

The Urban Tree: A Key Element for the Sustainable Development of Tunisian Cities



Ikram Saïdane

Abstract In Tunisia, until the nineteenth century, the tree had a purely nourishing role and was mainly found in the orchards outside the medina walls. In the large Tunisian cities, the urban tree was born with the extension of the European city (during the French protectorate) in the alignments of trees of the main avenues but also in the public gardens and parks of the time. The ornamental tree was thus introduced and symbolized urban aesthetics, hygienism and modernity, concepts in vogue at that time. It was only thirty years after the independence of Tunisia (1956) that a “green policy” based on new concepts emerged: the environment and the sustainable development. The tree is at the heart of this environmental motivation and green spaces have been created to protect flora and fauna, especially urban and peri-urban forests, to combat pollution and to increase the ratio of green spaces. The Tunisian State has sought to stimulate a dynamic of sustainable development by implementing a series of institutional measures and specific programs encouraging the creation of green spaces such as the National Urban Parks Program or the Ville- garden. The present work will therefore aim to demonstrate the way in which the Tunisian Government has implemented a green policy through the study of the method of programming green spaces but also through the major projects. These projects carried out, to make the most of the place of nature in the urban environment in order to envisage a sustainable development of the Tunisian cities.

Keywords Green spaces · Urban tree · Sustainable development

1 Introduction

In recent decades, Tunisian cities have undergone a major metamorphosis in the areas of urban expansion and population growth. The relevant indicators showed that nearly 70% of the total population currently lives in cities [1], in addition to the great incessant development of urbanized perimeters to the detriment of agricultural and

I. Saïdane (✉)

Higher Agronomic Institute of Chott Mariem, Sousse, Tunisia

Landscape, Horticulture and Environment Research Unit, Sousse, Tunisia

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silvicultural zones and ecosystems. It should be noted that these changes in demography, urbanization and lifestyles in general had a direct impact on the management of urban areas in general and on the quality of life in particular. A number of programs and projects aiming to improve the quality of life in urban and rural areas, have been developed by the Tunisian Ministry of the Environment and implemented. We can cite the program of the promotion of urban aesthetics (green spaces, urban parks, environmental boulevards, boulevards of the earth, strategic routes and entrances of cities ...), besides the program of assistance to the preparation and implementation of Agenda 21 and urban development strategies.

Green spaces are an essential element for the aesthetics, setting and quality of life of a city. They help to ventilate the cities and must be considered as the lungs of the city. They are places of relaxation, walk, rest, games for the youngest, sports fields for all ages. They also have a significant impact on health, as many studies have shown: they create “oases of better health around them,” according to published research in the *Journal of Epidemiology and Community Health* [2]. These green spaces are actively a specific part of Tunisian environmental protection programs.

This chapter will focus on demonstrating the role of the tree, a living component of green spaces in the construction of sustainable cities. To do this, it was necessary to return to the role of the tree in the city, a role that merges with the three pillars of sustainable development because of its benefits for the territory, for man and society. Then, it was about to see the short history of the introduction of the tree in urban areas in Tunisia and especially in the city of Tunis. The tree that was having a food role only, is having now an ecological, an ornamental role and even a symbolic one. We will see that this interest for the tree in an urban environment manifested itself during the period of the French protectorate parallel to the expansion of the city according to an imported model. Since then, and with the increasing spatial influence of Tunisian cities, there has been a real awareness of public authorities of the ecological and social importance of green spaces. This concern resulted in the establishment of a series of programs for the promotion and realization of green spaces. We will focus specifically on the National Program of Urban Parks (NPUP), a program still in progress and which claimed the creation of 100 parks throughout the Tunisian territory. We will draw conclusions as to their presence in sufficient numbers and their judicious distribution in the city.

2 Tree and Sustainable Development

The benefits of the presence of the plant in the city is no longer to be proven. They can be divided under the three pillars of sustainable development. For man, they concern health and well-being, social link and identity. For the environment and natural balances, it is about biodiversity, thermal regulation, air quality, water flow and soil protection. Finally, for the economy, it contributes to building valuation, valorisation of plant products, urban agriculture and attractiveness of the territory [3].

2.1 Benefits for Man

For men, access to green spaces and nature in the city contributes directly to the health of residents and wellness [4]. Regardless of why trees provide so many benefits by reducing stress, promoting physical activity, improving the living environment and the state of health felt particularly for the sensitive populations that are children and elderly people from popular backgrounds [5]. This is nevertheless highly dependent on the quality of the site, its level of maintenance and its connection to the rest of the city [6]. This is the reason why some associations work for the creation or the improvement of therapeutic gardens in medico-social establishments [7]. Through their frequentation and the activities that take place there, green spaces reinforce social cohesion locally. Public green spaces create opportunities for contact between people from diverse social and ethnic backgrounds. These interactions are all ways to participate in the life of the community and develop a sense of friendliness. Community commitment is decisive for the involvement of the population in development choices, in dialogue and consultation [8]. Several authors speak of the role of green spaces in social cohesion and some rely on field surveys. Those who do, recognize that green spaces potentially offer more opportunities for social interaction than any other space, thanks to their ease of access and their characteristics. Community attachment seems reinforced by the presence of quality green spaces near dense residential areas [9]

2.2 Benefits to the Environment

For natural balances, especially for biodiversity, green islands, urban parks, connected within a multifunctional green network, have an essential role in the conservation of biodiversity. Recent scientific work carried out in France as part of the Urban greenway study, has shown the importance for urban biodiversity to reconnect parks with each other to create multifunctional frames that respond to environmental and social issues [10]. The second consequence on the environment is thermal regulation since it is proven, that the presence of vegetation in the city, reduces the urban effect and contributes to better energy efficiency of buildings. The presence of trees around a building increases the overall roughness of the surface, reducing wind speed and his penetration force. This effect reduces hot air in buildings in summer and cold air in winter, and allows for increased energy efficiency [11]. One of the strongest arguments of nature in town today is certainly the effect of vegetation on the local climate. Trees can reduce the temperature of a street by 2° and in a context of climate change, this role takes an obvious interest and creates an urban microclimate. The quality of urban air is largely influenced by the presence of plants in the city [12]. Air quality is a major concern in urban areas in order to protect public health and the environment. Several studies show that vegetation filters atmospheric particles (including PM2.5) and absorbs pollutants (proven in particular for NO₂ and

SO₂). Parks, green roofs, urban woods, etc. represent as many permeable surfaces, offering points of temporary retention, slowing of the flow, and even infiltration of rainwater reducing the environmental risks, in particular the floods and the erosion of grounds [13]. An urban area dedicated to green spaces and vegetation is a form of guarantee of soil preservation against its artificialization, the loss of its physical properties, and its ecosystem functions or services (hydraulic functions, purification, support of life). The presence of a vegetative cover protects it from erosion and settlement caused by the impact of the precipitations and their flow. The root system of vegetation in the city creates a real protection architecture in the soil, which makes it possible to structure and prevent it even more against erosion.

2.3 Benefits to the Economy

From the economic point of view, the public and private urban green spaces favored by the users lead to real estate gains for the housing located nearby as would the view on a pleasant landscape or a waterfront. The proximity of a green space increases the price of land [14]. The intensity of this phenomenon is very variable from one city to another or even from one park to another. The quality of the living environment and more generally of the urban environment is likely to contribute to the social and economic development of the territory and increase its attractiveness. Parks and gardens are frequented by residents, but also by locals and visitors. Sustainable urban tourism is growing, and is seen as a “constant opportunity for the conservation of biological and social diversity, job creation and the improvement of the quality of life”. This form of cultural tourism combines the attraction for gardens and nature spaces with the discovery of the city like architecture or culture. All the plant developments contribute to the image of the city, to the general atmosphere, to its beauty, to its attractiveness. A prestigious park can be a reason to visit [15].

3 Introduction of the Urbain Tree in Tunisian Cities

3.1 The Tree in the Medinas

It was from the introduction of the French protectorate at the end of the nineteenth century that the urban tree took a significant place in the city. This does not mean that the tree was not present in the medina, but it was rare to see it in the narrow streets of it. At the time of colonization, this urban model would be confronted, with the introduction of the protectorate, to a new imaginary and new practices related to aesthetic and economic values that were not those of the medina. The tree was inside the patios of the Arab houses and the essences corresponded to species belonging to the sacred because quoted in the Koran or utility because one wanted to join the

useful to the pleasant one [16]. However, the tree was not as rare as one might think in the life of the Tunisians of old. It was widely used in swani (large orchards and vegetable gardens on the outskirts of the city) in which some of the Tunisians went regularly. Indeed, the agricultural fields around Tunis, consisting of an olive tree and other fruit trees, surrounded the city. There were also trees in the gardens of aristocratic residences and holiday homes in the Beyli, outside the medina: in the palaces of Bardo and Manouba and the summer residences of Marsa [17].

3.2 The Tree in the European City

Indeed, it was during the colonial era that the first public green spaces in Tunisia were created and which accompanied the construction of the European city of Tunis established outside the ramparts of the medina [18]. They had to convey the image of a modern city that had nothing to envy to that of French cities. The most convincing examples would undoubtedly be the belvedere park created in 1899 and the Habib Bourguiba avenue promenade built in 1881. This walkway (at the time called ‘Avenue de la Marine’ in 1881 and ‘Jules Ferry’ in 1900), hosted the first alignment trees (*Ficus nitida*) to contribute to the construction of the city center at the end of nineteenth century. This quadruple alignment of the *Ficus* with an architectural size curtain was arranged to bring the perspective from the gate of France (today Bab Bhar) to the port. *Ficus* plantations have played an attractive role, shading certainly but also amenity. These plantations have led to the affirmation of the notion of public space, visual perspective and monumentality (Fig. 1).

In the European city of Tunis, alignment trees have helped to mark avenues and streets by creating urban spaces [19]. Several squares appeared such as the square of the station located in the present place of Barcelona, the square of the Qasba, currently Place of the government. However, the tree in the urban park appeared first at the Belvedere Park first made in the late nineteenth century. This park was a place of attraction, rich in a wide variety of ornamental species. The Belvedere Park was

Fig. 1 Avenue Jules Ferry 1920. *La tunisie illustrée, Revue illustrée de vulgarisation tunisienne, éd. Imprimerie Weber, 1921*



created as a recreational and attractive space for a city that was lacking. This park was a place for walking and meeting but also in a hygienist concern, providing shade and freshness for a city known for its hot climate. It was designed in the English style of landscape gardening with woods, streams and clearings and the plant species that inhabited it were exotic and passed through the test garden where the different plants from different colonies. This park is now in the heart of the capital and has undergone several changes and the landscape concern has given way to environmental concerns, health and education and is home to several unique species that exist nowhere else in Tunisia [20].

Tunisia, and particularly Tunis, inherited, at the end of the period of the French protectorate (1881–1956), a new urbanistic landscape model according to the occidental model in opposition to that of the medina and its suburbs. Since then, and with the increasing spatial influence of Tunisian cities, there has been a real awareness of the Tunisian public authorities of the ecological and social importance of green spaces, their presence in sufficient numbers and their judicious distribution in the city as evidenced by the green policy implemented by the Tunisian State.

4 The Tunisian Green Policy

4.1 The Legislative and Institutional Framework

Since its creation, the ministry in charge of the environment reflects the commitment of the country on the path of sustainable progress to initiate and establish an environmental culture. It aims to propose the general policy of the State in the fields of the protection of the environment, safeguarding nature, promoting the quality of life and establishing the foundations of sustainable development in the State's general and sectoral policies. It is responsible for developing a national strategy for sustainable development, defining measures to adapt the methods of planning and management of the structures and institutions of the State to the foundations of the mode of sustainable development. It is also the Ministry of the Environment that conducts prospective studies on the environment and its relationship with economic and social development, in order to help guide general and sectoral policies.

The protection of the environment in Tunisia is ensured by a rather significant legal arsenal which reflects on the one hand, a political will mindful of the problems related to the management of natural resources and confirms, on the other hand the commitment of the country to use rationally and durably the heritage of future generations.

Since the independence, several codes and laws relating to the protection of certain elements of the environment have emerged, for example the Forestry Code (1966, then recast in 1988), the Water Code (1975), the urban planning code (1979 reorganized in 1994), the law for the protection of agricultural land.

The rhythm of legislative and regulatory measures relating to the protection of the environment has been strengthened since 1988, when the first public institution for the protection of the environment was created, the National Agency for the Protection of the Environment (ANPE).

During the last two decades, several public institutions acting in the field of the environment were successively set up, such as the Agency for protection and development of the coast (APAL) created by the law no. 95-72 of 24 July 1995, the International Center for Environmental Technologies of Tunis (CITET) created by law no. 96-25 of 25 March 1996. It should also be noted that, in parallel with these projects and programs, the Ministry has sought to involve and guide stakeholders in integrating the environment into the various development programs and projects (Portail de l'environnement: Le développement durable, www.environnement.gov.tn/ [21]).

4.2 *Specific Programs*

The notion of sustainable development appeared in Tunisian political discourses and real environmental policy was born, this is visible through the multiplication of green space creation programs [22]. In terms of programming, green spaces are projected according to two approaches: an urban planning approach that takes shape with the different urbanism documents, and a project approach with the specific programs devoted to the development of green spaces [23]. The urban planning documents in Tunisia are presented at different scales: the National Spatial Planning Scheme (SDAT) sets the development guidelines on a national scale whereas the Master Plan of Development (SDA) is elaborated at the Scale of governorates. Urban planning is done at the scale of the town and gives rise to urban development plans (PAU). Finally, subdivision plans are developed at the neighborhood scale and must conform to plan specifications. According to the Territorial Planning and Town Planning Code (CATU), the open spaces or wooded areas as well as the urban or natural landscapes to be maintained or created must appear on the SDA cartographic documents.

According to the same document, the development of green areas, public parks and natural areas should be included in the program plan, which constitutes the achievement of the SDA, as well as all programs related to basic infrastructure, major equipment and services and the development and enhancement of archaeological and historical sites. The PAUs, documents of urban planning and regulation of the use of soils made by the local communities, are the principal regulatory framework in which the zones with the vocation of green space are delimited. Any zone can not have another type of occupation. The change of the regulatory role of green space can only take place through a presidential decree as stipulated in the CATU (1994). In practice, all existing green spaces in the city are either programmed and realized from the PAU, or integrated into these documents during their revision, for those programmed and realized after the approval of the PAU or in the framework of operations subdivisions.

The PAUs are the main documents from which it is possible to determine the location of all green spaces in the city. They thus make it possible to define the system of green spaces, in the absence of specific planning.

Green space programming is also done through specific programs generated by the Ministry of the Environment such as the National Urban Parks Program (PNPU) and the Garden Cities Program. The PNPU was launched in the early 1990s to form a “green policy” that aims to achieve a hundred parks throughout the Tunisian territory.

It has a twofold objective: to provide major cities in the country with urban parks, equipment intended to improve the living environment of city dwellers, but also to safeguard peri-urban forests. The National Project Cleanliness and Environmental Esthetics (PNPEE), is a project carried out with the support of the National Agency for Environmental Protection (ANPE). Among other actions, he attributes to cities that fulfil a number of criteria, the label city-garden. It can thus be considered as generating green spaces because it encourages the municipalities to build public gardens on their territory. To qualify for the garden-city label, the candidate city must, among other criteria, have a minimum of 14 m² of green space per inhabitant, have at least five major green spaces including an urban park and a boulevard de la environment and at least three well-developed main well-developed arteries. As part of the promotion of the urban aesthetics of Tunisian cities, two other programs have been launched, namely the national program of the Boulevards de l’Environnement in each municipality and the national program for the creation of Boulevards de la Terre in each municipality seat of the governorate. The green space promotion program is added to the list listed above in order to increase the green space ratio, which is still considered too low. Other urban and environmental planning tools are added to this list and we can cite the green plan that aims to implement a policy of preservation and enhancement of “natural spaces” and to reinforce the presence of nature in the city.

4.3 The National Urban Parks Program

I will, however, focus on the National Urban Parks Program because it is still ongoing today. This program aimed to create 100 urban parks with the goal of preserving nature and natural resources. Since its launch, this program has been placed under the responsibility of the Ministry of the Environment and Spatial Planning. It led to the creation of 39 parks scattered throughout the Tunisian territory. It is also the program that most expresses the voluntarist policy of the Tunisian State to preserve the green heritage and particularly the urban and peri-urban forests that constitute socio-cultural and economic issues.

These natural spaces present opportunities to improve the ecological environment of the city, to safeguard the natural wealth and to offer city dwellers recreational, rest, relaxation, education, culture, approaching nature. Their existence, their evolution through the power relations between city/nature and man/nature defining three types of ecological, socio-cultural and economic issues, having an impact:

- At the level of the environmental sector (ecological, the ratio of green spaces, environmental education of the citizen and its approximation of nature)
- At the level of other sectors (integration of space-forest/city, urban development, employment, tourism and recreation, health, education.
- At the level of the microsite itself (improvement—redeployment of the site, promotion-attractiveness and viability once developed)

The ultimate objective of this program should be the strict protection of urban and peri-urban forests against any kind of degradation, the stopping of any urban invasion and waste dumping inside these areas, the improvement of aesthetics but also the contribution to the establishment of sustainable cities.

5 A Case to Study: The Park of Sidi Bou Saïd

The urban parks, concretized by the National Urban Parks Program (PNPU), have taken on an environmental vocation and are managed summarily while keeping the forest vocation of the site to the maximum and consequently this limits the plant biodiversity. Nevertheless the Sidi Bou Saïd Park, also called “El Abrachia” and carried out in 2004 according to the same program stands out and is a good case study because it obeys the main objectives and this in view its location, the vegetation it contains and also the social practices related.

5.1 A Strategic Location in the Heart of the Village of Sidi Bou Saïd

The park is located in Sidi Bou Said, a small coastal town in the North Suburbs of Tunis. Sidi Bou Saïd is a village in Tunisia steeped in history and culture. It was the place of passage or retreat of artists and painters, Sidi Bou Saïd implanted on a hill, overlooking the Mediterranean Sea, the Gulf of Tunis, the ancient city of Carthage and its archaeological remains. The village originated in the retreat of the eponymous Sufi saint who was in search of meditation. The white and blue colors of its architecture have been adopted by the Tunisian population under the influence of Baron Erlanger, musicologist and painter who also settled in the village. Powerfully publicized, these two colors have become emblematic of the village marking a well-established landscape identity (Fig. 2).

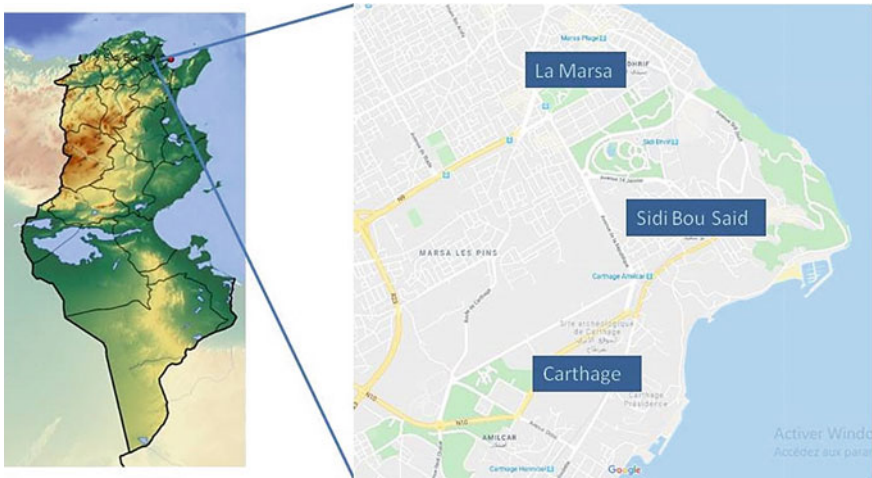


Fig. 2 Geographic situation of Sidi Bou Said's park

5.2 An Ecological Continuity with the Surrounding Spaces

The Sidi Bou Saïd Park, is a green infrastructure within an urban area strongly marked by the presence of natural spaces, including forests and green spaces of different natures but richly planted. Indeed, near the park of Sidi Bou Saïd, we find the park of Carthage also created in 2004, the American cemetery open to the public side of Carthage (see Fig. 3). The Essaada Park at Marsa is also nearby. It was realized in 2002 on the garden of an old Beylical palace become the seat of the municipality. These “pieces of nature” are linked together by axes planted so that contact with “nature” is never lost. This constitutes the very foundations of a well-constituted urban greenway.

5.3 Integration with the Surrounding Urban Area

The park of Sidi Bou Saïd, is in a low-density urban fabric made up of residential districts, University Institutes like the Preparatory Institute of Scientific and Technical Studies and the National School of Architecture and Urbanism as well as a primary school. The park is easily accessible thanks to a hierarchical road network since it overlooks the Avenue du 14 janvier, on the road to the Archbishop's Palace and a secondary road on the side of the primary school on the east side. It should also be noted that the park has three entrances, which proves its connection to the surrounding urban area (Fig. 4).



Fig. 3 Continuity of the park with the green spaces



Fig. 4 Sidi Bou Said Park's environment

5.4 A Modern Landscape Reflection

Unlike other parks designed as part of the PNPU that have benefited from a summary development, the Sidi Bou Said park was the subject of a development study entrusted to the Tunisian landscape designer Jalel Abdelkefi. Landscape thinking is contemporary and in line with international landscape practices. The style of landscape gardening is mixed and oscillates between regular forms (at the level of the plots at the level of the entrances) and circular shapes entangled in the rest of the park (Fig. 5).

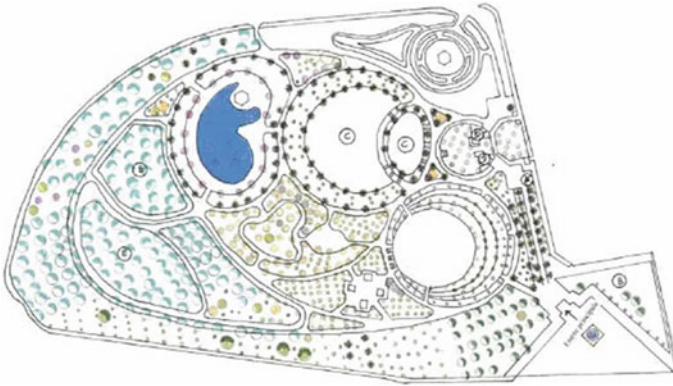


Fig. 5 Ground plan of Sidi Bou Said's park. Turki and Zaafrane Zhioua [23]. *Analyse de la répartition spatiale de l'aménagement des espaces verts programmés par les documents d'urbanisme dans le Grand Tunis*

The latter generate curved perspectives inviting the progressive discovery of the park. Note, however, the existence of a straight perspective in the long driveway to Andalusian coffee. The park is spread over 31 ha in a pine forest, including 15 ha designed to accommodate visitors. It consists of small squares, a gazebo, an arboretum, a playground, a fitness trail, a green theater, a lake and a picnic area. Vegetation biodiversity shows a rich Mediterranean palette, it is possible to find coherence between the distribution of vegetation and the choice of species with the theme of sub-spaces: for example, a plot of bitter orange trees for the Andalusian coffee park. Sidi Bou Saïd, a pine forest for the health trail of the same park (Fig. 6).

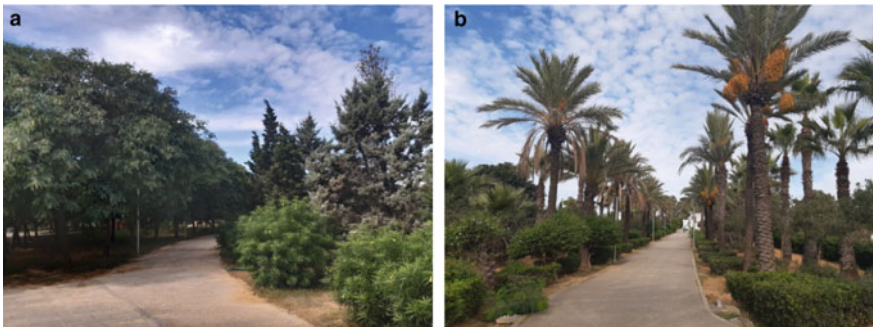


Fig. 6 a, b Planted pathways in Sidi Bou Said's park

5.5 Social Interaction Opportunities

The park of Sidi Bou Said is a green space connected to the city, open to the public and offering aesthetic and functional spaces (although it has experienced the last five years a relative deterioration of the materials of its equipment). It is a space welcoming all social categories and all ages and has a steady attendance. Strong benefits are associated with access to the Sidi Bou Saïd Park and the massive presence of plants and areas suitable for relaxation or the practice of various recreational and sports activities. The organization of events, educational and/or participatory actions in the Sidi Bou Said park, testifies to a certain level of satisfaction of the users and represents as many opportunities of meetings and exchanges, also contributing to the culture and environmental education.

6 Discussion

The urban parks built under the (PNPU), have taken an environmental vocation. The developments were carried out in peri-urban forests and therefore outside the city and are summarily arranged as if one wanted to keep the original aspect of the site, as natural as possible. The works are generally carried out in two phases: a portico of entry, often monumental as well as the beginning of a fence are first edified, then a second phase which consists of arranging the interior of the park. In most cases, only a small proportion of the site is developed, the rest being left in the natural state, that is to say a treed wilderness. These spaces, which have been created by the legislation of some specific programs, even if they are only summarily and particularly adapted, are counted, over their entire area as a green space, and thus contribute to achieving the objectives quickly fixed in terms of square meters of green space per inhabitant. It can be said that Tunisian green policy sometimes tends to operate more quantitatively than qualitatively. Some developed sites are peri-urban forests and do not constitute local spaces to improve the living environment and the introduction of plants in the city to form green lungs. As for the periurban forests, we find mainly the original vegetation of the site, that is to say, most often, forest species planted before or after the creation of the park which generates relatively low biodiversity for these spaces. The most common species in these parks are: acacia, oleander, pine or olive tree. This has led to spaces with poor plant biodiversity that contrast with the ecological and environmental vocation displayed by these parks. However, this heritage remains fragile; it is not only a question of revealing it, of putting it in value but also and especially of making it last what is not easy. However, it should be noted that some public parks are sometimes places of incivility or increased concern for users because of the presence of groups of marginal populations. Support through consultation, appropriate mediation and awareness-raising among residents often facilitate acceptance and social cohesion.

7 Conclusions

Indeed, in Tunisia and in the largest Tunisian cities, green spaces were born with the extension of the European city outside the medinas where this notion is totally illusory. Tunisia has also become, over the years, an attractive tourist destination, since then, the public authorities have tried to promote the creation of green spaces by multiplying the national programs of the creation of urban parks (PNPU), development of city entrances, creating boulevards of the environment in all Tunisian cities. The creation of green spaces in urbanized areas has become a recurring message in messages conveying an environmental policy, especially after adhering to the precepts of “sustainable development”. Green spaces have been rationalized as urban equipment as well as cultural, sports or health facilities. They have been standardized in the form of m^2 per capita (the public authorities have set a minimum of $10 m^2$ green space/inhabitant). This minimum standard was required for any new development project. Tunisian green policy should be more in the direction of a green infrastructure aimed at restoring connections between existing natural spaces and improving the ecological quality of the environment as a whole. For this, it may include several natural components (protected areas, wetlands, forests, etc.) as well as multifunctional areas in which priority is given to land uses that maintain or restore healthy and diverse ecosystems. This could support the construction of “sustainable city” while taking into account the preservation of biodiversity in current urban planning. The notion of green grid appears as a way to take into account in the urban planning the heterogeneity of the urban space by giving a sense of landscape and ecological to the city. The objective of this study is to provide all the stakeholders concerned with the keys to reflection and the arguments needed to restore the plant to its place in the urban fabric and integrate the benefits that are linked to it in planning. The proposed evaluation consists of three steps: knowledge of the territory, through the collection of information; the promotion and enrichment of the dialogue with the cotoyens, via the shared diagnosis; decision-making, through the identification of assets and levers of action. The scientific literature shows that the role of the plant in the city can be evaluated in many different ways. The main determinants of the benefits of the plant can be organized into five transversal axes of study: Functional and aesthetic amenities, the accessibility of public green spaces, the quantity of vegetated surfaces, the environmental regulation capacities and the ecological balances and continuities.

8 Recommendations

In Tunisia, development policies have for a long time, neglected environmental and living environment issues. For the last two decades, the Tunisian state tried to improve comfort and attractiveness but also to warn about the vulnerability of the territory.

To answer this problem, we must be convinced that the very condition of sustainable urban development comes from the reconciliation between nature and the city.

Unrecognized, the tree heritage is an active component of the city offering many benefits and services: air conditioning of the city, participation in water management, air and soil remediation, benefits on the psyche of urban ... Faced with these realities, we must be aware of this ally and promote the place of nature to consider sustainable development of the city and of our lives. In this purpose, we need a planning and a management tool able to gather all the actors of the territory whose professions, actions or sensitivity are interfacing with the question of green spaces. This could generate a support for shared knowledge and principles to build upon to improve and harmonize practices ensuring sustainable and universally accepted protection. To achieve this, we should not forget the civil society which, within the framework of a participative democracy, has a crucial role to play in ensuring the sustainability of the green spaces and their tree heritage making up the landscapes of our cities.

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