

Study of the Functional Service Impact on the City's Urban Landscape: Case Study of Batna City-Algeria

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Abstract

This study attempts to elucidate the functional services' impact on the urban landscape and their transformation in the city. Human institution has never experienced a period of decline. Several human population models across the world have emerged. As a result, humans have been served by anticipating and meeting their needs at all times and places. However, today's city responds to a jumble of geometric shapes, pictures, materials, colours, and promotional signs that are all thrown together without the coherence of a dysfunctional urban scene. This issue raises the question of the role of architectural imagination and planning in resolving the city's spectacular disequilibrium.

This research focuses on the analysis of this urban phenomenon and its relationship to service functions. Batna quarters have been chosen as a study model. Thus, we used approaches to analyse and comprehend the resulting phenomenon, identifying the spectral imbalance and its causes to implement measures and interventions to reduce it and improve the city's overall landscape.

Key words: Urban landscape, functional service, the city, Batna city, urban environment, urban landscape degradation.

INTRODUCTION

Various functional services expand throughout a large swath of the city, sweeping all the city's components from its core to its suburbs. These services occupied key places, drawing a large number of people daily. As a result, some cities in third-world countries in general and Arab countries in particular, struggle to sleep. Thus, the issue seems complicated regarding the new foreign types that create spectacular foreign landscapes and make the treatment of its urban space prone to conflict between the original and intrusive models. It undoubtedly affects the entire urban landscape and aesthetic picture with the details of various city components, their urban and architectural ties, and even their functionally defined amenities.

This phenomenon has been occurring in Algeria since the beginning of the third millennium. Indeed, numerous service stores have sprouted up in the form of primarily consumerist supermarkets, which employ all fast systems for creating and processing primarily economic properties. Like other Algerian cities, Batna has undergone an urban phenomenon reflected in urban landscape changes due to several visual changes. The characteristics of this phenomenon may be found in numerous of the city's most important sectors, ranging from the district centre to all other components. Different functional services are deployed on the main streets of both the planned and unplanned urban fabric. Thus, they form an incoherent mosaic in a scene integrated beneath the buildings of planned residential quarters, as opposed to individual built. Consequentially, the urban façade prints two contradictory images of the facade's architectural characteristics, not to mention the anarchic exploitation of floors and walkways that throw the user, creating an incoherent urban landscape. From this point, we raise the following question: How might cities respond to society's functional service demands without severely affecting the city's urban landscape? The present paper aims to:

First, demonstrate the influence of functional changes in urban places on the urban landscape; then, search for effective reasons to arrive at solutions that absorb the shocks of incoherent landscape changes. In particular, since the city's beauty and regularity are reflected in the urban landscape.

FUNCTIONAL SERVICES IN THE CITY

The function is the foundation for the establishment of cities. The function of the city is divided into two parts: the internal function, which is provided to its residents within its urban area, and the external function, which is provided to the residents of its territory. In this article, we will discuss the internal functionality of the city and the definition of service professions to understand the function of urban service in the city.

Several service ideas have been included, according to different viewpoints among researchers interested in this field, the most notable of which are:

Kotter Philip's Definition: Services are activities or benefits that one party can provide to another, and they are intangible. In other words, they do not result in possessing something, and their provision is not linked to material output.

Cronos's Definition: Services are perceived and replaceable activities provided by specific businesses, institutions, or institutions that provide services. From the above, service may be defined as a material or moral benefit provided by one party to another. Indeed, social services, or community services, as some refer to them, are activities carried out by both the public and private sectors. They are provided to people in a given territory to provide needy people with food and improve their quality of life. (Ghazim Abdel Salam, 2021, pp. 61-62).

Several scholars have mentioned the establishment of standards for functional city categorisation since these standards are passed through six fundamental steps: (<https://almerja.net/reading.php>)

Standards for Functional City Categorisation

General Description Phase: It represents the beginning of the functional classification of cities, and we find the "Smith R" classification, where he addresses the categorization of the city's professional categories.

Statistical description phase: This phase added more precise criteria for city functions to the classification. We find the "Marinelli 0.1916" classification, which relied on the functional economic style and the central places.

Statistical analysis phase: In addition, we mention the "H.J. Nelson 1955" classification, through which he attempted to avoid the errors and flaws of previous classifications. He based on the functional services categorisation using statistical analysis techniques.

The phase of the city economic base: This categorisation focuses on economic data. We mention the research of "H. Hoyt," which separated the city's activities into «basic" and "non-basic" ones.

Multi-variables analysis phase: Using a multi-variable analysis method to find out how cities relate to a multiple series of variables.

Modern phase: This phase was supported by adopting several modern statistical, diagnostic, and survey techniques based on up-to-date information systems, which provided detailed information about the city and indicated the functions occupied and services provided both internally and outside.

Based on these categories, urban services inside cities may be classified based on the space occupied by service production and distribution. This category's services are classified as follows:

Infrastructure Network Services: It can be a mix of services concerning drinking water, electricity, gas, telephone, optical fibre, sewage, rainwater, waste, and demolition waste.

Function of a service: particularly, educational services such as schools, child care, universities, and institutes; commercial services such as retail and wholesale stores and commercial centres; health services such as health centres, clinics, and hospitals; communication services such as mail, phone, and Internet; recreational services such as parks and gardens; and cultural services such as museums and public libraries.

As a result, the commercial service and its various types of services in the urban environment are distinguished based on these brief definitions. Indeed, it resulted in a significant aesthetic impact, and different landscapes both harmonies and anarchies.

Commercial Service Definition

Commerce may be defined as a primary economic concept consisting of the sale and purchase of goods and services, with material compensation paid by the buyer to the seller. Alternatively, the exchange of goods or services between partners based on previously agreed-upon criteria. Thus, several researchers have examined the notion of commerce, including Spork's categorisation.

S.Porck's (J. S. Porck) Categorisation

S.Porck's classification is based on the segmentation of commercial service functions into six major categories, as follows:

- Entertainment, culture and luxuries / services / food / clothing / equipment / hotels, restaurants and coffee shops.

The primary characteristic of this categorisation is the category (Entertainment, Culture, and Luxuries), which shows how significantly S. Porck views the commercial activities category given its position in the city's commercial system

. (Noureddine Anoun, 2012, pg.92)

URBAN LANDSCAPE

According to research and studies, several definitions differ primarily in the notion definition of the urban landscape. However, the difference is in the presentation of a complete image of the elements and components of this landscape. The urban landscape represents the spatial arrangement and visual appearance of built structures and green views of space. In other words, it is the complete visual presentation of how we assemble the architectural components surrounding us. Indeed, it means more; it often reflects the way of life of those who manufacture or use it. (Tucker C, Ostwald M, Chalup S, and Marshall J, 2005, p58)

- The urban streetscape is a dynamic zone defined by the blocks on its sides that connect stable places. Thus, the street's dynamic space becomes the formal shape of the street, and the buildings serve as a background for this form. It consists of ground components, landscaping, plants, street furniture (signs, ads, benches, and so on), and supplies for infrastructure services. (Talal Abbas, 2000, p. 4)
- The urban landscape is the result of relationships between buildings and spaces, as well as between buildings, and the number of these relationships includes the city as a whole. Thus, a building is a building. However, two buildings constitute an urban landscape. (25 p, 1961, Cullen)

Based on previous definitions and notions of the urban landscape, we draw the following conclusions: The urban landscape is a collection of factors brought about by various human activities, all of which result in a variety of visual impressions and scenes that, in turn, give rise to distinctive characteristics.

Components of the Urban Landscape

There have been numerous theses advanced on the elements that comprise the urban landscape; however, they have been classified into two categories.

Urban facade elements: (Antoniades) pointed out that walls, windows, doors, vertical and horizontal elements, inserts, facade colours, and advertising and semantic signs represent the elements of the facades.

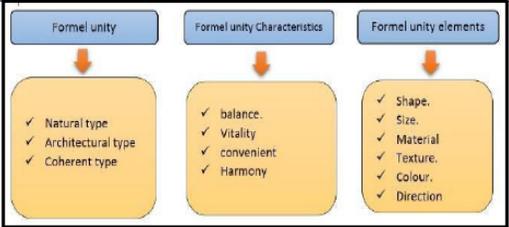
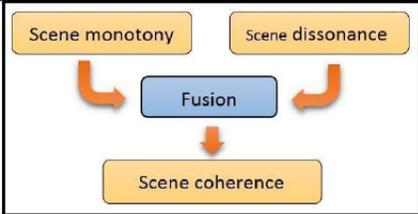
Other components of outdoor spaces: They include floors, roads, street furniture, and various attachments. (Iraqi Journal of Architecture, vol. 31, No. 03, 2015) Because these elements are numerous and diverse, we will study those in a limited manner as part of our research on urban landscape components.

Commercial Urban Landscape

The commercial street is one of the most visible elements in the urban environment through which the viewer moves. The elements of the urban environment are organised around and along it. Indeed, the integration of this element and its connection with the rest forms an integrated body that provides vitality and activity to humans. (Sabih Lafta Farhan Al-Zubaidi, 2016). The commercial urban landscape is the visual-spatial composition of built structures and nature through which the city appears and is seen from the outside. Thus, it reflects the lifestyle of people who make it up through various daily activities and events that take advantage of several spatial dimensions.

Urban Landscape Assessment

Several researchers have conducted detailed studies to evaluate the urban landscape, examining its components and demonstrating the relationship between them and their consistency. In this regard, the notion of the urban system, often known as “urban context,” has emerged. It expresses the relationship between the environment and the user, through which the urban landscape may be evaluated. In addition, they have pointed out that the urban landscape is a product of the urban context. This latter undergoes successive and consecutive changes, yielding forms and manifestations that emerge on the ground as events and scenic transformations that are perceptible, observable, or even tangible. Furthermore, they place the essential elements that contribute to the improvement and development of urban landscapes, whether during or after construction. Among the most notable of these theories are the following:

<p>Al-Haidari's study 2002</p> <p>Analytical items Architectural coherence. Scale. Texture. Model. Type. Colour. Urban details.</p>	<p>Al-Haidari's study explored the concept of harmony in urban landscapes through urban renewal processes. In his presentation, he stated that the intervention process to organise and value urban landscapes takes place through a series of steps and circumstances that he outlined in the following elements:</p> <ul style="list-style-type: none"> ✓ To ensure the continuity of existing urban elements, addition and renovation works must be consistent with existing elements and plots. ✓ The completed buildings and new additions must be in harmony with the existing buildings in terms of shape, colour, texture, architectural styles, and many details seen on outside facades, which are collectively known as urban facades. ✓ Harmony must be achieved by integration and communication in the identity and character of the urban landscape (continuity, succession, and coherence of my scene).
<p>Al- Qurra Gholi study 1999</p> <p>Analytical items -Shape. Size. Material. Texture. Colour. Lighting. Regularity of formal elements. Harmony balance. Vitality. -Line. Shape. Direction. Colour intensity. -Shape. Size. Material. Texture. Colour. Light.</p>	<p>-Al- Qurra Gholi's study addressed the concept of harmony in urban landscapes by delving into the nature of formal unity in urbanism as a system. Indeed, she has linked it to formal elements, focusing on shape as a scene-producing element. Furthermore, she has concentrated on the formal unity, dividing its constituent elements into observable manifestations, realisation cases, and circumstances. The following figure summarises the above-mentioned elements:</p> 
<p>Shirine Shirzad study. 1985</p> <p>Analytical items -Monotony and dissonance -Line. Shape. Direction. Colour intensity. -Shape. Size. Material. Texture. Colour. Light.</p>	<p>Shirzad converted her study on harmony into a book entitled “Principles of Art and Architecture.” In her work, she explores various basic principles regarding harmony, including dissonance and monotony. In addition, she emphasised how harmony works to neutralise these two aspects by combining them using many solutions supplied by harmony in shape, line, colour, and direction.</p> 
<p>Cullen's study,1961</p> <p>Analytical items -Continuity in colour, shape and size.</p>	<p>He has assured the inevitableness of the visual continuity of space or street, through which the visual translation process is facilitated. Thus, the sense of belonging to a place is reinforced. In addition, he has created two elements via which, according to him, urban landscape unity and visual integration are achieved:</p> <p>The relationship of elements at the overall level (general structure): It occurs on a large scale, referring to the relationship between the city's major constituent parts, such as quarters, large spaces, and regions.</p> <ol style="list-style-type: none"> 1. The relationship of elements at the parts level: It occurs on a small scale, marking the visual and formal relationship between two parts within a single quarter or street. We conclude from Cullen's notions that he regards the process of improving and organising the urban landscape as an architectural art; focusing on the inevitableness and unity of the urban landscape; this is an essential component for arriving at the correct urban landscape reading.

We conclude from Al-Haidari's research that he investigated urban landscape interventions and the criteria that must be met to improve and achieve urban harmony. We conclude from Al-Qurra Gholi's study that she concentrated on the shape unity. However, she ignores the human factor and the outputs of the urban service environment, which play a significant role in the definition and production of the urban service landscape. We conclude from Shirzad's research that she has summarised the harmony notion into two visible and physical elements, dissonance and monotony, combined according to a well-thought-out scheme. Furthermore, cases of formal harmony were linked to specific and combined factors such as shape, colour, and orientation. It is regarded as an exclusion for the rest of the elements involved in the visual urban harmony creation, particularly in the service sectors.

Cullen's reviews led him to conclude that the improving and organising process of the urban landscape is an architectural art, focusing on the inevitableness and unity of the urban landscape as an essential component for arriving at a proper urban landscape reading. In this regard, it is noticeable that all analytical studies are focused on the city's construction side. However, no attention is paid to the impact of the urban environment on all of these activities, although the vast majority of services have a clear impact on the urban environment.

The Urban Environment as a Major Component of the Urban Landscape

The urban environment is recognised as a crucial component of the urban landscape, presenting a prominent part of its characteristics. The urban environment is an organisational manifestation of space that focuses on the continuity of time in the human life idea, its activities, styles of living, and its limited ability to communicate cultural content across time.

According to Kevin Lynch, the urban environment influences human orientation (the idea of an exemplary environment gives a sense of comfort, psychological comfort, and personal expansion).

The environment is an interlocking set of environments: First, the geographical environment represents the entire world outside the individual's borders. Within this environment is the practical environment that affects humans, whether they perceive it or not. Then, there is the perceived environment, which is the perception of the environment. Finally, the behavioural environment is the component of the observed environment that leads to a behavioural response to that or any other element. (J.Douglas, 1977, P138)

The Nature and Foundations of Urban Environment Constituent Elements and their Coherence Criteria

"Each city has constituents. These components are a parts collection known as circles, enclaves, or sectors, some of which have specific and quite complicated characteristics. The characteristics of each city are linked to the model of zones, roads, commercial centres, service levels, and access roads." Thus, the proportion of their aesthetics is determined by their uniformity in appearance and external shape, as well as the consistency of their functions. (Madina Beauty Blog, 2015, p. 33).

According to the city code, the components of the urban environment inside the quarter or study area can be defined as follows:

Land use / buildings and their condition / paths / trees and plants / street furniture. Public lighting / pavements and footpaths / public transport / urban space.

THE ANALYTICAL PART AND THE SELECTION OF THE STUDY AREA

The Study Methodology

In this article, we will demonstrate the impact of the service function on the city's urban landscape using an inductive approach and a comparison approach derived from earlier research. In addition, to investigate this phenomenon, we employ appropriate research tools such as observing samples (on the street) and conducting field surveys. In this study, we will use analytical programmes such as geospatial data analysis and image analysis. Furthermore, the extent of its impact on the relationship between the distribution of service functions and the urban streetscape will be measured through its components. Moreover, we approach the study of the built fabric based on the visual analysis of the street and its buildings and activities, with an indication of its function, condition, and nature; based on elements of previous studies. Thus, we will summarise them in several progressive analytic steps, starting with the building and ending with the street in general. In this regard, we will use visual analysis techniques and the methods of analysis of the maps made around this axis for a more detailed study and understanding.

The Study Area

General Presentation of Batna City

Since the third century BC, its original inhabitants, the Semitic Berbers, today known as the Chaouia, have inhabited Batna. They are Caucasian in origin, and their homeland extends from the Atlantic Ocean to the African coast. The Phoenicians, Greeks, and Romans colonised this region. Beginning in the second half of the first century AD, when they imposed their language and culture, their civilisation was the most significant milestone in the region's history. Following that, this region had known Islamic conquests, Ottoman dominance, and French occupation.

Geographical location

The province of Batna is located within the physical ensemble formed by the Tell Atlas and Saharan Atlas series, which are the main features of the province's surface. It covers an area of 12038.76 square kilometres.

It is made up of 21 departments and 61 communes delimited by:

From the north: Mila and Umm El-Bouaqi.

From the south: Biskra.

From the east: Khenchela.

From the west: M'sila.

The city of Batna is located in the northeast of the province, between the mountain chains of the tell Atlas and Saharan Atlas, occupying an area of 57.2823 hectares, i.e. 25.24% of the total area of the commune. It is bordered by:

From the northeast: Mount Azab, with a height of 1360 m.

From the Northwest: Mount Kasro, with a height of 1780 m.

From the south: Mount Ish, 1809 m high.

From the west: Mount Touker, 2094 m high.

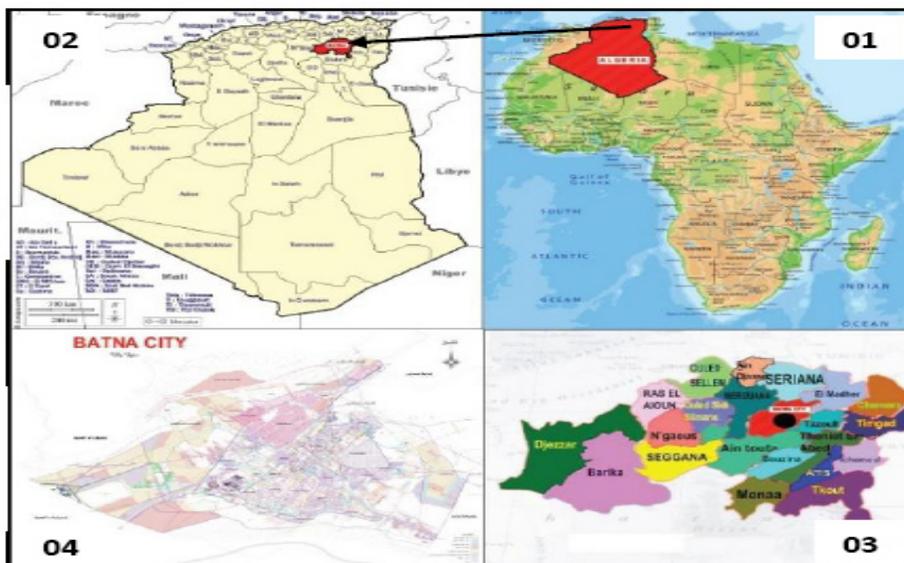
From the southeast: The main urban agglomeration of the commune of Tazult

For the city of Batna: Its area is about 11,641 hectares. 0.97% of the total area of province. It is bordered on the north by the commune of Fasdis, on the east by the commune of Oyouun al-Asafir, on the south by the commune of Tazoult, and on the west by the commune of Oued al-Shu'bah. Batna is located on a plain in a sedimentary basin at an elevation of 1040 metres above sea level due to its mountainous surroundings. It resulted in valley embouchure, the sources of which are these mountains. It should be noted that inundations from these valleys have frequently resulted in significant material losses. (National Agency for Territorial Development of Biskra, 1998, p11)

Map 2.

Location of Batna in Algeria.

Source: [https://:d-maps.comcarte.phpnum](https://d-maps.comcarte.phpnum)



Map 1.

Algeria's Geographical Position In Africa. Source :[https:// Wwww.Actualitix. Comcarte-](https://Www.Actualitix.Comcarte-)

Map 3.

Location of Batna city in Batna. Source: <https://agri-info.inva.dz/wilayas/batna-2/>

Map 4.

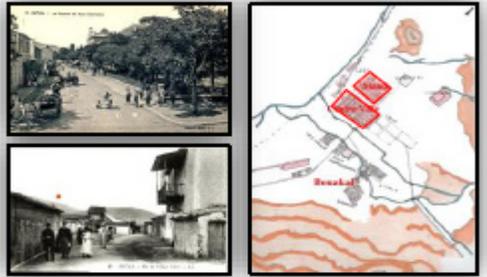
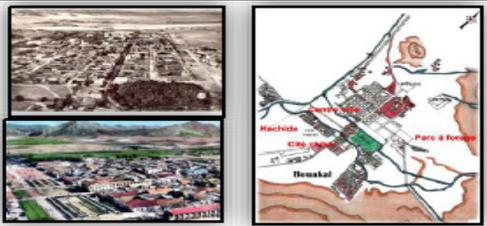
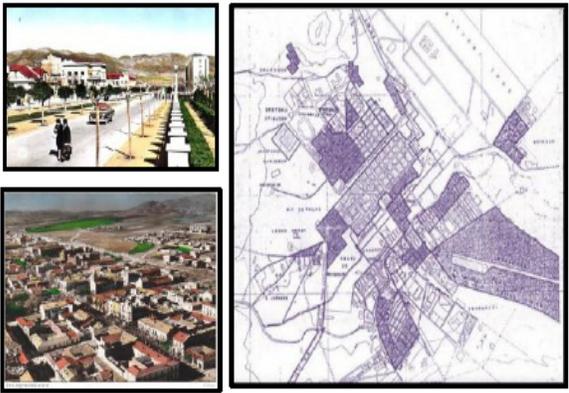
Location of Batna Map of Batna city Source: SCU -Batna

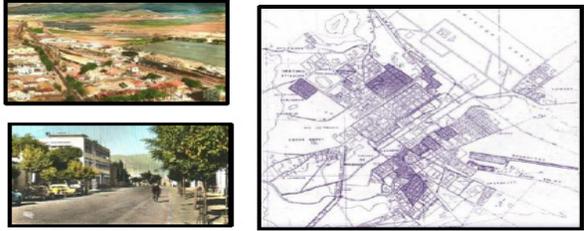
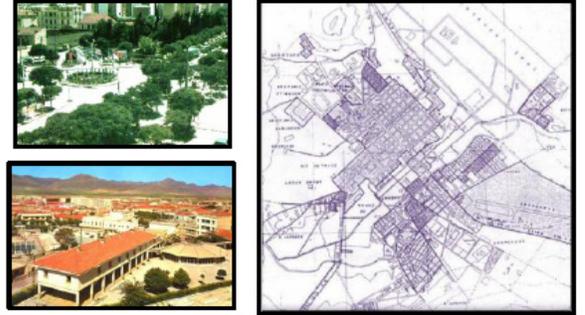
A Comprehensive Analysis of Batna's Historical Development and the Landscape Changes that Followed it

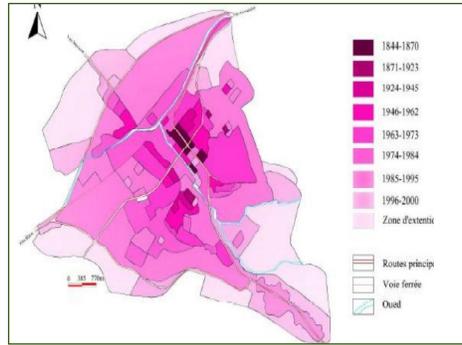
The development of Batna city is divided into two important phases:

a. Pre-independence period. 1844-1962

b. Post-independence period. 1963-to the present day

a. Pre-independence period. 1844-1962	
<p style="text-align: center;">The first phase 1870-1844:</p> <p><i>In 1844, French colonial authorities established a colony called Batna in the middle of the distance between Constantine and Biskra. A military installation has been built close to the community. A four-door fence that ran along two axes north of Wadi Batna surrounded this quarter. On September 12, 1844, an executive decree was issued that predicted that Batna would become a civilised city, despite its small population at the time.</i></p>	 <p>Picture 1. A map and a picture of Batna city in 1844 Source: Abd al Karim Sofiane, Magister thesis, 2016,</p>
<p style="text-align: center;">The second phase 1871-1926:</p> <p><i>Beginning in 1871, the city of Batna expanded, and the movement intensified until 1923. The city was divided into two independent sections in the Batna Valley, namely: Military core: inside the camp or from the fort to the north.</i></p> <p>Zmala and Bouaqal: <i>Like a traditional southern quarter. Two architectural styles distinguished this phase. The first is a colonial building organised and structured in the colonial quarter. While the second is a traditional and spontaneous local architecture in the southern quarter.</i></p>	 <p>Picture 2. A map and a picture of Batna city in 1871 Source: Abd al Karim Sofiane, Magister thesis, 2016</p>
<p style="text-align: center;">The third phase 1924-1945:</p> <p><i>Since 1923, several major projects have been planned in the city to transform it into an administrative and economic centre. Urban growth occurred in the two cores. It was characterised by a diverse urban influx between neighbourhoods and high-end housing (camp), in contrast to simple and traditional lifestyle in the second core (Bouaqal).</i></p>	 <p>Picture 3. A map and a picture of Batna city in 1924 Source: Abd al Karim Sofiane, Magister thesis, 2016</p>
<p style="text-align: center;">The third phase 1946-1962:</p> <p><i>This period coincided with several events, including the start of the Liberation Revolution and the emergence of the Constantine Plan in 1958. It is structured along two axes:</i></p> <p><i>In the Nord (European quarters): Characterised by the following: The emergence of HLM buildings with 180 collective housing units in Ben Boulaid Street, the 158 units neighbourhood, and the Fourier quarter toward the end of the 1950s.</i></p> <p><i>In the south (traditional quarters): Characterised by the following:</i></p> <p><i>During the war, the concentration of a large population in camp areas (Sheikhi, the development area, and Kashida) resulted in the development of squatter settlements. Thus, "Barkaforaj" is the first core of the chaotic quarters. It appears to the east of the core. "Buzuran" neighbourhood appears to the north.</i></p>	 <p>Picture 4. A map and a picture of Batna city in 1946 Source: Abd al Karim Sofiane, Magister thesis, 2016,</p>

b. Post-independence period. 1963-to the present day	
<p>The first phase 1963-1973: <i>This is the point at which Algeria gained independence. During the city's first years of independence, there was no notable urban development; the city's historic and traditional neighbourhoods continued to develop at random. During this period, the Auras 1968-1967 programme is implemented in the following quarters: The city centre (the original core), Sheikhi, Al-Majzara, the three parts of Bouaqaal, the Kashida, Bouzuran, and Barkaforaj.</i></p>	 <p>Picture 5. A map and a picture of Batna city in 1963 Source: Abd al Karim Sofiane, Magister thesis, 2016,</p>
<p>The second phase 1974-1984: <i>Another plan appears at this stage, the city's first known urban design plan from 1974-1978. It reinforces the previous programme goals. The goals were to define the city's growth zones by planning the two new urban residential neighbourhoods (1) and (2). The first is to the city's south, while the second is to the southeast. The goal was to reduce the arbitrary construction that have resulted in significant expansions in its four directions, including the quarters: Bouaqaal and Kechida, Barkaforaj, and Bouzuran. In addition, further growth is represented in the city's industrial zone to the north and east.</i></p>	 <p>Picture 6. A map and a picture of Batna city in 1974 Source: Abd al Karim Sofiane, Magister thesis, 2016,</p>
<p>The third phase 1995-1985: <i>The city's urban growth is continuing in all directions. Whether via voluntary operations included in the first design of urbanisation or through non-voluntary operations initiated by populations through illegal building operations. These last have significantly encroached on the city. These illegal building operations have taken over vital city's areas in large chaotic neighbourhoods for which Batna was known. Moreover, a notable construction project of 3 821 homes has been launched.</i></p>	 <p>Picture 7. A map and a picture of Batna city in 1985 Source: Abd al Karim Sofiane, Magister thesis, 2016,</p>
<p>The fourth phase 1996-2005: <i>The city of Batna has grown in previous phases resulting in the consumption of unoccupied urban areas that have been preserved for the long term. This stage's extension is directed in three main directions: Tazault Road by chaotically individualised buildings (suburban); this expansion is becoming a coherence with the Tazault city fabric and the Biskra Road through high-quality individual constructions. Marwana and Hamla Road; it has taken on several low-quality individual structures.</i></p>	 <p>Picture 8. Aerial photo of Batna city in 2005. Source: GOOGLE EARTH (16/03/2005)</p>
<p>The fifth phase: 2006- to the present day. <i>This phase is characterised by the emergence of new urban poles and residential areas that are more organised and controlled than the previous ones. A study of the master plan for development and reconstruction has been conducted, including seven municipalities in Batna: Fasdis, Wadi Al-Shu'bah, Tazult, Oyoum Al-Asafir, Syriana, Germa. The emergence of the new urban pole campaign (01-02-03) and the new scientific pole in Fasdis marked this phase.</i></p>	 <p>Picture 9. Aerial photo of Batna city in 2016. Source: Abd al Karim Sofiane, Magister thesis, 2016</p>



Map 5. Batna city development throughout time. Source : (SCU-Batna, 2010) Guedoudj Wided, Mémoire de Magister en Architecture, Option : Les établissements humains dans les régions arides et semi-arides

Functional Services in Batna City

In recent years, the city of Batna has experienced an urban boom parallel to the employment boom. New jobs have appeared to meet the needs. The commercial service function has spread throughout the city, in addition to the administrative service function, which has been organised in limited areas. It has even formed the dominant urban landscape in the known image of the city. In this study, we chose a street located in the heart of Batna city (Mazoji Omar Street). It was previously a residential street with few services. Nevertheless, it was briefly transformed into a service and commercial street (retail and wholesale). The aim is to study the impact of this phenomenon on the city's urban landscape, as this street has become one of the most significant points of polarisation of movements and exchanges.



Picture 10. Aerial picture of the studied area (Mazoji Omar Street)



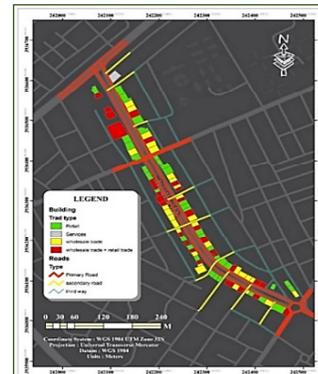
Map 6. Service sectors in Batna city (area of study)
Source: By author 2022

Analysis Steps and Elements

There are international and academic standards that define the scene analysis approach. They employ urban and visual description methods to comprehend the features and impacts of the urban landscape and analyse its character along the region or axis of research. Accordingly, they focus on the crucial parts that characterise the essence of this scene. According to the previous study's findings, these aspects constitute a synthesis of the built-up regions' examination and their urban environment. Thus, we conduct the following three analytical elements:



Map 7. The study area in 3D (Mazoji Omar Street)
Source: By author 2022



Map 8. Services in the study area. Source: By author 2022

Analysis of Street Landscape According to Urban Architectural and Urban Structure

The Ground Uses: The primary use of the ground (Muzouji Omar Street) is commercial and for services, the table below depicts how the street's land is used.

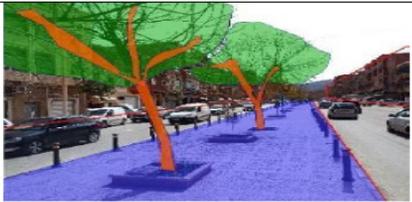
Building number	Retail trade	Wholesale trade	Retail+Wholesale	Services
94	36	29	28	01

Visual Analysis

We divided the visual analysis into two analytical components

1. Analyse the architectural style and characteristics of the buildings along the street.
2. Analyse the urban and visual environment, as well as the urban environment.

Urban Type and Characteristics of Buildings Along The Street		
	Visual analysis	Picture
1-1 Heights	This is a photo taken from the street, showing the height of the buildings, which are mostly of average height. However, their height is inconsistent, creating a clear visual disequilibrium.	<p>Picture 11. Source: By author 2022</p> 
1-2-Skyline	According to the red-coloured block shape shown in the accompanying image, the skyline of the constructed blocks is incoherent on both sides of the street. Because it forms a wavy and irregular line, the surfaces become incoherent and heterogeneous, deforming the overall scene of the block.	<p>Picture 12. Source: By author 2022</p> 
Buildings details :	The incoherence of building heights significantly affects the architectural details. Thus, there is a significant drop in the quality of surrounding buildings in their most basic details. In addition, it affects the structure of the urban landscape, causing an imbalance in the coherence of the urban landscape.	<p>Picture 13. Source: By author 2022</p> 
Architectural type:	We observe in the street that there is no distinct architectural identity, which translates into a lack of cohesion. In addition, we notice a hasty attempt to simulate foreign and exotic architectural styles. Thus, it resulted in the construction of an urban landscape that does not reflect the local identity of Batna.	 <p>Picture 14. Source: By author 2022</p>
1-5- colours	The majority of the prominent colours on city streets are clear, earthy, incoherent, and not homogeneous. In addition, we observe colour degradation and the presence of certain buildings without colour due to incomplete construction. Thus, the phenomenon of visual pollution in the streetscape has negatively affected the overall coherence of the streetscape.	 <p>Picture 15. Source: By author 2022</p>

<p>1-6- Finishing materials and cladding for facade</p>	<p>In terms of finishing materials and exterior cladding, we notice heterogeneity and degradation, as well as certain buildings with uncompleted facades. Thus, it contributed to building deformation, resulting in evident visual pollution and an incoherent urban landscape.</p>	 <p>Picture 16. Source: By author 2022</p>
<p>1-7-Openings and their shapes.</p>	<p>In this street, we notice repetitive and monotonous shapes of several openings for store entrances. The upper facade's openings take the form of repeated squares, as well as balconies that take numerous, incoherent, and measured shapes. This has contributed to building deformation, which affects neighbouring buildings and so, the street as a whole.</p>	 <p>Picture 17. Source: By author 2022</p>
<p>1-8- Banners and billboards on facades.</p>	<p>The distinctive feature of this street is the prominent presence of banners over the stores in various shapes and colours. The establishment of these banners is not analysed and studied. Thus, it has caused noticeable visual pollution, which has led to the degradation of the street's urban landscape.</p>	 <p>Picture 18. Source: By author 2022</p>
<p>Urban Space and Urban Environment</p>		
<p>2-1- The urban visual space</p>		
	<p>Visual analysis</p>	<p>Picture</p>
<p>2-1-1 Visual sequence</p>	<p>In terms of visual sequence, the street is open and provides a comfortable visual continuity. However, the encumbrance of automobiles and heavy vehicles that use this axis on a daily basis has an impact on this visual sequence.</p>	 <p>Picture 19. Source: By author 2022</p>
<p>2-1-2 Visual containment</p>	<p>The visual containment in the street is almost non-existent, owing to the street's opening and the absence of unity. Furthermore, this street suffers from visual and acoustic pollution caused by the large number of heavy vehicles parked there. Consequently, it causes constant disruptions to users of this axis.</p>	 <p>Picture 20. Source: By author 2022</p>
<p>2-2- The Urban Environment</p>		
<p>2-2-1 Sidewalks and footpaths</p>	<p>It is noteworthy to comment on the significant dimensions of the sidewalks and footpaths. However, there is evidence of deterioration in certain areas. It is either due to a lack of maintenance or a failure to meet acceptable standards.</p>	 <p>Picture 21. Source: By author 2022</p>

<p>2-2-2 forestation</p>	<p>Concerning green spaces and forestation, it is noted that there is a small percentage of afforestation, and it is found to be decent in the middle of the street. However, there is no homogeneity in the quality and form of the trees, with a total absence of green spaces. Thus, it causes a negative impact on the urban landscape in the street.</p>	 <p>Picture 22. Source: By author 2022</p>
<p>2-2-3 Lighting</p>	<p>This axis is notable for the presence of lights (light poles) just in the centre of the axis. However, it is noticed that there is no lighting on both sides of the street, particularly near the buildings. It is also observed that the distribution of street lighting is not coordinated. Thus, it causes an imbalance in the urban landscape, particularly at night It is caused by a lack of planned, regular, and balanced public lighting.</p>	 <p>Picture 23. Source: By author 2022</p>
<p>2-2-4- The urban furniture</p>	<p>The absence of service kiosks, public restrooms, banks, cash dispensers, public information panels, signalization panels, bus stops, fountains, and historical and symbolic statuary is highlighted in the picture. This absence contributes to the deterioration of the urban environment and its inefficiency, which contributes to the deterioration of the urban landscape in general.</p>	 <p>Picture 24. Source: By author 2022</p>
<p>2-2-5 Mental image of the street and moral sense</p>	<p>The street does not reflect the users' mental vision. This is due to a lack of recreational tourism equipment and a lack of service urban furniture. Thus, these latter factors promote urban well-being and enhance the aesthetics of urban streetscapes.</p>	 <p>Picture 25. Source: By author 2022</p>

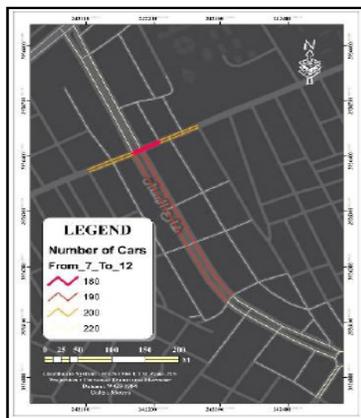
Traffic as a Crucial Visual Element of the Urban Environment

Traffic is a key factor in defining the urban landscape because it significantly contributes to its creation. The fact that this street serves as a main transportation hub makes this effect particularly obvious in the study area. In addition, there is a high concentration of service-related businesses and the issue of primary user attractions. In our study, we used a field experience embodied in maps generated by the programme (GIS). The goal was to calculate the number of vehicles that moved on the axis during the day. Furthermore, the purpose was to identify stop locations within the axis to measure traffic congestion on this street.

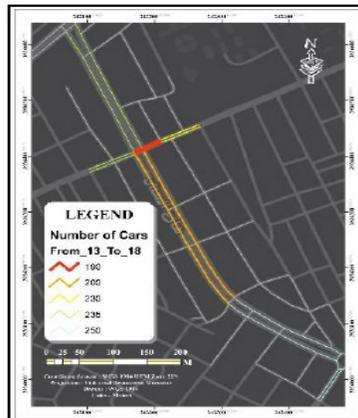
Traffic Congestion

In this analysis, we used a combination of field techniques and a computer program to translate the visual readings and analyses into map form. We conclude from the three maps, which show the number of vehicles crossing the street according to periods distributed as follows:

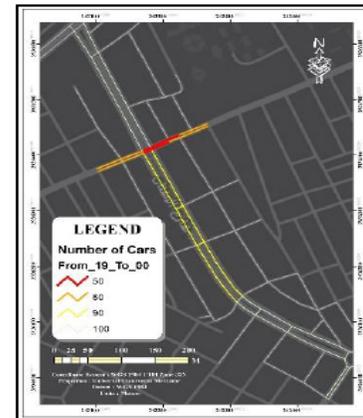
- √ From 7:00 to 12:00: We see the peak in the morning period. We find that the average number of vehicles passing in one hour is low. This is due to traffic jams and traffic disruptions.
- √ From 13:00 to 18:00: During this period, traffic congestion decreases compared to the morning.
- √ From 19:00 to 00:00: During this period, traffic congestion decreases considerably until it is completely absent during the night.



Map 9. The average number of cars crossing the street per hour between 7:00 and 12:00



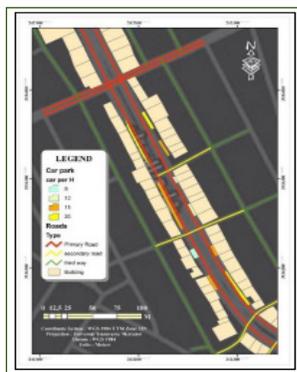
Map 10. The average number of cars crossing the street per hour between 13:00 and 18:00



Map 11. The average number of cars crossing the street per hour between 19:00 and 00:00

Parking and Stopping Places

According to the map of stopping places made, determining the number of vehicles parked at each hour and several locations on the axis, it can be noticed that there is random parking on both sides of the study axis for vehicles, whether trucks or cars. Thus, it leads to the obstruction of traffic and pedestrian flow. In addition, it creates noise and visual pollution in the urban landscape, negatively affecting the overall urban landscape.



Map 12. Car parks and number of cars parked per hour Source: By author.



Picture 26. Random and disorganized parking Source: By author 2022

RESULTS AND DISCUSSION

1. Finally, theoretical and field studies indicate that services play an essential role in establishing the nature and quality of a city's urban landscape.
2. The most prominent service in this axis, commercial service, has a negative impact on the urban landscape because it causes distorted landforms and adds to visual pollution.
3. Furthermore, throughout the street investigation, variables that have produced landscape have been identified, such as shape incoherence, building styles, colours, and outer resurfacing materials.
4. In addition, public billboards should be less chaotic and more coherent, as they contribute significantly to the visual pollution on the street.
5. The street furniture in the study area has degraded to the point that it is almost non-existent. This significantly affects the quality of the urban environment and, hence, the urban landscape.
6. Commercial activities, such as retail sales, contribute considerably to traffic congestion on this street. Thus, it has a negative impact on traffic in this urban area. In addition, it contributes to visual, noise, and environmental pollution.

7. We can conclude from the visual analysis that there is a deficit in the visual connections between the commercial buildings. The absence of a unified architectural style and the openings' various shapes and irregularities are the primary causes.
8. Indeed, the high number of random stops of commercial cars and goods delivery trucks at any time of day produces significant traffic congestion. Thus, it adds significantly to visual pollution.

RECOMMENDATIONS

1. The requirement for concerned authorities and city actors to enact laws governing service functions, in particular commercial services (detail and broad). More effective regulations must be developed for effective commercial service management and control to achieve an orderly, harmonious, and less polluted city;
2. To reduce and control the negative effects of this form of trade, large-scale retail outlets must be relocated and new locations established far from city centres;
3. It is necessary to work on urban revitalisation since it plays a significant role in the city's overall urban landscape through the direct publication of laws and mechanisms. In addition, several stakeholders must operate in the city, such as municipal authorities and building and construction agencies;
4. Performing on the passage of dissuasive laws to oppose incomplete and incoherent building shapes due to their significant role in the overall urban landscape change;
5. The need to run awareness campaigns to spread the culture of a sustainable urban environment, such as through organising study days and public events to educate citizens about sustainable urban and environmental culture;
6. The need to revitalise the city's green spaces, particularly in tertiary areas. It is due to their critical environmental and aesthetic role regarding general urban landscape improvement.

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