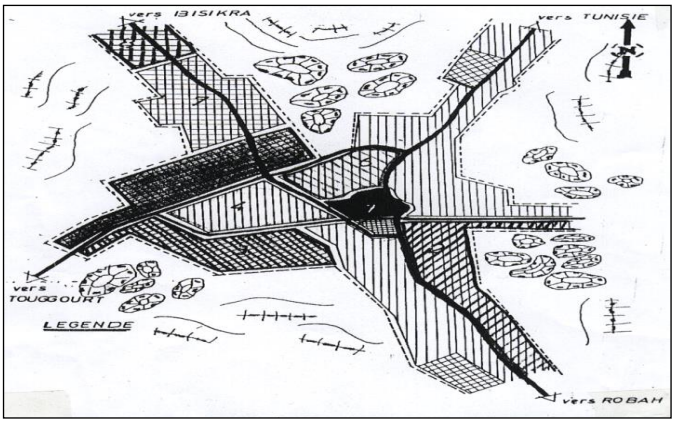

Figure 6. Map of Oued souf city in 1987 (Ali, 2016).

The Period from 1998 to the Present Day: During this time, the state completed approximately 79,960 residences in 1998, which increased to 93,673 by 2004. This led to significant advancements in public utilities and infrastructure. The period was characterized by a growing demand for housing, driven by the high cost of real estate that prevented state residents from building or owning individual homes. To address this demand, new neighbourhoods were established on the city's northeastern and southwestern sides, along with various residential programs, including developmental, contributory, rural, and others.

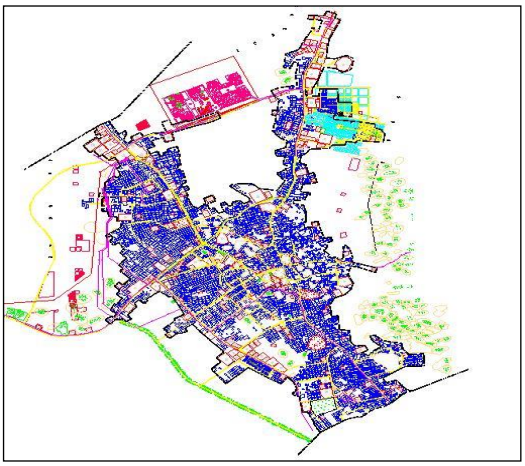

Figure 7. Master plan of Oued Souf city in 1998 (Ali, 2016).

The urban landscape of Oued Souf city

In recent years, Oued Souf, known as the 'city of a thousand and one domes,' has experienced substantial transformations and developments, akin to other desert cities. The city's urban expansion is attributed to thriving trade, widespread commercial services, agricultural growth, and administrative service presence, collectively shaping a distinctive urban landscape. At the heart of El Oued city, the Al-Ashash neighbourhood stands as a model for this transformation. Significant alterations have occurred along key axes, particularly Al-Taleb Al-Arbi and Mohammed Khmisti Streets, shifting their roles from residential to commercial and service-oriented (Mehibel et al., 2014).

The old city, situated in the center of Oued Souf and encircled by three main roads, showcases traditional architecture. This architecture is characterised by a compact urban structure featuring a dense network of narrow, winding alleys with varying widths and directions, providing shaded pathways that connect different neighborhoods. These architectural elements, such as cupolas, domes, and vaults, stem from a rich historical heritage and engineering innovation distinct from other desert cities. The city's alleys are meticulously organised, facilitating shaded movement and

https://doi.org/10.37896/pd92.5/92511

showcasing a responsive design to the hot climate (Halima & Assassi, 2022).The urban landscape has evolved over time, where traditional and modern urban and architectural elements coexist, harmonising the city's historical heritage with.

The urban landscape of the streets according to its architecture and urban environment

The Al-Ashash neighborhood is characterized by high building density, a predominantly low-rise architectural profile, and narrow streets (figure 8). In the following sections, we will present a comprehensive analysis of street activities and the overall visual landscape of the entire area.

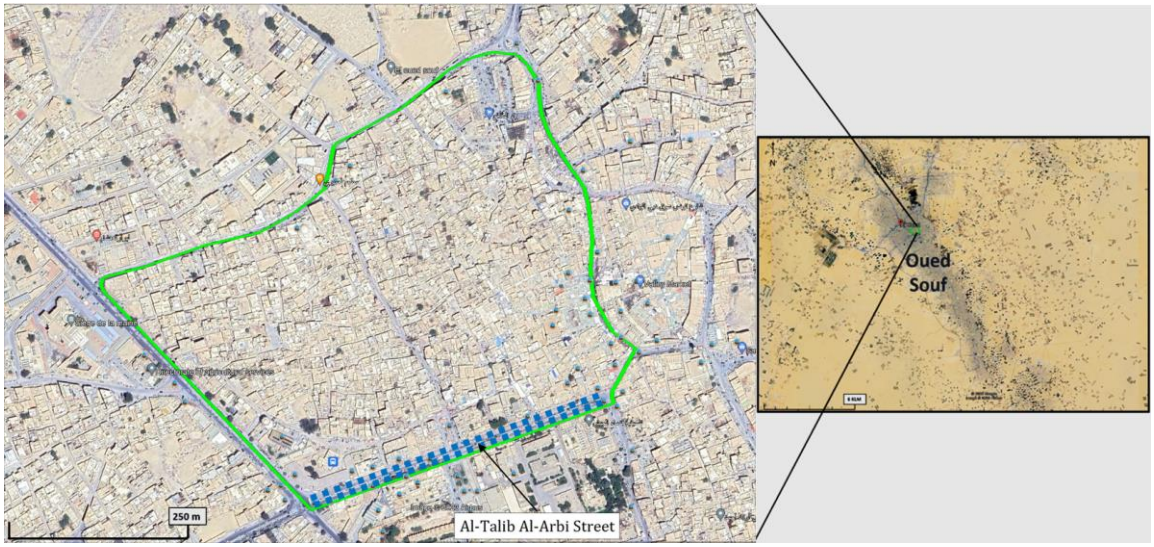

Figure 8. Location and perimeter of the Al-Ashash district and its urban landscape (Google-map, 2023).

a. Street activities

The neighbourhood features a high building density, with most activities concentrated along the main street of Al-Taib Al-Arbi. This street is lined with numerous structures on both sides, comprising a variety of building types, including two hotels, a bank, the Algerian Telecom Center, and several other administrative buildings.

Table 1: Type of building on the main street of Al-Ashash neighbourhood

The total number of buildings	Commercial buildings	Administrative buildings	Public squares	Services buildings
98	70	8	3	17

b. Visual analysis

The visual analysis has been divided into two modalities of analysis. First, an analysis of the architectural character and quality of the city's street development and its architectural features. Second, a critical visual analysis of the urban buildings and the overall urban environment in the city of Oued Souf (Table 2,3,4).

 https://doi.org/10.37896/pd92.5/92511

ISSN: 0369-8963

Table 2: Urban type and characteristics of buildings along the street

	Visual analysis and notes	Pictures
Buildings heights	Figure 9. The photograph is captured from the street that was introduced in the midst of Al-Ashash neighborhood. Nevertheless, its height does not align with the character of the historic structures within this older district, giving rise to evident visual pollution	
Buildings Skyline	Figure 10. This altered image of the street reveals an inconsistency in the building heights on both sides of the road. The uneven and irregular skyline disrupts the overall aesthetic harmony of the city's landscape.	
Buildings characteristics	Figure 11 illustrates the significant disparity in building heights, which profoundly impacts the architectural and urban features of the area. This incongruity results in a marked decline in the aesthetics of the urban landscape, leading to a lack of balance and cohesion.	
Architectural style	Figure 12 highlights the notable absence of a distinct architectural identity, resulting in a lack of cohesiveness. Furthermore, it is evident that there is a tendency to imitate foreign and exotic architectural styles.	
Colour uses	Figure 13. The inconsistency in the color palette of the buildings lining the city's streets, alongside structures devoid of any form of coloring, has resulted in a decline in the artistic and aesthetic appeal for the residents. This is further compounded by the presence of incomplete buildings, which have had an adverse impact on the overall harmony and unity of the street. Architectural and urban expressions are notably absent, particularly on the facades of the buildings.	

https://doi.org/10.37896/pd92.5/92511

ISSN: 0369-8963

Facades cladding	Figure 14. The incorporation of various extraneous materials, especially in terms of finishing materials and external cladding, has resulted in a lack of uniformity within the overall urban landscape. This has further contributed to the distortion of building structures and their facades, ultimately giving rise to what is commonly referred to as visual pollution and a lack of coherence in the urban environment.	
Forms of openings in the facades	Figure 15. Within this street, we observe unfinished structures characterized by repetitive and unadorned doors and windows, lacking artistic and aesthetic elements. These buildings fail to integrate the architectural and urban features of the desert environment, resulting in their discord with the surroundings and an aesthetic imbalance within the urban landscape. This is coupled with the absence of a distinct architectural identity throughout the city and its streets.	
Billboards on facades.	Figure 16. This street is characterized by a multitude of signs above the shops, displaying various shapes and colors in different sizes. However, the absence of a coherent vision or a well-thought-out strategy for these signs has resulted in significant visual pollution. This has had a detrimental impact on the overall aesthetics of the city, as it lacks artistic, architectural, and urban expressions.	

Table 3: The urban dimension visually

	Visual analysis and observation	**Pictures**
Visual sequence	Figure 17. Continuous movement, whether involving vehicular traffic or pedestrian activity on this street, adversely impacts the visual composition. Despite the street's ongoing nature and openness, it fails to offer a visually enriching experience for pedestrians.	

https://doi.org/10.37896/pd92.5/92511

ISSN: 0369-8963

Visual containment	Figure 18. The extensive vehicular traffic, primarily comprised of cars and trucks, created significant disruptions, resulting in a lack of tranquillity and luxury. This situation gave rise to visual and auditory pollution, compounded by the absence of visual enclosure along the street and a lack of visual unity.	

Table 4: Environnemental dimension.

Places designated for pedestrians, sidewalks and footpaths	Figure 12. While pavements and footpaths are essential elements in the city, they have not received the requisite attention. This has impacted their cohesiveness and dimensions. Additionally, the complete absence of maintenance operations has further marred the overall appearance of the city.	
Places of green spaces and afforestation	Figure 13. Green spaces play a crucial role in enhancing the city's visual appeal and landscape. However, the city grapples with insufficient reforestation efforts, which have adverse effects on thermal comfort. Furthermore, the lack of uniformity in the shapes and sizes of trees has a negative impact on the city's overall aesthetic.	
Public lighting devices	Figure 14. Urban furniture plays a vital role in adorning the city and its streets. Unfortunately, in Oued Souf's city, there is a notable scarcity of lampposts, and those that are present lack uniformity. Additionally, the absence of nighttime illumination has resulted in a malfunction in the urban landscape. It is imperative to address these issues and give them due attention.	

https://doi.org/10.37896/pd92.5/92511

ISSN: 0369-8963

The urban furniture	Figure 15. This photo highlights the absence of certain public services, such as signage and waiting areas for public transport buses, as well as public restrooms. Additionally, the lack of billboards, symbolic and historical monuments, and other essential elements has contributed to the deterioration of the urban landscape.	
Mental image of the street and moral sense	Figure 16. Urban well-being is a crucial factor that often gets neglected due to various reasons, including the absence of adequate urban furniture. As a result, this street does not align with the mental image of its users. It is essential to enhance it with recreational and tourism facilities to create a distinctive urban landscape.	

Traffic and their visual impact on the urban landscape

The urban landscape is significantly impacted by traffic, as it plays a crucial role in shaping the landscape's features and characteristics. In particular, the street under consideration serves as a major artery with numerous facilities, shops, and services. Consequently, traffic on this street is often congested and lacks organization. This congestion is exacerbated by the absence of designated parking areas, leading to cars stopping on both sides of the street.

Figure 17. Traffic chaos and random parking lots in the main street of Al-Ashash neighbrohood. Source: Author.

https://doi.org/10.37896/pd92.5/92511

ISSN: 0369-8963

Discussion

Urban landscapes are influenced by various factors that determine their quality and character. In the case of Oued Souf and the Al-Ashash neighborhood, the impact of development, especially the expansion of main axes filled with commercial activities, has left an imprint on the city's aesthetics. The proliferation of commercial services has affected the overall visual quality of the city and has given rise to the phenomenon of visual pollution. Field investigations conducted on the main streets of the Al-Ashash neighborhood revealed several variables contributing to a less appealing urban landscape. These include the disparity in the design and color treatment of facades, the inconsistent use of building materials, and the asymmetry in external architectural elements. Additionally, the use of non-traditional building materials and an absence of coherent public billboards have further exacerbated visual pollution in the area.

The haphazard placement of public billboards without designated spaces has marred the overall cityscape. This lack of organization and aesthetic consideration not only disrupts the visual harmony but also detracts from the city's appeal. Furthermore, the absence of regular maintenance has resulted in deteriorating infrastructure, affecting the urban environment and, consequently, the urban landscape. This issue is particularly prominent along streets like Talib Al-Arbi and Mohammad Khmisti, which are vital commercial hubs within the city. These streets host a variety of businesses, including clothing and shoe shops, telecom service providers, as well as administrative and service buildings. The high volume of both vehicular and pedestrian traffic, combined with the lack of designated parking, contributes to congestion, noise, and an overall sense of discomfort. This, in turn, has further compounded visual pollution in the natural and urban environment.

Conclusion

This study underscores the imperative need for enriching the existing laws and regulations concerning architecture and urbanism, particularly those pertaining to the aesthetics of urban landscapes. It is crucial to ensure that these laws are rigorously adhered to by all stakeholders. This entails curbing activities that impinge on the urban landscape, both within the broader city context and, more specifically, in the Al-Ashash neighborhood, while also acknowledging the adverse effects of these recurrent infringements on the natural and urban environment. The capricious interventions should be minimized, replaced with well-considered construction practices that align with the cultural heritage and the environment.

Moreover, there's a necessity to introduce novel legislation and contemporary intervention methods tailored to the current framework. Collaboration with civil society organizations, local authorities, and the Ethics Council of architects, along with various public officials, is essential to stimulate urban development that enhances the overall cityscape.

Prominently, the completion of construction projects and the elimination of construction workshop remnants stand as top priorities in preserving the unity of the urban landscape. Strict adherence to the laws and guidelines pertaining to construction and environmental intervention is crucial due to its profound impact on the city's overall appearance.

Disseminating awareness is a paramount endeavor, especially among young individuals and students. Employing awareness campaigns, educational initiatives, and local media platforms such as radio, newspapers, and social networks are vital tools in nurturing a sustainable environment and fostering an enlightened urban culture.

Lastly, it is of utmost importance to establish and furnish resting areas on the city outskirts, replete with adequate urban furniture such as general lighting, informative and directional signage, seating arrangements, and spaces for children's recreational activities. Further, encouraging the establishment of green spaces along roads, streets, and residential neighborhoods plays a pivotal role in refining both individual and societal artistic and aesthetic preferences. Such initiatives are instrumental in elevating the overall quality of the urban landscape.

 https://doi.org/10.37896/pd92.5/92511

References

Addoun, T., & Hadeid, M. (2019). Analysis of the spatial distribution of the commercial activities in desert cities: a case study of Ghardaia, Algeria. *The Arab World Geographer*, *22*(1-2), 15-31.

Al-Obaidi, M. M., & Al-Sharif, A. M. (2018). Architectural legacy of the city of Mosul out of the custom of building features of the old city. *International Journal of: Architecture, Engineering and Technology*.

Ali, G. (2016). أثر التلوث البصري على الصورة الجمالية لمدينة وادي سوف-دراسة حالة حي الأعشاش https://www.researchgate.net/publication/374583864_athr_altlwth_albsry_ly_alswrt_aljmalyt_lmdynt_wady_swf-drast_halt_hy_alashash

Asfour, K. (2007). Polemics in Arab architecture: theory versus practice. *International Journal of Architectural Research: ArchNet-IJAR*, *1*(1), 53-69.

Bagader, M. (2017). Climate adaptability in the Hejazi traditional architecture. *International Journal of Heritage Architecture*, *1*(4), 683-693.

Beatley, T. (2011). *Biophilic cities: integrating nature into urban design and planning*. Island Press.

Benslimane, N., Biara, W. R., & Bougdah, H. (2020). Traditional Versus Contemporary Dwellings in a Desert Environment: The Case of Bechar, Algeria. *Environmental Research, Engineering and Management*, *76*(4), 118-130.

Boudalia, S., Gueroui, Y., Zebsa, R., Arbia, T., Chiheb, A. E., Benada, M. h., Hadri, Z., Youcefi, A., & Bousbia, A. (2023). Camel livestock in the Algerian Sahara under the context of climate change: Milk properties and livestock production practices. *Journal of Agriculture and Food Research*, *11*, 100528.

Eberhardt, I. (1990). Au pays des sables. *Études françaises*, *26*(1), 69-72.

Eberhardt, I. (2023). *Au pays des sables*. BoD-Books on Demand.

Edwards, B., & Turrent, D. (2002). *Sustainable housing: Principles and practice*. Taylor & Francis.

Elleh, N. (2011). Perspectives on the architecture of Africa's underprivileged urban dwellers. *Social Dynamics*, *37*(1), 43-77.

Farrag, N., Elalfy, M., & Mahmoud, A. (2016). Harmonization between architectural development and heritage in Siwa Oasis–Egypt. *ARPN J. Eng. Appl. Sci*, *11*.

Foruzanmehr, A., & Nicol, F. (2008). Towards new approaches for integrating vernacular passive-cooling systems into modern buildings in warm-dry climates of Iran. Proceeding of Conference: Air Conditioning and the Low Carbon Cooling Challenge, Windsor, London,

Giamarelos, S. (2022). *Resisting Postmodern Architecture: Critical Regionalism Before Globalisation*. UCL Press.

Halima, Z., & Assassi, A. (2022). Evaluation systems and their indicators in Legislations Constructivist as a standard In Shaping the urban environment in the regions of southern Algeria Through Executive Decree No. 14/27 of February 01, 2014. The city of a thousand domes and domes-Oued Souf-a model. *Technium Soc. Sci. J.*, *35*, 617.

Hawkes, D. (2007). 3 THE SELECTIVE ENVIRONMENT: ENVIRONMENTAL DESIGN AND CULTURAL IDENTITY. *This Page Intentionally Left Blank*, 29.

Ivashko, Y., Chang, P., Zueva, P., Ding, Y., & Kuzmenko, T. (2021). Continuity of traditions and innovation in modern landscape design in China. *Landscape architecture and Art. Scientific Journal of Latvia University of Agriculture*, *18*(18), 94-103.

Kadri, S. R., & Chaouche, S. (2018). La remontée des eaux dans la région du Souf: une menace sur un écosystème oasien. *Les Cahiers d'EMAM. Études sur le Monde Arabe et la Méditerranée*(30).

Kholladi, M.-K. (2005). SIG pour le suivi de la remontée des eaux de la wilaya d'El Oued Souf. *Congrès internationale en Informatique appliquée CiiA*, *5*.

Maffei, L., Boucherit, S., Berkouk, D., & Masullo, M. (2021). Physical and perceptual dimensions of open urban spaces in Biskra, Algeria. INTER-NOISE and NOISE-CON Congress and Conference Proceedings,

Mehibel, M., Pitts, A., & Gao, Y. (2014). Sustainability and the urban planning context: Housing development in Algeria.

Oliver, P. (1997). *Encyclopedia of vernacular architecture of the world*.

Pallasmaa, J. (2012). *The eyes of the skin: Architecture and the senses*. John Wiley & Sons.

Shahda, M. M., & Noseir, S. (2021). Traditional environmental treatments in arab architecture: As a guide to contemporary architecture. *Port-Said Engineering Research Journal*, *25*(2), 38-52.

Talee, S. M., & Shareef, A. M. (2021). The Design Characteristics of the Architectural Elements in the Houses of the Old Mosul City-An Analytical Study of the Iwan Element. *Al-Rafidain Engineering Journal (AREJ)*, *26*(2), 32-53.

Zandieh, M., & Seifpour, Z. (2020). Preserving traditional marketplaces as places of intangible heritage for tourism. *Journal of Heritage Tourism*, *15*(1), 111-121.