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Analysis of road networks (The landscape approach and Spatial syntax), Case of the Biskra road (Batna - Algeria)

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Abstract. The urban landscape is a concept closely linked to the comfort and well-being of the citizen. Today, producing a remarkable urban landscape has become an important issue in all countries of the world, a correct image that emerges from a product built frame is considered a capital gain for the attractiveness of the territory. This work is essentially interested in the urban landscape as a perceived quality, and according to a sensitive method combined with a visibility study with the tools of spatial syntax, applied to the case of study namely the city of Batna in Algeria, the 'Study of a historic street in the city, shows which urban landscape is in perpetual transformation. Recent changes have negatively influenced the image of the city's urban landscape and it is necessary to take urban measures in order to preserve it.

Keywords. Urban landscape, The landscape approach, Spatial syntax visibility, the city of Batna, Biskra Road

1. Introduction

1. The urban landscape

When we talk about the term of the landscape, several emerging senses, it would be interesting to define it in a universal way, so that we can grasp the adequate meaning. The definitions that follow are more or less close to each other and the common point constitutes the landscape-natural-man alliance. Thus Larousse defines us the landscape as follows: "Spatial, natural or transformed by man, which presents a certain visual or functional identity; Overview that we have from a given point. (Larousse dictionary).

Or simply: "A set of a country that is offered to sight. "According to the (dictionary the Internet user). As for Michel Corajoud in 1982, it stipulates that "the landscape is the place where heaven and earth are touching". Another look on the landscape by the European landscape Convention says that: "The landscape constitutes a Essential element of individual and social well-being and a recognized economic resource; It constitutes the common heritage of the nation. Another definition close to the previous one comes from the Ministry of French Ecology and Sustainable Development: "The landscape is an important element of the quality of life of the populations: in the city, in its edge, in the countryside, in the territories degraded as in those of high quality, in remarkable spaces as in those of everyday life ... It is in this sense that we can say that this mosaic of fragmentary images is a visual creation, from a sensitivity.

The landscape plays a major role in the development of everyone and living together. "(Michel Corajoud, 2014), Etymologically, the landscape is the arrangement of traits, characters, forms of a limited space, of a "country". It is a portion of terrestrial space, represented or observed horizontally as vertically by an observer; It therefore implies a point of view. The concept of landscape has a strong aesthetic dimension, even pictorial or literary as a representation, but it covers many meanings (buildings and sustainable cities, Ministry of Ecology, Sustainable Development and Energy, France) and the Landscape also manifests regional planning policies, even geopolitics. (Madeleine Griselin, 2003). We can add that the landscape is first apprehended visually, but the perfumes and sound atmospheres also modify its perception (we sometimes speak of sound, culinary landscapes, etc.).

However, all of the researchers agree that the landscape is "a set of visible physical elements" (1 J-P orange,) by what in the primary, common and widespread sense of the term, the landscape, it is "What I see" (according to Neuray, 1982), that is to say the "physiognomy of a space that we embrace the gaze or that of a country that we cross, that we travel or that we fly over"(Noirfalise, 1988).

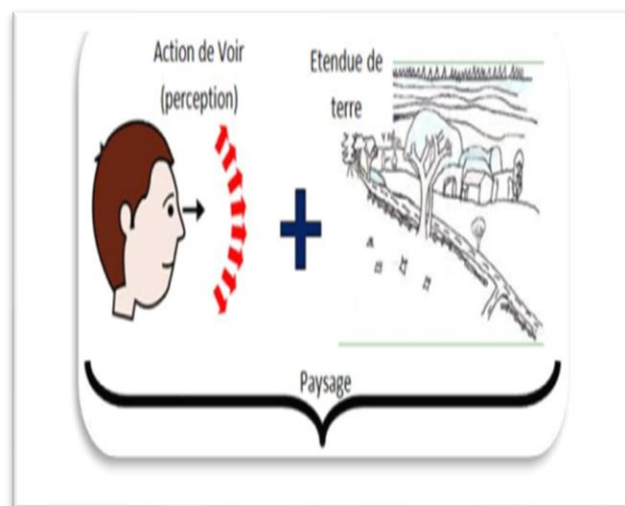


Figure 1: representation of the landscape

Source: Kirat .A. (2015), the proliferation of municipal solid waste and their impacts on the landscape (case of Batna), memory of Magister in architecture, University of Batna, 30 p

The city of Batna is one of the Algerian cities which, like other cities, have been exposed to the same imbalances, problems and crises, and it is now trying to find a way out, based on the current orientation of Algeria in terms of environmental protection. It is one of the cities that have been shaken by this urbanization (difficult to control), which destroyed the facade of the city, which harmed the quality of the urban landscape. With the landscape which can also be a movement, the city becomes a space of the fixed and mobile gaze. It is not just a built environment, a living environment, it is a space that is discovered for those who take the time to look at it and not only to browse or use it.

The experience of returning from a walk to the city of Batna, by the same route makes us discover different urban landscapes, to the point that sometimes we wonder if we have taken another path. The building is not organized everywhere in the same way, composing built sites and urban forms which contribute to differentiating and varying urban landscapes. The different

urban forms in road networks often have heterogeneous shapes, materials and colors. Thus the quality of architecture significantly influences the visual impact of city urbanization. Poorly chosen colors, inconsistent volumes, can degrade the image of the roads in a neighborhood or a site. The urban landscape then seems of poor quality.

Driven out time, the city's road networks have undergone major changes. The modification of its forms and its architectural quality contribute to the transformation of its silhouette but also in the trivialization of its urban landscape. - where the urban landscape appears dissonant, exploded, disparate, fragmented

The current analysis of the Batnèan city reveals the existence of an urban mosaic landscape where traditional, colonial, zhun, informal self-constructed districts, private, state and

Promotional subdivisions are mixed. The landscape structure, aspects of the city's dynamics gives us anarchic urban landscape perceptions influencing negatively on the quality of urban landscape.

For this reason, the Batnèens agreed that their city must respond to certain prerequisites that are the living, sober, circular, attractive, resilient and capable of gathering, an example of the quality of its living environment.

They find it stifling, noisy and overcrowded that raises many questions. Which require careful treatment :

a. How to interpret the urban landscape through their networks?

2. Visual aspect of the urban landscape and its interest in the image of the city

The perception of a landscape is done by means of the eye which is nothing without the brain which commands it. Before perceiving a landscape, first of all we see and the eye perceives entities as flat surfaces, but the lines of perspective and the reliefs allow us to distinguish volumes. Then there is the identification of objects and it is the brain that intervenes by calling for memory. In addition, there is a whole system of feelings and culture that enters into action. This is what makes the perception of one landscape differs from one individual to another. (Y. Luginbühl, 1977)

1. See the landscape: During the analysis of the landscape, the eye brings together information which is sent by the optic nerves to the brain. The latter, through various operations, will finally seek to coincide the image received with the memory database

(J.M.Loiseau, 1995) This is what is the mental image. Thus, "the image we see is the image proposed by the eye, and interpreted by the brain". Through all these mechanisms that operate in the brain, we understand that the image we see is only a theoretical vision that is called the perceived image. In order to see the landscape, we use vision as sense. Thus the eye analyzes the landscape by these different movements:

a. Accommodation: the eye tries to accommodate itself to have an overall vision of the landscape and a clear image, by the contraction of the lens:

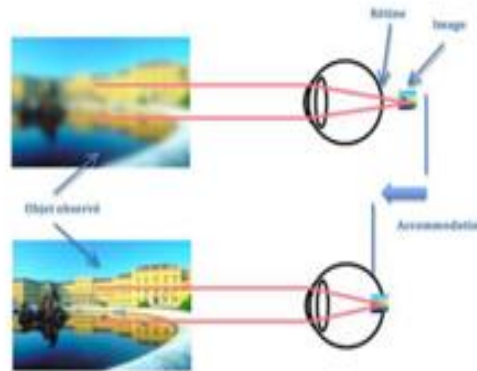


Figure 2: accommodation, source: Okkio, Optique, Toulouse, France (<http://okkio.fr/defauts-visual/>)

b. Balayage: Due to the limited field of vision, the eye begins to make continuous and extremely fast movements; -

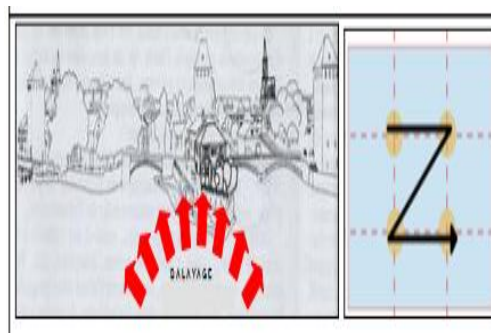


Figure 3: Balayage, Source: J.M.Loiseau. (1995), *The Urban Landscape*, Blood Edition of the Earth, 102 p

c. The call point: During the scanning, the eye is attracted by certain elements which are strong points. Their attraction varies according to their contrasts of light, colors and shapes.

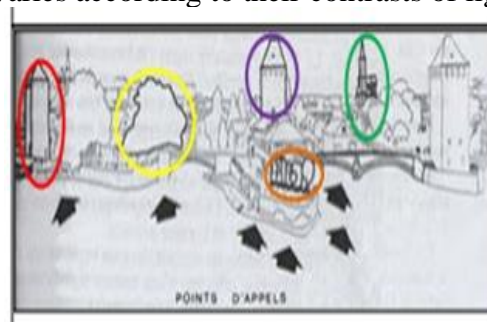


Figure 4: Le point d'appel .Source : M.LOISEAU .J. (1995), *Le paysage urbain*, Edition Sang de la Terre, 102 p

It is a sensitive approach to the landscape, that is to say that involves the senses rather than reasoning. Arriving at a place, it is first of all the view that guides the individual. It is a natural reflex, an automation. A general impression will emerge from the landscape that we discover for the first time: it will seem beautiful, calm and relaxing, ugly, or monotonous, etc.

The approach then becomes active and no longer passive: we will list the elements of the landscape, starting with the general descriptive elements and by going to the detail. To start reading the landscape, the observer needs to find your way, to orient yourself. Orientation in

relation to the sun or cardinal points is already a way to order by classifying and fragmenting the image around us. This is thus in urban signage we can distinguish several levels of identification:

- Immediate visual identification: where the individual discerns elements that allow him to guide himself.

- Mental identification, where spatial perception comes into play. (J.M.Loiseau, 1995).

2. Observations conditions

- a. The position of the observer in relation to the site: “When you are a spectator, you place yourself at a certain distance from the scene (where the show is developing the eyes built of the different landscapes depending on the distance taken by the observer between his post observation and the scene observed. It is therefore also a question of scale. The more the observer approaches the scene the more details, but less spectacle. At the limit he is on stage, and that implies considering the show otherwise.” (Maria Luiza Carrozza, op cit. (URL: <http://ccrh.revues.org/2600>; DOI: 10.4000/CCRH.2600)

- Immediate visual identification: where the individual discerns elements that allow him to guide himself.

- Mental identification, where spatial perception comes into play. (J.M.Loiseau, 1995).

- b. The observation time: (it influences the quality of observation, a short duration = a superficial perception).

- c. Time: (seasons, climates, day/night)

- d. The displacement (movement in the perception of landscapes): the displacement of the observer influences the reading of the landscape. In inertia, or stable position we dominate the landscape and get a clear image. In motion, this dominance decreases and disrupts itself, because the more you move and the more blurred the image.

- e. The rhythm rhythms of shapes, colors, plants ... We can detect rhythms in all the components of the landscape. f. The sequence "The notion of sequence is found both in the big landscapes and in the development of details. A sequence is also a fragment of course, physical or mental". (J.M.Loiseau, 1995)

3. The elements to observe

The physical forms of landscapes constitute the main elements of reading the landscape. Their reading will be from the point of view of their appearance rather than their substance (wood, metal, stone ...). For the sensitive approach, it is the appearance that counts, because the qualities of insertion of landscaped elements are evaluated only from the appearance of dimensions, geometries, materials or textures, colors ... Other cultural elements are superimposed on forms to strengthen identification: social functions of the place, meaning, history, toponymy. Anything that appears to be identifiable in the homogeneity of a landscaped fabric helps to read it through our perception. The topography: acts on the forms and the way of perceiving them. The relief gives an originality to the landscape: stalling of the masses built on the slopes, enhancement of the dominant views, urban front along rivers, the route of the tracks ... The visual field: the visual field is the portion of the space view By an eye looking straight ahead of him and motionless. When the eye fixes a point, it is able to detect in a limited space area, lights, colors and shapes. Several elements inform us about the depth of visual field:

- the textures that diminish with the distance (the more the material is identifiable, the closer the element)

- Built or vegetable perspectives.

- Games of shadows, lights, colors.

has. Visual limits: delimiting the visual field, perceived by the observer. These limits can be real or virtual.

b. The horizon: it constitutes the limit beyond which nothing is visible, this for the external horizon. For the internal horizon of the landscape being part of the field of visibility.

c. Distance indices: visual components determine a succession of plans:

d. The front plan (the first plane): at this level the elements appear with precision, detail of the forms, the textures ... it delimits a radius of around 100-200m, and is considered as the detail area, because it defines the landscape proper.

e. The intermediary plan (the average plan): landscape perceived beyond 100 m,

The eye perceives the forms and relationships of the elements between them, but not the details (secondary structure of the landscape), it is between the perception of details and generalization. At this level you can find several under plans.

f. The background: over a distance of the kilometer order, the eye only perceives the large topographic sets (mountain range, forest, city, ...). The overall perception reveals general forms, color contrasts but textures are imprecise.

J. The full and the voids: the highlighting of the built parts and the free parts determines the view in the open or empty of a district, an agglomeration or a city. "From this reading can emerge from the provisions, dominant orientations of the building: alignment, fronts, or on the contrary discontinuities, spacing ... The study of heights and templates completes the previous investigation. In this way, scale breaks or the homogeneity of the fabric, or even its density, "many of the urban landscape appear. On a frozen image, we give a global vision on the landscape according to the limits of the visual field, and there we begin to decompose the

image to better analyze it. The best method is that of cutting the landscape into several plans by citing their components. (See following figure)



Figure 5: Photo of an urban landscape in Hong Kong (to show one of the principles of landscape reading). Source: AMINE NEZZAR (2016)

3. Case study : Presentation of the city of Batna

The city of Batna is located in the heart of Aurès; the word Aures is probably of Berber origin, which can be found given to other mountains, notably to Jebel Aurès near Khenchela.

3.1. Geographical location of Batna

The Wilaya of Batna is located in the eastern part of Algeria between "4 ° and 7 °" of eastern longitude and "35 ° and 36 °" of northern latitude. Covering an area of 12,038.76 km². The territory of the Wilaya of Batna is almost entirely part of the physical whole formed by the junction of two Atlases (Tellien and Saharan) which represents the main physical

peculiarity of the Wilaya and therefore determines the characteristics of the climate, and human living conditions.



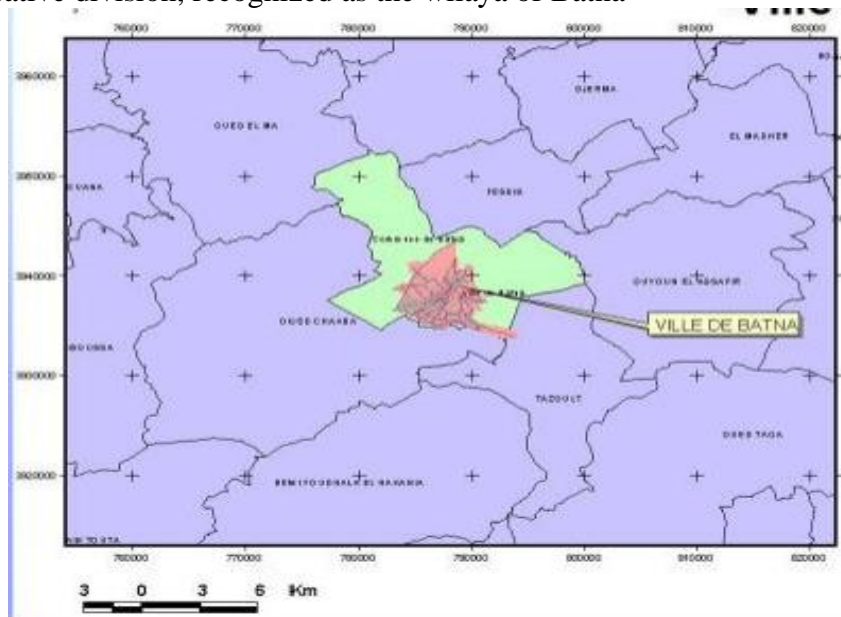
Figure 6: Geographical situation of the wilaya of Batna

Map1: Administrative Division of the Algerian territory

Source : https://fr.wikipedia.org/wiki/Wilaya_de_Batna

The city of Batna is located 430 km from Algiers, 120 km from Constantine, 120km from Biskra, 100km from Khenchela, 135km from Sétif.

She has taken an administrative situation since 1956 as "the Department of Aurès", up to the first administrative division, recognized as the wilaya of Batna



Map 2: Limit of the city of Batna, Source: Dridi Mahdi, Habibi Yahiaoui Abdelmoumene, Merdassi Hadda, (2011): traffic in the city of Batna (is Algerian) Reality and perspectives, approach by GIS. Fig Workingweek 18-22 May 2011 in Marrakech, Morocco.

3.2. Critical overview of the history and transformation of urban landscape of the city of Batna

The history of the Aures region is characterized by the passage to important stations which leave imprints on the life of the population in all its sides, precisely in the appropriate space.

Built in Roman times, the town of BATNA (with its outskirts) has been, over the centuries, a place of mixing of several civilizations which have marked its town planning and its architectural models. Let us take note, that on the south-eastern shore of the town of BATNA was developing "TIMGAD", "LAMBESSE", this unique Roman heritage, very rich in architectural matter. Until the appropriation of the first urban foundation (colonial city) in the mid-19th century, around 1848.([www.google.com/Chronologie de Batna](http://www.google.com/Chronologie%20de%20Batna))

a. BATNA-city, French by birth - South Gate

"..BATNA... a nice little center, although located at an altitude of 1060 meters. It is, without a doubt, the most coquettish city of the highlands, in the department of Constantine ..."
(**MEUNIER .M, 1939, P 97**)

Noting that according to HamatouRachid, in his article on Daily Liberty, the city of Batna is one of the few cities in Algeria to have "an inaugural stone"; founded by the French colonists in 1848 at the northern entrance to the city by the Duke of Aumale, which attests to the birth of a new city which opens a large door to the South, and the establishment of a military garrison. (**Duc d'Aumale : Général et historien français, 5^{ème} fils de Louis Philippe 1^{er}, roi des français, occupe Biskra en 1844, et ordonne la construction d'un camp définitif à Batna d'où la naissance de cette ville, le 22/06/1844.**)

Since 1844, French traces have been founded on this region, through works, which have been the object of the appearance of an urbanized city, and in a way or one can say European. be materialized by a new urbanism, treated by a new architecture compared to what was done in the past. In the early days, an appropriation of space was made by the colonists in dramatic conditions, destruction and mutilation of pre-existing structures, in order to allow the establishment and securing of military troops and settlers. (**Picard, alth, p 113.**)

b. French presence (unclassified heritage)

At that time the civilian city of Batna was founded, and this in several stages:



Figure 7: French colonial town of Batna in the 1920s.

Posted by: [vielles-photos-Algerie](http://vielles-photos-Algerie.com), Photographed by: [Philatours](http://Philatours.com), Source: <http://www.delcampe.net>

1-1844: foundation of the colonial military town

After the installation of the French soldiers, a military camp was built in the south-east near an already built village (negro village) - Z'mala now -. This camp was surrounded by a perimeter wall with four gates.

“.. Batna is the capital of a district which has three fully-fledged municipalities: Batna, Lambèse, Biskra, and five mixed municipalities. The commune of Batna covers 20,000 hectares ... Batna was initially only a supply point installed in 1844, at the time of the Biskra expedition, led by the Duke of Aumale. At first, the military administration was not in favor of creating an important center there. At most, she thought of establishing an agricultural center there with a small fort which controlled the route followed by the nomads in their biannual wanderings. The ancient Lambèse seemed to him quite naturally designated to become the center of French domination. Chance decided quite otherwise. A few suppliers who had come with the expeditionary column had erected barracks around the camp.

Their interests and the theory of the *fait accompli* prevailed over logic and the lessons of history. Instead of bringing out of its ruins the famous Roman city, seat of the Legion of Augustus, a simple penal colony was created there. (*MEUNIER .M, , 1939. P 12 – 18.*)

2-1850: Foundation of the civil town

The fortifications: which were built in 1848, of which the enclosure was built around the camp, of a rectangular shape of 900 x 400 m, pierced with 4 gates, leading to Constantine, Biskra, Sétif and the 4th connecting it to the ancient city of Lambese. This rectangle includes:

1-A northern part was intended for the dwellings of the civilian population, and buildings of public interest.

2-A southern part (the rest of the camp): is intended for constructions for military use.



Figure 8: The Two Camps Of The Legion IIIe Auguste àLambèse According to Recent Excavations

Drawing made by RENE CAGNAT, member of the academy of inscriptions and belles-lettres, extracted from the memoirs of the academy of inscriptions and belles-lettres, volume XXXVIII, part 1. Paris - national printing house – 190

B.1.Creation of the colonial nucleus - Le Camp:

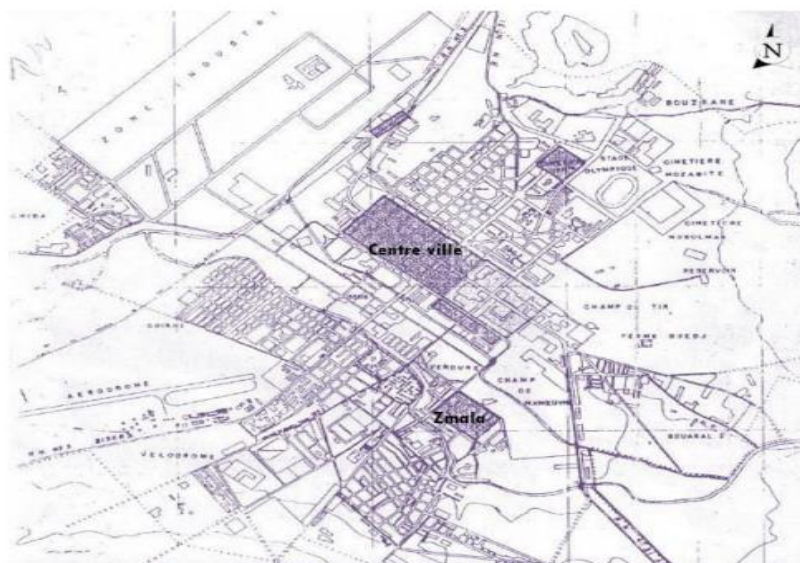
The city of Batna since its creation is surrounded by Rampart for security reasons and with four doors according to the main directions and which bear their names.



Map3: First nucleus of the city of Batna Source: PDAU-1998-BATNA

3-The evolution up to 1923

The colonial core inside the fortress is structured in two parts, one square in shape (the military camp), and the other the civilian city in rectangular shape. city (negro village or Z'mala), on the other side of the wadi of the city. Then, a realization of an aerodrome to the southwest of the road to Biskra.



Carte1: la ville de Batna en 1923 Source : SCU Batna, Urbaco, juillet 2009, p38

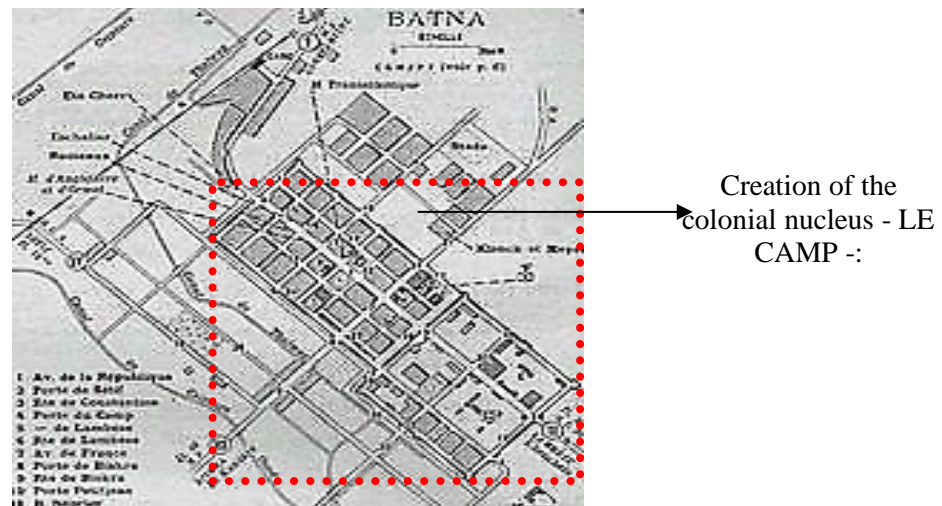


Figure 9: The town - Camp: The initial nucleus of the town of Batna, surrounded by ramparts, in 1850. Web source : www.fr.geneawiki.com

4. Period from 1923 to 1962

During this period Batna will play its administrative and commercial role, due to its level of equipment. In the north (the European districts), the introduction of apartment buildings, 140 plus 40 housing units in allées Ben Boulaid, Cité Million 158 housing units, Cité Fourrière 100 housing units at the end of the 1950s, as well as a construction and barracks in the North where there are currently finds Sanatorium, on the axis connecting the Christian cemetery and the Camp (rue de France). In the south (the traditional districts): the regrouping of a large part of the population during the war in the resettlement cities: Chikhi city with 252 dwellings, evolving city with 192 dwellings.

(*CHIBANI Kamel, 1844 – 1962, p 69*)

• *A rich and homogeneous urban landscape: alignment on the street*

Offering views that embrace the maximum of buildings would not be possible without alignment, which "corresponds to the determination of the establishment of constructions compared to the public domain". The public authority fixes at the level of a public route or place a servitude of alignment which corresponds to a line behind which any construction must be placed. Indeed this requirement was motivated by reasons of aesthetics, hygiene, safety and imposed by the evolution of industry and means of transport. Since the first foundations of the city Batna because of its two main axes (avenue de France and independence) marked by the peak of alignment. The facades overlooking the boulevards display straight lines without interruption, accentuated by the resumption of balconies and cornices.



Photos 1: Alignment on street and respect for the visual qualities of the site
(Bocca's esplanade)

The importance of the perspective is at the origin of the breakthroughs, because for the town planning of the colonial period 'the decoration is enriched all the more since the way was wide'. And allow constructions to participate fully in urban aesthetics by offering them an appreciable viewing angle. Other reasons have also weighed heavily in the choice of the locations of these breakthroughs. (Security reason, segregationist reason: by a sharing of the city in two distinct districts, including one European, at the central part "the central nucleus", and the other in the south "the negro village: Z'mala currently").

5. BATNA after independence to date

After independence, the city experienced an unprecedented spectacular shattering of the agglomeration in all directions. Without forgetting the urban sprawl in its peripheries. Of which, the extension of the city is oriented in three main directions: In the north-east by the Bouzourane district. In the south-west Kchida district - Route de Hamla. In the south: Bouakal.

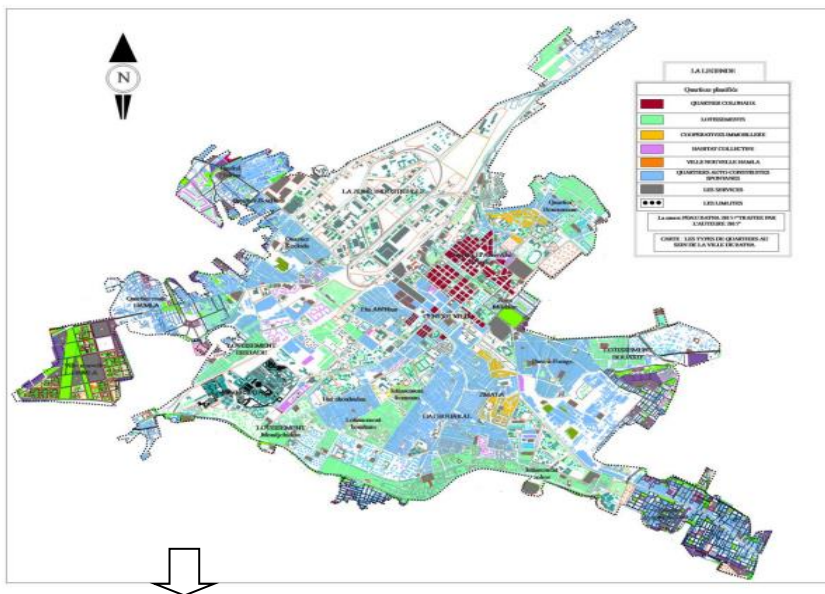


Figure 10: Current situation of the colonial city - CAMP- (red dashed outline)
(Source: www.google.dz/situation-géographique-camp-batna)

Legend: ■ Civil town - Camp- 1st French presence ■ Sprawl before 1962 ■ Sprawl after 1962

4. Research field study: Biskra Road Axis (from regular planning of deformed growth)

4.1. The reason for choosing the axis of the Biskra road in the city center

The Biskra road in the city centre is the driving hub of batna, which has been known since its inception with the movement of urban growth and development, which has affected this urban phenomenon, which is emerging in all fields

It is considered one of the most important roads that have a big role which affects its urban appearance and which gives value to the image of the city:

° The strategic location of this road and its location in the city) is a national road (as a structure for the first nucleus.

The Biskra road is the most frequent and frequent highway, which is a compulsory crossing to reach a specific goal, which has become day after day an area without joy and joy.

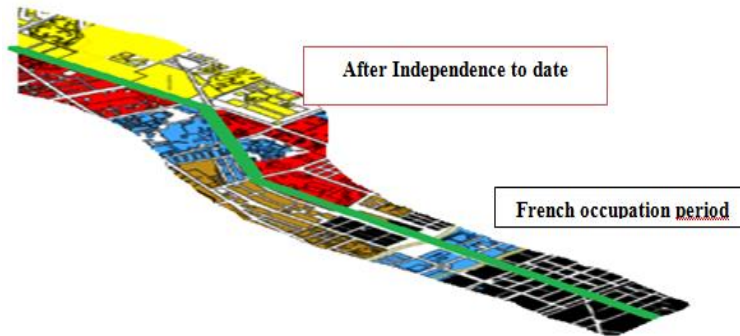


Figure11: The Historical Limit of The Biskra Road
Source : National Planning Agency 1994- Biskra

Table .1: Dimensions of The Biskra Road

The name of the road	Length (m)	View (m)	Classification
Biskra Road	3577	17	Level 1

Source: Technical Study of Roads, Directorate of Transport, Batna, 2014

4.2. Biskra Road Axis : French occupation period:(regular planning)

The City - Camp, is the first urban trace of the French colonial period to the city of Batna, and it is its initial core of its urban development since its creation. Currently, it symbolizes the spiritual heart of the city. To this end, it needs studies and interests in order to identify its components (homes, equipment, public places, etc.), and to enhance them.

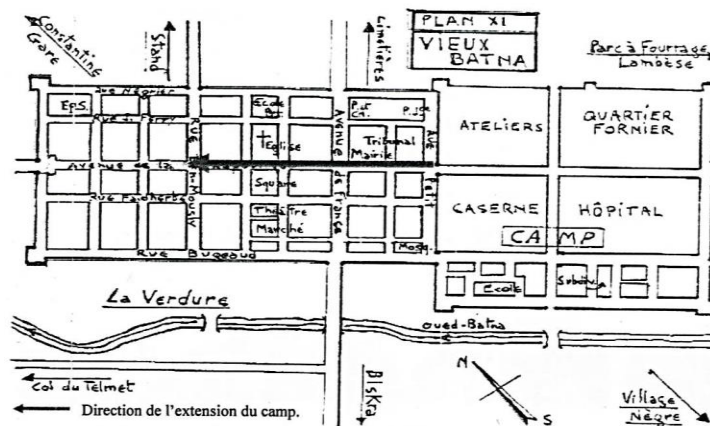


Figure 12: schematic plan of the urban composition of Camp 1855.
Illustration plan: Photo capture taken by the researcher at the archive service level

* Civil status of the Wilaya of Batna - (schematic plan is without reference given the anarchic condition of these documents due to a fire accident in level of this service in the 90s)

4.3. Description of the search field

The camp was established at the base of two structuring axes, with reference to the axes of the Roman city (the decumanus and the Cadro), translate, in the form of two main streets: rue de Constantine later called Avenue de la République, and rue de Biskra, called Avenue de France (currently avenue of independence).

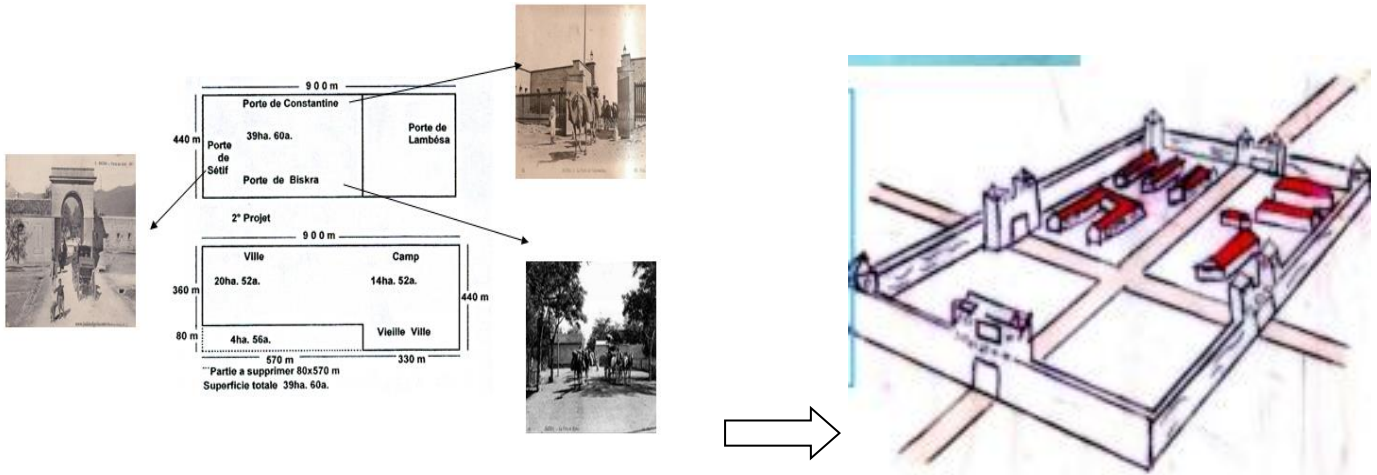


Figure 13: the fourth gates of the ville
Source: www.abcdelacpa.com



Figure .6: Porte de Biskra



Figure .7 : Biskra Road

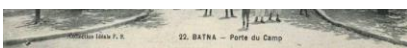
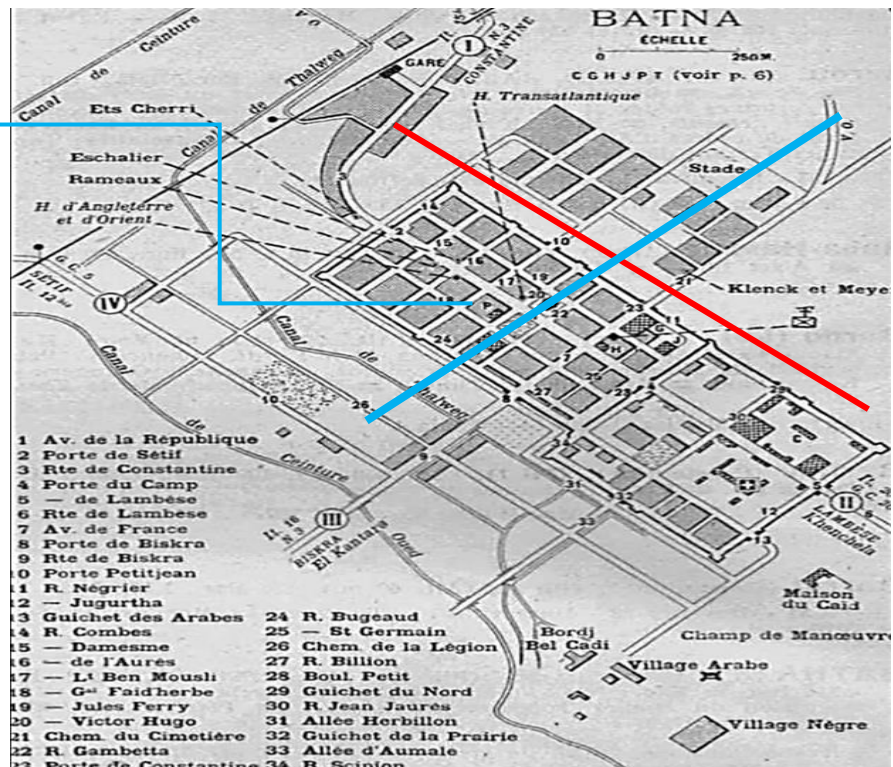


Figure 14: The city - Cam 1850.
Source: CHIBANI Kame.
N.B: The two axes which avenue de France)



This period was characterized by organized planning and is completely free of various manifestations of visual pollution

5. Approach methodology

5.1. The landscape approach:

The landscape approach: considers urban space as a landscape in its three - dimensionality, taking into account textures, colors, materials, styles, volumes, Gabaritsn... etc whose pioneers are G.culle (1965),. E.Bacon (1965), C Sitte (1889) and K.LYNCH (1960).

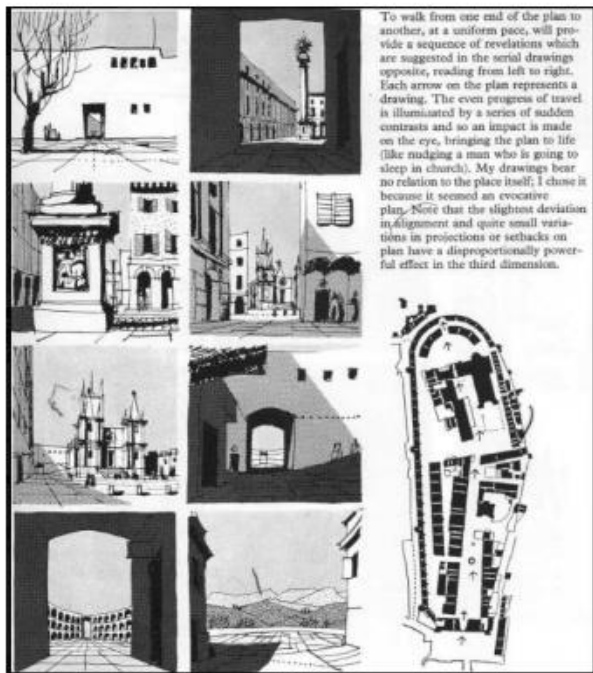


Figure 15: serial vision by Cullen, Source: Cullen 1961

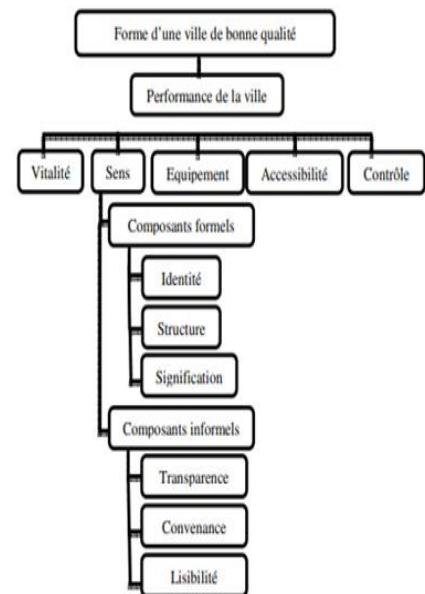


Figure16: Kevin Lynch's theory, of a good quality city, Source: Lynch, 1960

5.2. Kevin Lynch sequential approach:

A. Landscape analysis and the reading of K. Lynch (the elements of the urban landscape (according to Kevin Lynch)

One of the precursors to be interested in the urban landscape and the way of analyzing it is Kevin Lynch in his work "The image of the City". It defines the visual quality of the city landscape through the criteria of readability, imagibility, structure and identity. In our following study we have apprehended this section of the fact that Kevin Lynch in his book has set up the elements of the urban landscape in 5 points: the ways, the limits, the districts, the nodes and the landmarks. One of these points (the tracks) is the receptacle of solid waste in our study.

1. The ways (the paths): These are linear elements of the urban landscape, often traveled by individuals (pedestrians) as well as by different types of vehicles to move from one point to another. These include streets, sidewalks, full lands, trails, public transport lines, railways. The tracks are used to connect the different parts of the city. They can also be the support of several activities, and Several objects in this case solid waste.

It is also by browsing the ways that individuals perceive and apprehend the urban landscape. According to K. Lynch the quality of the landscape of the tracks is influenced thanks

to several qualities such as their continuity (of the road, the width, the name) or their direction (the slope, the gradients of intensity of use or of seniority¹. But like other factors that can alleviate the quality of the landscape there is solid waste, this being the theme of this study.

2. The limits: these are also linear elements of the urban landscape which can be points of rupture and separation but also points of attachment between different elements of the city. Concretely, it is afraid of shores, trenches, railway, extension limit, walls, etc.

3. The districts: These are surface parties of the city that give the user the impression of entering or getting out of it through thought. These are spaces of a identifiable nature by the particularities of their own. Typologies and architectural styles, the social and ethnic characteristics of the inhabitants, functional specializations, colors and atmospheres can all help to define a perceived and recognized district in the city.

4. Nodes: They are considered to be strategic points in cities as well as points through which the observer perceives the urban landscape. These can in particular be junction points, transitional places (places change of means of transport, this is the case for the metro or the bus), places of convergence of the tracks, a gathering area. But, a knot can also be all at the same time. There is a category of nodes which are those of the "nuclei" which constitute elements of centrality for the districts.

5. BEARING POINTS: The benchmarks are other occasional elements of the urban landscape. These are physical elements which have a certain attractiveness or a very distinct characteristic which allow the user to situate himself in relation to a place and to orient himself in an urban space. This can be a remarkable building, a singular plant element, a monument, technical equipment, a brand ... A benchmark must be well distinguished and get out of its environment by its shape, its style, its dimensions, its materials, its unique functions. The benchmark must mark a contrast with the elements that surround it.

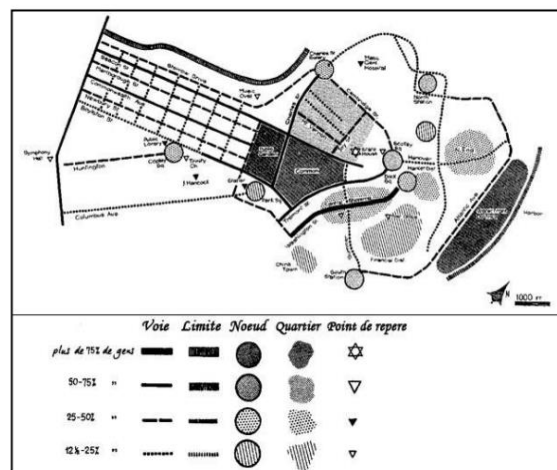


Figure 17: The image of Boston as it emerges from the oral interviews (application of the 5 elements of Lynch), source: Kevin Lynch. (1980), op cit, 171 p

6. Spatial syntax visibility card

Spatial syntax is a research program that studies the correlation between human societies and space through the general theory of the structure of space in all its forms, building, agglomeration, city and landscape (Hillier, 1996; Hillier and Hanson, 1998; Bafna 2003)

Spatial syntax, a method of analysis for the representation of the urban structure developed in the 1970s, examines the relationship between spatial configuration and movement.

As Hillier specifies, spatial syntax, (research the relationship of relationships) to understand the structure and functioning of urban space (CAN, 2012) Spatial syntax is an applied theory to explain the relationship between society and the Bati space (O'Sullivan, 2000)

Spatial syntax is also defined as a theory based on graphs used by architects and urban planners to study how the spatial configuration of buildings and cities influences the economic, social, and environmental parameters of human movement and social interaction (Dawson, 2002). Its techniques allow a precise and quantitative representation of the organization of spaces on different scales

Spatial syntax is a set of technique of representation and quantification of space model (Bellal and Brown, 2003) and a set of methods and techniques for modeling architectural and urban spaces (Mazouz, 2013, p 24)

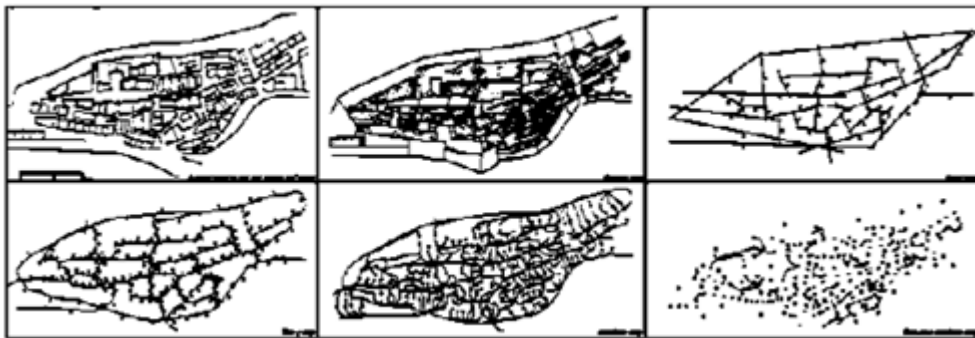


Figure: The different cards used in space syntax (from top to bottom-from left to right: convex card, axial card, y-map, interface card and converse interface map.

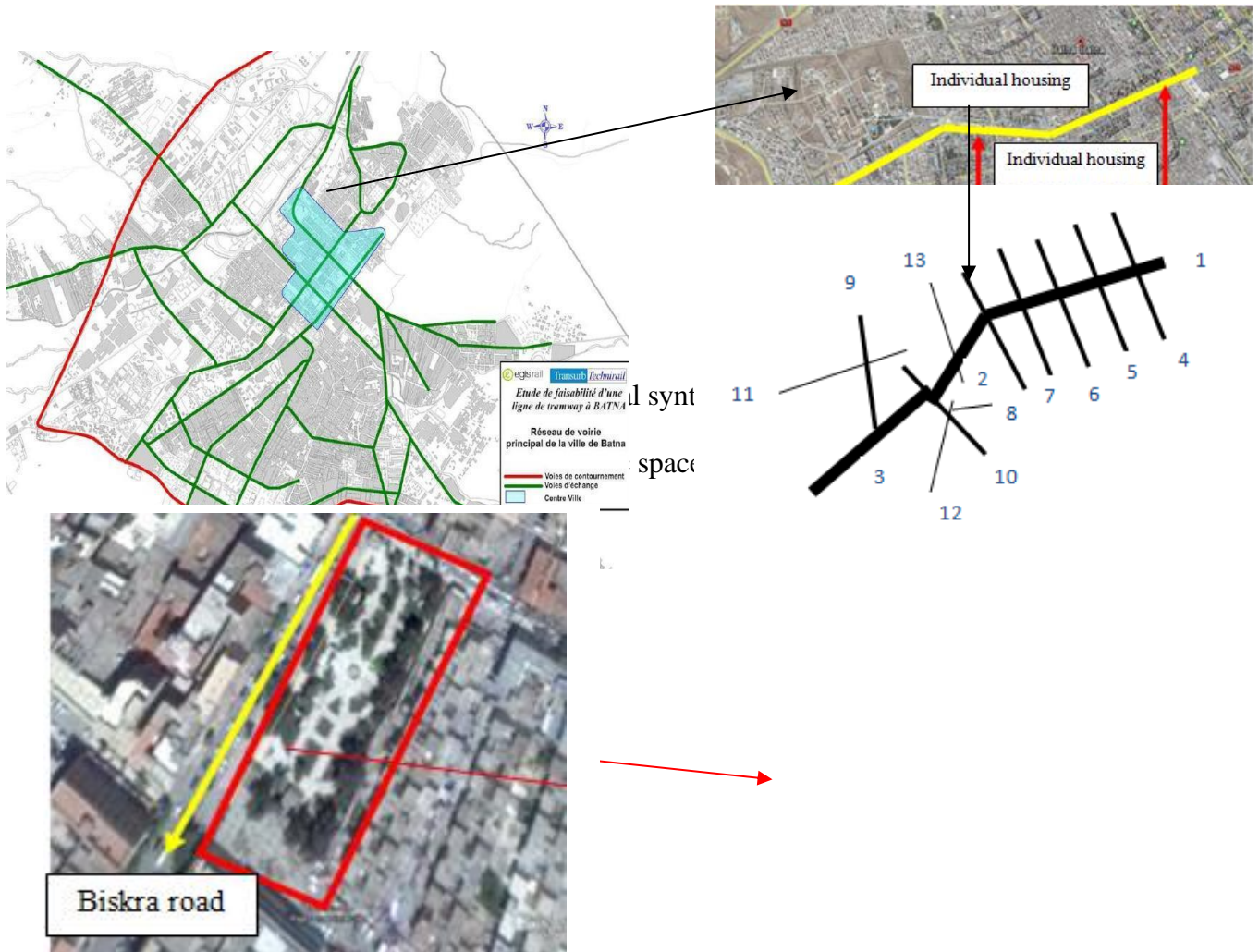
Source: Sima and Z Hang, 2009

7. Results: Sequential analysis and visibility card (*Biskra Road Axis : after independence to date*)

7.1. Study of the urban scene

A.The growth of the axis is urban

The growth of the axis in a written manner, as the axis of a striped Biskra consists of three straight parts Figure, over how much it is estimated at 3577 m.



Air Photo 1: Public Spaces , Source: author 2022

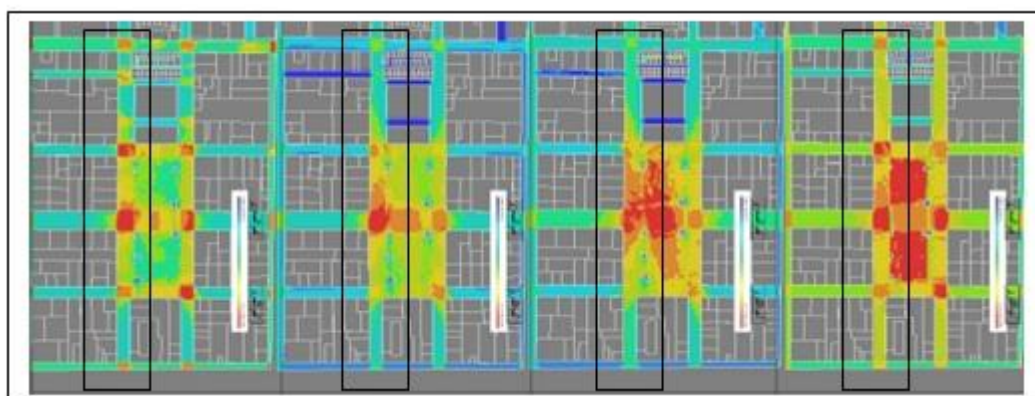


Figure 19 : Visibility Graph Analysis Map-Structural characteristics- Biskra Road Axis
D=250M, Red color = high values, Blue color = lower values, Source : SABER BEN AICHA ,
2022

c. The urban side of the axis

The Biskra Axis Road extends from the north to the south. The various flows that follow the movement of the two men and cars, along with the various facilities that surround With it.

The Biskra Road is the center of the city's formation. It has evolved with the development of the city as the job has evolved with it .This led to the development of the urban form with it, where all the horizontal components have evolved.

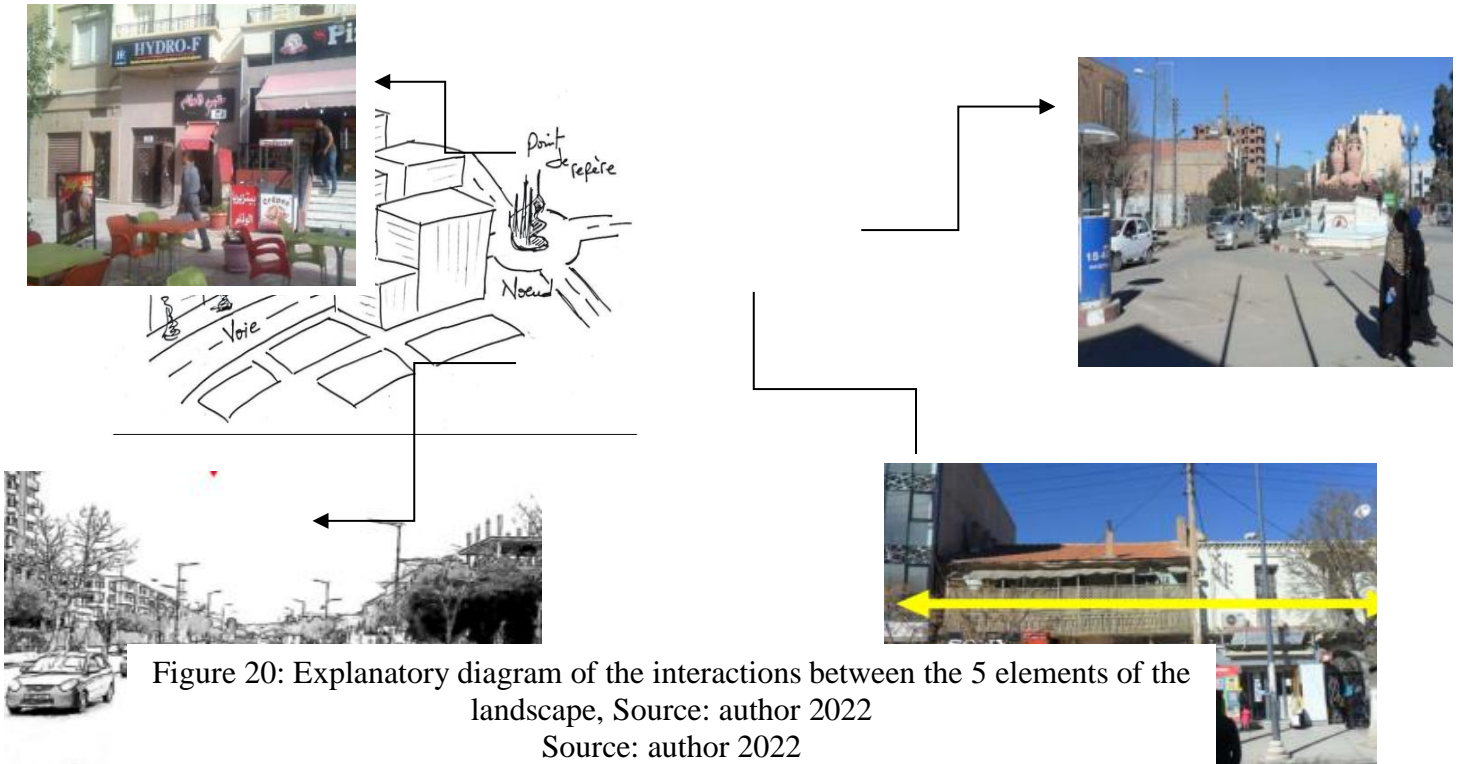


Figure 20: Explanatory diagram of the interactions between the 5 elements of the landscape, Source: author 2022
Source: author 2022

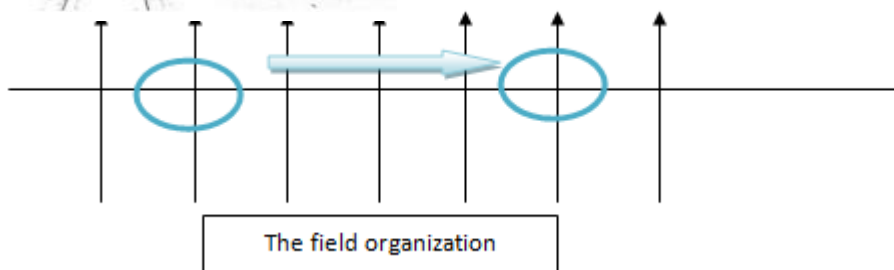


Figure 21 : A functional field communication between the crossroads

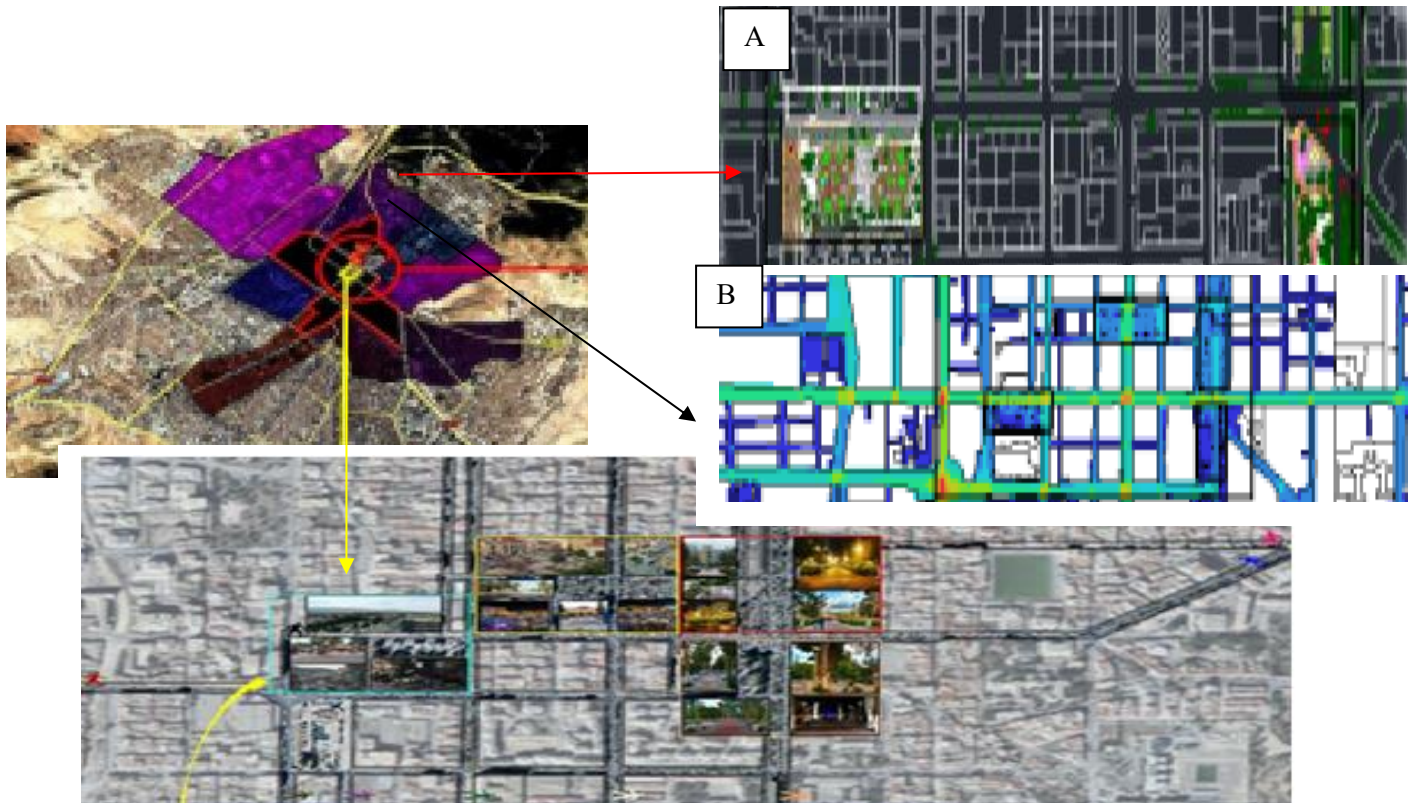


Figure 22: Different design and structural design features of the Biskra Road axis

D. Study of the urban landscape: the impact and appearance of visual pollution :
(From regular planning for distorted growth)

• Arcade:

1- The width of the corridors: The width of the Road Biskra shows its importance and the importance of movement, the road consists of only one corridor estimated to be 9 m wide, the degree of flow is great on the road because it is considered a special entrance to the city.

2- The marginalization of the road floor made it suffer from degradation and digging, which hinders movement and because the road knows a large population flow, in addition to the lack of respect for speed by drivers, it is not without the time limits that have distorted its appearance.

3- Water drainage system: That the axis of the Road Biskra contains the last drainage channels, give sins of the way because it does not work which led to the collection of water on its surface, which led to the distortion of the aesthetic image

4- Pavement: The pavement floor with a hub in the old fabric is resistant to slippage but suffers in the modern fabric where we find it not horizontal, in addition to the fact that its surface is soft and non-resistant to slippage. This causes anxiety among passers-by.

5- Hygiene: The garbage is a waste and residue of daily uses, especially commercial and which are kept in special boxes, but often what is thrown for the absence of their own boxes, these wrong behaviors led to the accumulation of negatives resulting in visual pollution and negative impact on human health



Water drainage opening

Hygiene



Using sidewalks

The different floors

Figure 23 : the urban landscape of the Biskra road, Source: author 2022

8. Analysis of results

In order to find out the impact of visual pollution on human beings, which is exposed to our public spaces in general and roads and streets in particular, it was necessary to develop a research form for the inhabitants of the axis, in addition to that this form was addressed to the specialists to know how to evaluate the urban scene in terms of architectural and urban.

This form is accompanied by a series of questions, including highlighting the opinion of the population and the ideas of the main actors in visual pollution affecting our roads and streets and their awareness of the various problems of visual pollution to highlight the extent of its impact on humans and the ocean.

Through our analysis of the results of the field investigation form, we recorded a great consensus regarding the suffering of the various components of the axis and their lack of achievement for visual comfort, where it was unanimous that both facades and umbrellas above the shops are in poor condition and not consistent. What causes a state of anxiety when you look at it.

As for the problem of the impact of visual pollution on humans, it was unanimous that seeing such negative visual manifestations affect the human psyche and lead to a state of anxiety and depression.

Based on all of the above, we can say that the problem with the emergence of visual pollution of the city of Batna is due to the misuse of public space, which stems from the misbehaviour of the accumulation of negatives that result in visual pollution. In addition to the limitations of the planning system and its disregard for aesthetic dimensions leads to the emptying of the architectural architectural image of the components of the city from its aesthetic content, the city of Batna needs a more effective planning policy in order to eliminate such phenomena, which have affected the comfort and happiness of man.

9. Conclusion

The axis of the Biskra road has a linear shape as it is a regular consisting of three straight parts as it is known as two types of ancient architectural tissues, its location in the historical center of the city where it is characterized by organization and architectural and architectural images consistent compared to the modern fabric especially in the post-independence stage, which was characterized by some inconsistency between commercial function and movement, which affected the architecture through an unbalanced urban scene indicating the absence of A unified architectural character (i.e., this development led to visual pollution (the axis of the Biskra road: from the regular planning of distorted growth), these architectural and urban problems as a result of commercial movement, which is one of the important features of the latter affected the architecture in general and the road scene in particular. Corridors, sidewalks, etc.

These components were used in a very bad way, especially with regard to the removal of goods and products, which led to the consumption of large areas of the pavement, which resulted in a state of chaos and obstruction of the movement of passers-by (career development led to aesthetic distortion), in addition to the paintings that stand in front of the shops and reflect the culture of society, as a spontaneous society random and unregulated everyone writes what he wants without regulation, which reflects the absence of the state and the absence of the regulator who regulates such things.

In the end we conclude: this visual pollution affected human health and happiness along with the emotions that result from the feeling of seeing a negative visual indicator through an increase in the secretion of adrenaline, a hormonal substance produced by the pituitary gland, translating what the eyes saw and sent by the brain, this is confirmed by the field study through field investigation in the axis of the road of Biskra.

Based on all of the above, we can say that the problem is the emergence of visual pollution of the city, especially for the axis of The Biskra Road, due to the misuse of public space, which stems from the wrong behaviors to accumulate the negatives that result in visual pollution. In addition to the limitations of the planning system and its disregard for aesthetic dimensions leads to the emptying of the architectural architectural image of the components of the city of its aesthetic content

To reduce such phenomena by way we must do a well-planned and good architectural and architectural lybecause the main problem in the emergence of visual pollution is due to poor design and the absence of a common unit, so it must be combated by reference to the common architectural character which characterizes the city of Batna, because there is a relationship of integration between design and use, it must be good use of roads and streets by educating people in the use of various facilities in our public spaces in general and roads and streets. In particular.

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