

# The Massive Degeneration of Green Space in the City/ Oasis of Bechar

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## Abstract

If life in the city promises a variety of privileges, it also seems to be the source of stress and numerous health problems. For this reason, people in search of a healthy and pleasant environment to live in are leaving the urban environment for the suburban or even rural areas.

Artificial space, very mineralized, the city provided with polluting infrastructures (road system, industries, residential activities...) and energy consuming, forgetting the insertion of the vegetation, inconveniences its inhabitants. However, vegetation is able to confer, in addition to the aesthetics of the city, a pure and breathable air, the climatic, visual and psychological comfort, impacting the well being and the health of the beings.

While in the past, the creation of human settlements, typically in the Sahara obeyed imperiously to natural necessities, water and the palm grove constituting the promise of oasis life. Known for its securing role of the climatic outrages and pollution, the vegetation/palm grove contributes to the guarantee of a quality environment and the health of its inhabitants.

From the oasis to the city, the environment is degrading; the green space has gradually faded. The city-oasis became an antithesis of nature, the example of the city of Bechar, now acts against the welfare and health of beings.

The present work attempts to show the current situation of nature in an Algerian city (Bechar) characterized by an arid climate, through a historical approach; and to propose if necessary, motions for a healthy environment, a resilient city in the Saharan environment, through a morphological approach and field surveys.

**Key words:** Arid climate, Bechar, City/Oasis, Green space, Vegetation.

## INTRODUCTION

The city of Bechar, capital of the Saoura region, is located in southwestern Algeria. Historically, the private gardens and oases have forged its identity and, allowed trade and barter with other oases that are grafted like it, on the trans-Saharan caravan trail. It is characterized by a linear shape, running along the Saoura wadi over a distance of 20km. These natural elements are at the origin of its form, validating several models of familiar traditional Arab cities (...) (A.Raymond, 1985).

Indeed, the creation of the original Arab-Muslim settlements obeyed both natural necessities and commercial and military opportunities, but also tribal organization, even religion (W. Biara, 2013). If the various sources of water (wadis, Foggaras,...) were a necessary condition for the construction of human settlements on the trade routes that allowed them to trade, the halts (on the trans-Saharan route) gave rise to stopover towns or market towns (Pelletier.I and Delfante Ch, 1997). Whether this foundation is a ksar (Saharan habitat) or a medina, it is always accessible and connected to the surrounding villages that supply it and to the trading activities that support it.

Bechar is one of these stopover towns, welcoming caravans on transhumance, and which later evolved into a city/oasis (Marc Côte, 1998). The first urban forms adjoining the vernacular fabric obey an urban spirit distinct from the traditional model. This expansion breaks completely with the traditional fabric; it was accomplished with a new structure and new frames (Marc Côte, 1998). However, the new structure of the city tramples outrageously on the agricultural land, hence the degeneration of the vegetation.

The vegetation allows the urban space in these difficult contexts to adapt to the heat waves and contributes to the improvement of the urban microclimate, especially in summer.

Essential elements of the urban composition (Bougé.F,2009), green spaces play a very important role in urbanized areas. The presence of green spaces seems to be associated with several positive effects on the environment and on the physical and mental health of the population (Portier.A and Rodts.G,1969). In addition to the role of aesthetic, to beautify the urban environment and improve the appearance of the city, plants are also an instrument for the rectification of morals and for the civic and moral education of the population (Rabreau D, 1990). As places of rest, meditation, they give individuals the opportunity to recharge their batteries and evacuate the accumulated stress (Lessard, GetBoulfroy.E, 2008).

While modern masters, such as Corbusier and Aalto, aimed to build spiritually revitalizing environments in which humans could live in harmony with nature (Menin and Samuel, 2003; Mamun Rashid and DilshadRahat Ara, 2014 ).

Architects with a heavy responsibility to design environmentally friendly buildings (Wines J, 2000; Cox, 2009; Friedman, 2012), must in these specific arid environments, borrow ideas for urban planning and possible extensions to vernacular knowledge, in other words draw lessons from traditional settlements.

The comparative historical analysis will allow to study the phenomenon of the green space through the evolution of the city of Bechar, as a Saharan city located in an arid context, extremely hot, to locate the failures in space and in time, to understand at what moment there was degeneration and why? This is in order to find ways to remedy this catastrophic situation to which the city of Bechar has arrived, as a specimen of the Saharan city.

### **Role of Vegetation in Urban Areas in Arid Climates**

If the population of southern Algeria used to live in the oases: date granaries of the Saoura region, the majority of the current population lives in urban areas, where nature has little room and where the heat wave is getting hotter every year.

Subject to the phenomenon of urban heat island, cities in specific climates, such as in arid areas particularly dense, reinforced by the artificial land, are specified by very hot air temperatures especially in summer.

Trees reduce pollutants, such as dust, and one tree provides oxygen for four people (Vergriete and Labrecque, 2007). Green spaces also reduce noise, local temperature and the urban heat island effect. In addition, several studies suggest that urban green spaces are associated with better health, lower mortality rates, fewer psychological symptoms, less anxiety, depression and stress, and a higher level of social coherence. The presence of wooded spaces in the city indeed allows the development of interesting social aspects, increasing interactions and social cohesion (Stephenetal,2011) in the city. The plant screens, if they are large enough, play a significant role in the fight against noise (Samali.M,2008).

It seems that green spaces are very important for urban health and should be considered as a central element in urban planning, hence the importance of preserving natural resources and biodiversity (Muret, 1979).

Green spaces are necessary for both the city and its inhabitants. Their positive effects are to be considered on several levels and affect several domains, ranging from the purification and ventilation of the city to public health. Their design must meet several criteria: shape, size, location, etc. These criteria must be studied to give life to this type of space.

### **Direct Impacts of Urban Vegetation on These Environments**

It is more than necessary today to introduce greening in our urbanized lifestyles, given its interesting impact on the environment, health and social:

- Urban vegetation brings many benefits for the environment:

- It is a lever for a city resilient to climate risks,
- It contributes to the ecological transition,
- It helps to fight against the strong heat,
- It reduces urban heat islands,
- It reintroduces and contributes to urban biodiversity.

- Green space in the city has above all a positive impact on public health:

- It improves air quality by reducing the presence of particles in the air,
  - It moderates air pollution: cause to effect of premature deaths,
  - It reduces noise pollution,
  - It has a great added value to physical health: it would help regulate heart rate and blood pressure, which would reduce stress.
  - It improves the well-being and mental health of citizens.
- Vegetation in cities has very positive social externalities:
- Green spaces would promote meetings and social mixing,
  - They encourage the development of sports activities,
  - They encourage the deployment of ecological practices.
  - Their positive impact on the reinforcement of links between city dwellers can contribute to a decrease in the crime rate and, in this case, promote the feeling of safety in the city.

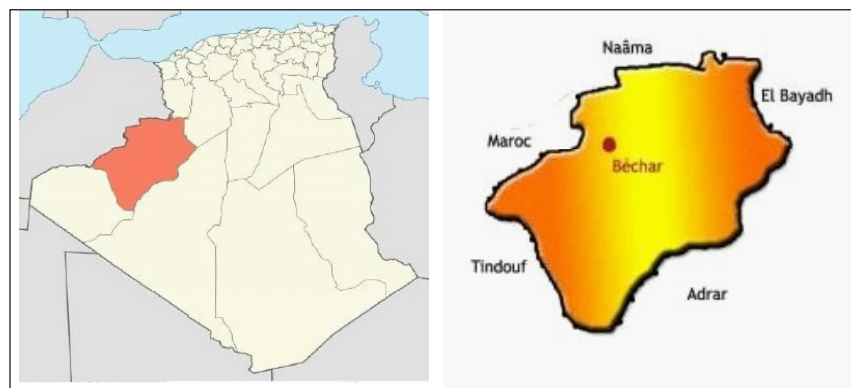
## PRESENTATION OF CASE STUDY

Bechar is located in the South-West of Algeria. It is considered as the largest wilaya in the southwest. It corresponds to a part of the former department of Saoura of which it was the capital; it extends over an area of 161400 Km<sup>2</sup>. The maximum altitude is 773 m; the average altitude is 747 m.

### Situation and Physical Data

Bechar is located at 1461 m altitude, is 1,150 km southwest of the capital Algiers, and 852 km from the wilaya of Tindouf and about 80 km west of the Moroccan border. The city of Bechar covers an area of 5,050 km<sup>2</sup> and has a population of 165,627 (RGPH, 2008) for a density of 32.80 inhabitants per km<sup>2</sup>. It is bordered by the following wilayas see figure 1:

- Naama and El Bayadh in the North.
- Tindouf in the South.
- Adrar in the East.
- Morocco in the West.



**Figure 1.** Geographical location of the Wilaya of Bechar (Source: <https://fr.wikipedia.org> and <http://www.andi.dz/monographies/Bechar.pd>)

### Climatic Data

The climate of the region of Bechar is very harsh; the period of heat lasts for six months between the month of April and September, with a temperature that exceeds 47 °C in the shade in summer, accompanied by intense hot winds of a speed reaching 100 km / h.

The insulation capacity of this region is very important, it is over 3500 hours per year, exceeding 9 kWh / m<sup>2</sup>, the direct solar radiation can go up to 250 kW / m<sup>2</sup> at the horizontal level over a period of 10/14 hours per day throughout the year. (Khencha, & al., 2020) See Figure 2.

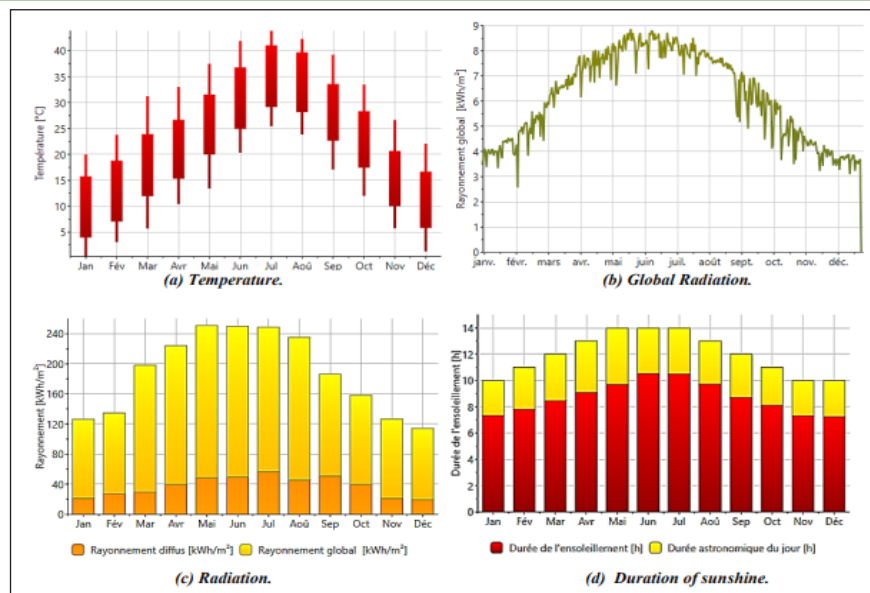


Figure 2. Climatic Data of Bechar. Source Khench, & al, 2020

## METHODOLOGY

To study the state and chronological evolution of nature in the city of Bechar characterized by an arid climate, we will adopt a historical approach supported by field surveys with people representative of the society; and propose if necessary, motions for a healthy environment, a resilient city in the Saharan environment.

Eminent researchers such as Otto Hintze or Marc Bloch have used the historical approach in the study of major phenomena of social transformation, like the founding fathers Alexis de Tocqueville, Karl Marx, Max Weber and Emile Durkheim.

## RESULTS OF THE HISTORICAL ANALYSIS AND DISCUSSION

### State of the “Green Space” in the City of Bechar Through Time

#### Historical Period Before 1900

On the eve of colonialism, Bechar was made up of two ksour (Tagueda and Ouakda) located on the bank of the Oued Saoura. The two groups of dwellings are surrounded by palm groves and gardens. The green space with agricultural character (the dates constituted the principal economic wealth), skirted the edges of the wadi, representing a large green space.

Bechar was thus a real oasis with a gigantic palm grove (see figure 3), full of irrigated crops and numerous herds of camels and goats.

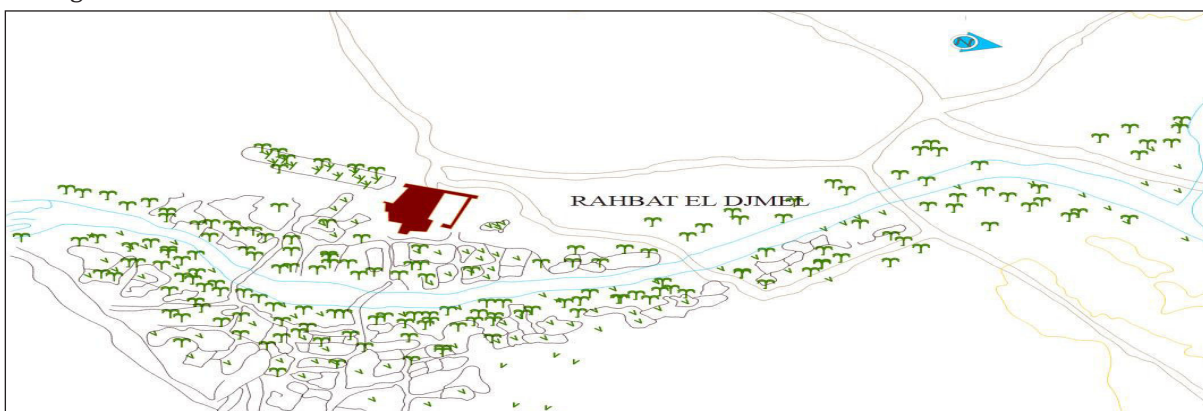


Figure 3(a). Representative plan of the oasis of Bechar before 1900 (Source:Saidi&Kerroumi )



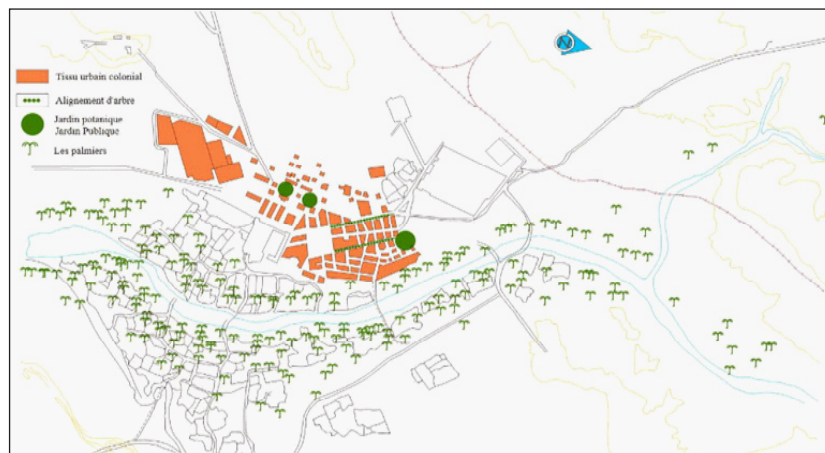


**Figure 3(b).** Photograph of the palm grove of Bechar (Source: old photographer in Bechar)

The green space is originally dense vegetation, being the palm grove. It serves as a cover for the habitat that it circumscribes and constitutes a bioclimatic envelope. It is a space of thermal well-being and an economic base, since the palm grove and the gardens of the palm groves were the basis and the source of life. The palm grove constituted a place of meeting, of protected transit.

#### **- During the Period of French Colonization From 1903**

At the same time as the part reserved for Algerians took shape on the side, near the gardens, a European fabric developed on the other side of the wadi. The French colonization built a new core (called by the natives "Debdaba" and sometimes "Colonial Damier") on the opposite bank of the Oued Saoura. This entity knew the creation of: Botanical garden, the park (public garden) and the tree alignments along the main roads (the two main streets: Revoil and Poincaré, were the first to have benefited from alignment trees) (See Figure 4).



**Figure 4(a).** Map of the city of Bechar during the colonial period. (Source: Saidi&Kerroumi )



**Figure 4(b).** The alignment of trees along the main arteries of the city of Bechar during the colonial period (1950) (Source: old photographer in Bechar)

The public squares (see figure 5) in the city center of Bechar, were spaces of urban embellishment, to promote European sociability.



**Figure 5.** Photos of public places in colonial times (Source: old photographer in Bechar).

The green spaces were exclusively reserved for the distraction and recreation of the colonists.

In 1936, the 2367 hectares of the colonization center were sown with cereals; market garden crops occupied about fifteen hectares, palm trees were growing, that is to say 5550 palm trees.



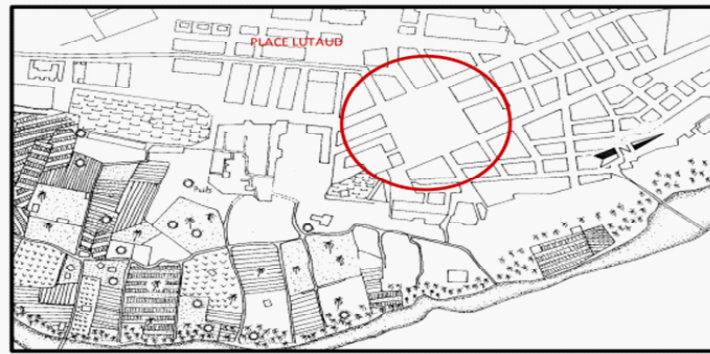
**Figure 6.** Green spaces in Bechar (colonial period in 1948)(Source: old photographer in Bechar)



This period is marked by a new way of making the green space in the city of Bechar. The spirit of the oasis was taken up again. The vegetation has known more extent, supported by the extension of the palm grove. Only, there was a new mode of organization of the green space, in the form of: alignments of trees along the main roads. Other types of green space were born for a double objective: aesthetics and leisure, like the January garden (botanical), the park (public garden). Only these spaces were exclusively reserved for the distraction and recreation of the French colonists.

#### **At the Dawn of Independence,**

At that time, the authorities were busy relocating the 60% homeless inhabitants in two new districts (chaaba and Gouray)



**Figure 7.** Map of the city of Bechar, 1945 (Source: Biara, 2013)

Faced with this emergency, the green environment was not a priority, since it was considered a luxury. During this period no new green spaces were created. The green spaces inherited from the colonization were redeveloped.

#### **Period After Independence**

The city of Bechar develops in different ways outside the palm grove, the fabric evolves inside the palm grove. The urban, dominated by the realization in concrete, seems to forget the vital dimension "the green space". (See figure 8)



**Figure 8.** Green spaces in Bechar (colonial period from 1962 to 1987) (Source: old photographer in Bechar)

In 1962, the city of Bechar promoted to the rank of wilaya, witnessed the massive construction of large urban projects, a dozen housing estates relative to a single green space: the park of the Oued Bechar.

Until 1989, the city of Bechar has built several subdivisions that, according to the directives of the circular of March 31, 1983, should be provided with green spaces, playgrounds, in proportion to the number of inhabitants (2 m<sup>2</sup> of green space / inhabitant). Contrary to this, these housing estates and collective housing estates have resulted in residual abandoned spaces.

Between 1990 and 2000: the city develops in all directions, contributing more and more to the fragmentation and progressive blurring of natural spaces. The phenomenon of urbanization, accompanied by a growing population, shows a lamentable lack of housing, the inhabitants and the state are now concerned with the built at the expense of natural space. The palm grove is in this case in gradual disappearance because of the change of needs.

Between:1990-2000, the green space relapsed, despite the guidelines of the circular of October 31, 1984, which supports its creation in relation to urbanization.

The ratio green space / inhabitant (EV / H) is in this period not respected. The curve of the ratio, shows peaks varying between 9,60 m<sup>2</sup>/h (as the highest ratio) and 0,33 m<sup>2</sup>/h (as the lowest) Moreover, after independence until the 2000s, the average ratio (EV/H) is equivalent to 1,16 m<sup>2</sup>/h. Each decade shows a drop in ratio of 0, 63 m<sup>2</sup>/h (See Figure 9). This reveals the total neglect of green space.

This period thus witnesses a manifest reduction in terms of green space; the existing one is unfortunately attacked by the invasion of the built environment and the road structure. In spite of the development of more than 20 hectares of green spaces in the master plan, Bechar really only realizes 10 hectares of green spaces (See Table 1). This area is far below the norm.

According to the forestry department of the city of Bechar, the standard is 4m<sup>2</sup>/inhabitant. So to provide the current population of 300,000 inhabitants, it takes: 1200,000 m<sup>2</sup> of green space (120ha). While the mass plan far from the theory arranges: 20ha of green space that is to say: 0.66m<sup>2</sup> / inhabitant. This is far from the norm and from what is realized..

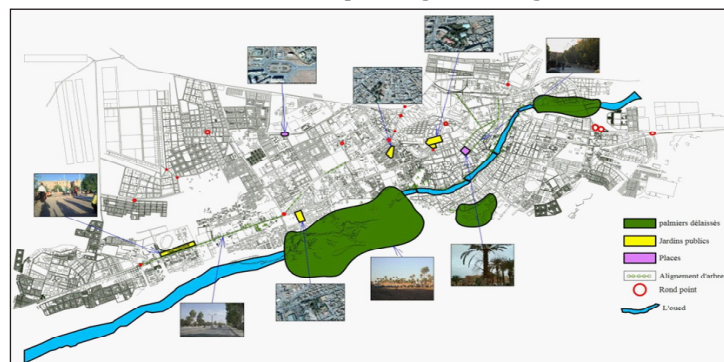
**Table 1.** Area of existing green space compared to the master plan and the standard :

Urban area/ sector	Surface urban green spaces and private garden	Area population	EV ratio. per inhabitant
1-city center including new area	2.4	106905	0.22
2-Ouakda	3.2	4007	7.97
3-Debdaba	2.5	109090	0.23
4-Bechar Djedid	1.9	79998	0.24
Total	10	300000	0.33

\*PDAU Bechar(Master plan for development and urban planning):Land use plan revised in 2015.

Currently, with the intensive urbanization, Bechar has 300000 inhabitants (census 2015) for an area of 162400Km<sup>2</sup>. It has, on the other hand, only 20 ha of green spaces. This represents 0, 66m<sup>2</sup> / inhabitant.

According to the forest service of the city of Bechar, the standard is: 4m<sup>2</sup> / inhabitant. If we calculate (according to this standard) the need for green space, we will have: 1200,000 m<sup>2</sup> of green space (or 120ha). Whereas the city has: 20 ha of green space; that is to say: 0, 66 m<sup>2</sup>/inhabitant. (See figure 8). And this is very far from the standard said to be applicable at the local level. With such an alarming ratio, there is therefore reason to act through the actors of the city, including potentially the APC (services of the municipality), for which the preservation and development of green spaces must be an important concern, in view of their contribution to improving the living environment of inhabitants.



**Figure 9.** Evolution of the population, urbanization and ratio of urban green spaces in the city of Bechar (Source: Saidi and Kerroumi based on the Master Plan PDAU of Bechar, 2010).

According to the technical service of the APC of Bechar, the urban road system of the city is estimated at 250 km. The need for trees to plant all urban roads on both sides, according to Algerian standards, is 104,000 trees, while the city has only about 15%. However, it is not enough to have the will to plant, but to build the urban empty space. The volume of the built environment of the houses must not hinder the evolution of the trees in the verandas of the houses, and the sidewalk must have an adequate width to accommodate these trees.



Apart from the trees of urban alignment, the greening of squares and roundabouts, some citizens' attempts to establish green spaces in the vicinity of housing estates and housing estates in an anarchic manner. In addition, public gardens are almost degraded. See figure 10.



**Figure 10.** Representative figure of the degraded state of the palm grove and other types of green space in Bechar, elaborated by Authors on the basis of Google earth photo.

Officially, the housing estate must provide playgrounds and green spaces, with a surface of 2 m<sup>2</sup> per inhabitant, that is to say 6.8 m<sup>2</sup> per inhabitant (interministerial circular of October 31, 1984).

In response to the degradation and reduction of green space, several laws have been put in place. See the evolution of policies in this area in Table 2

**Table 2.** Overview of urban public policies adopted

Algerian urban policies	The objectives of these policies
Interministerial circular of 31/10/1984 relating to the names of urban green spaces.	Standardize green spaces, especially in residential areas.
Law 83/03 of January 5, 1983 on the protection of the environment.	Environmental protection is a fundamental requirement of the national economic and social development policy.
Law 90/08 of April 7, 1990 on the municipal code.	Local authorities are responsible for the development and management of public green spaces.
Law 90/29 of December 01, 1990 on development and urban planning.	Introduction of two new urban planning instruments: PDAU and POS.
Law 06/06 of 20 February 2006 on the orientation law of the city.	To guide and coordinate all public interventions within the framework of the city policy, in particular, those of the urban green spaces.
Law 07/06 of 31 May 2007 on the management, protection and development of green spaces.	Implement two management tools and means. 1. The classification of green spaces. 2. Establishing a management plan.

Source: Authors, 2022.

The historical analysis of the city of Bechar, highlights a considerable lack of green spaces, both in quantity and quality. A flagrant imbalance is recorded in the evolution of the vegetal element. The realization of green spaces in Bechar remains very low compared to the needs of its population, the expansion of the population. The few green spaces that exist, lack maintenance. In addition to the deterioration of plant cover and its disappearance in some areas, the city shows the absence of a planning of urban green space. (See the summary table 3 of the state of the green space in Bechar).

The city of Bechar should reconsider the urban vegetation, and diversify its interventions in the matter, by various operations of development and beautification of neighborhoods, facades and public buildings that suggest a better exploitation. And also to encourage, involve and support the civil society in terms of means and equipment to develop private or public spaces, providing them with water sources being a main element in this process.

To make the inhabitants participate and involve them in the implementation of green spaces at the level of their districts, collective housing... is a necessary step. (See proposals in table 3)

This participative approach in the process of urban development will help the inhabitant to:

- Learn to know his environment;
- Get involved in the projection and improvement of the physical environment;
- To become responsible for future degradations...etc.

The citizens must indeed participate from the first stage of the development of a green space project, which requires several meetings and design or meetings between the owners, designers and users to take into account their opinions and proposals.

Let us emphasize that the design of natural spaces requires collaboration between various specialists: the architect, the agronomist, the biologist, the ecologist, the landscaper. This means to involve qualified and specialized people who already have experience in the green field, in its design and its development. The designers must, before drawing the green space plan, imagine and guess the path of a visitor or user in the space to better organize it and offer a maximum of views and natural perspectives to the walker, ensuring the safety and security of visitors during their presence in the green spaces to promote the ownership of the garden. Whatever the design style of the green space, it must obey the local cultures and traditions of its environment.

**Table 3.** Synthesis of the state of the green space in Bechar and proposals

Typology of the existing green space in the city of Bechar	Role and location in the city	Major problems encountered.	Actions to be undertaken
Alignment tree	<p>The tree is an essential component of the urban landscape of the old fabric of the city of Bechar, during the colonial period.</p> <p>The tree alignments served in the development of major arteries of the city and, participated in the urban composition by its shape and volume.</p> <p>The vegetation is mainly composed of large Tamarix trees.</p>	<p>In addition to their scarcity in the urban fabric, their implantation and the choice of the type of trees is sometimes not adequate and lacks a specialized landscape touch.</p> <p>The implantation of trees only concerns the major urban boulevards and does not align all the streets and axes of the city.</p> <p>Lack of landscaped greenways.</p> <p>Some are planted in a haphazard manner on the streets.</p> <p>Sometimes very narrow sidewalks are planted with trees in the middle, which does not allow pedestrian passage.</p> <p>The importance of trees does not respect the standards.</p>	<p>Identify green corridors in the city to make the city more pleasant and attractive.</p> <p>Create green pathways.</p> <p>Restoration and maintenance of ecological continuity by setting up green corridors and planting trees at the level of the roads to facilitate the circulation of fauna and flora between the large biodiversity nuclei.</p> <p>Enhancement of these spaces by the creation of a discovery trail linking a number of natural spaces.</p>

<p>The accompanying green space</p>	<p>The green spaces of accompaniment designate the plantations annexed to the public buildings and to the dwellings.</p> <p>They have a very important impact on the aesthetics of the built environment by bringing the space to life and creating a pleasant atmosphere for the immediate environment.</p> <p>The green spaces of accompaniment designate the plantations annexed to the public buildings and to the dwellings.</p> <p>They have a very important impact on the aesthetics of the built environment by bringing the space to life and creating a pleasant atmosphere for the immediate environment.</p>	<p>The green spaces have experienced a remarkable regression due to the lack of maintenance.</p> <p>While the gardens and squares are in a lamentable state, degraded or almost abandoned, this negatively influences the image of the city.</p> <p>Inbuilt spaces intended to be planted but they are always virgin without any green development, this case is very frequent in the residential areas.</p> <p>The intervention of the actors of the city on the natural spaces remains relatively weak.</p>	<p>Integration of natural spaces into the city and making them attractive through the development of recreational spaces while putting an end to social evils and insecurity in these spaces</p> <p>Development of inter-neighborhood spaces and insertion of small squares and playgrounds by exploiting abandoned empty pockets. This will help to strengthen social ties and establish a balance between natural and urbanized spaces.</p> <p>Reclaim neglected natural spaces and empty pockets by injecting them with a function</p> <p>Provide public buildings with the green space necessary to meet the needs and/or satisfaction of users; improve accessibility to these spaces and encourage soft transportation</p> <p>Clean up and maintain natural spaces</p> <p>Develop pedagogical actions to raise citizens' awareness</p>
<p>The palm grove</p>	<p>The palm grove runs along the Saoura wadi, which extends over a length of 17Km.</p> <p>In addition to its historical value, the location of the palm grove on the banks of the wadi, certainly plays a very important role in the creation of the ecosystem.</p>	<p>Despite its importance as a natural heritage for the city, citizens do not frequent it because of its degraded state.</p> <p>The bodies of water of the wadi have become sources of pollution and insalubrities that bother the inhabitants by their various nuisances</p> <p>The wadi is full of waste and debris are almost unused. This space is not put to the benefit of the citizens by the lack of maintenance.</p>	<p>The palm grove promotes a pleasant microclimate in the city, hence the importance of its restoration and maintenance.</p> <p>It would promote an important extent for the relaxation of the population.</p> <p>It gives an aesthetic aspect identity of the region.</p> <p>Cleaning and maintenance of the wadi and natural areas</p> <p>Enhancement of these spaces by the creation of a discovery path linking a certain number of natural spaces</p>

Source: Authors

## CONCLUSION

The need for green space is no longer to be demonstrated in urban areas; it is not only environmental and aesthetic issues, but also the place for experiences and social opening. The presence of this space is vital and indispensable to the well-being of human populations, as its absence is a phenomenon that must be analyzed.

The question that arises: the Algerian city specifically that of the Sahara, is it a place of nature?

If around the world, for some years, many disciplines have addressed this issue, the place assigned to green spaces in urban planning in Algeria remains marginalized, despite the arsenal of legislative texts in force. Indeed, it is seen



as a selective concept and irrelevant to the housing crisis. It is therefore bad with the social conditions and ends up generating a conflict of ethics.

The green space in Bechar is from one year to another sacrificed for the extension of the built environment, without this alerting public opinion. The green framework in the Saharan city still suffers from a lack of recognition and consideration. To contain this state of affairs, it would be wise to think about mechanisms that could redefine new relationships between the inhabitants and urban nature.

Faced with a progressive collapse of biodiversity (both in the diversity of species, environments or landscapes), sustainable solutions based on vegetation for the restoration of ecosystems are deployed.

Among the actions to be undertaken:

Integration of the green grid in development plans and urban planning documents

Integrating trees into city planning policies as a source of solutions for climate change, adaptation, mitigation of urban temperatures and reduction of the urban heat island effect.

Revegetation as a tool for urban and landscape renewal

Urban grazing to manage green spaces

Sustainable management of rainwater as close to the source as possible, promoting nature in the city, or creating leisure or play areas for residents

Issuance of permits to green sidewalks by residents as a complement to the projects of public actors

Participatory greening actions.

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