

Preserving the Green in Hot-arid Desert Environments: The Case of Riyadh, Saudi Arabia

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Abstract. Most of the large metropolitan areas around the world suffer from a wide range of problems including insufficient green spaces. Promoting urban green services in cities should be the objective to make livable, beautiful, and ecologically sustainable places. Typically, such places allow for the protection of green spaces, tree-lined trails, water courses and habitat for a variety of wildlife. Furthermore, well maintained green spaces are a good sign of the comprehensive ecological health of an ecosystem. In keeping with this, provision of suitable green services, especially in cities located in a desert climate lacking adequate natural resources, is of paramount importance. In this context, Riyadh city (the Saudi capital) has one of the lowest green services per capita, despite the remarkable efforts by the relevant departments. However, preserving the scarce environmental resources available in a desert city may contribute positively towards achieving that objective. *Wadi Hanifa* is regarded a vital resource for Riyadh. It abounds with huge natural assets that could serve environmental and recreational activities. Unfortunately, during the past few decades, the Wadi environs have suffered many issues that have affected its vital functions. This has encouraged the government to carry out initiatives targeting the restoration of its natural form in order to strengthen the green systems in the city. This paper underlines first the importance of green spaces, highlights some international standards, and then describes the existing conditions of the case study. The paper will investigate the role of the Wadi as the major open and green space source for the city. The Wadi can be prescribed as a solution to overcome the issue of being far below the international standards of green space per capita. Based on this approach the paper reviews the key features of the Wadi rehabilitation project. The paper follows a descriptive paradigm which is based on exploratory and deductive means of data collection. To achieve the paper objectives, secondary data and local and international experiences were used and reviewed. A conclusion was presented at the end to point up the opportunity of the Wadi for the city.

1. Introduction

Most cities around the world face pressing issues associated with rapid growth, high rates of urbanization, unsustainable use of natural resources, effects of global climate change, escalating water and air pollution, and the continual deterioration of the environment. However, there are many cities that have started to devise unique strategies or interventions to protect the vitality of local and regional natural systems. Creating sustainable strategies for urban development can be achieved if the built and natural environments are integrated

rather than separated. Thus, all potential environmental assets can be transformed to serve the key objective of increasing the beneficial use of environmental resources, including green services and open spaces.

Promoting urban green services in cities should be a fundamental aim in making livable, beautiful, and ecologically sustainable places. This should take into consideration all possible methods to promote existing natural resources towards enhancing the micro climate and to improve the urban context of sustainability. The importance of such efforts can be attributed to the wide range of benefits which could be provided by the ecological systems. Ecological systems offer numerous services to human societies;

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the elements of the ecosystems (natural and green spaces) reduce atmospheric carbon dioxide, help in renewing fresh water, and reduce energy consumption. In this context, almost every city, if good initiatives are put in place, can enhance its ecosystem resources to provide the public with many green services and open spaces. Typically, such services allow for the protection of trails, water courses and habitat for a variety of wildlife. Furthermore, well maintained green spaces are a good sign of the comprehensive ecological health of the ecosystem.

Descriptive research is normally based on exploratory and deductive approaches as means of collecting data, where context is highly important due to unknown variables. This facilitates examining situations in order to establish what the ideal position is, considering the nature of the research problem. In order to achieve the objectives of the research, the paper used secondary data and reviewed local and international experiences. A conclusion was presented at the end to point up the opportunity which the Wadi can provide for the city.

Due to the importance of green spaces, this paper underlines first the key standards of green spaces in a number of countries, and then it describes the existing conditions of the case study from its local situation. Some planning guidelines in this regard will be discussed. The paper will investigate the future role of *Wadi Hanifa* as the major open and green space source for the city that can be prescribed as a solution to overcome the issue of being far below the international standards of green space per capita. Based on this approach, the paper will review the key features of the Wadi rehabilitation project.

2. Green Services, How Much is Enough?

In fact, this is an important question. The issue of required open green spaces per capita in urban areas has remained controversial. Going green is becoming a way of life nowadays. Most cities around the world are making huge efforts to be more environmentally conscious.

According to the Local Government Commission⁽²⁾, which is a nonprofit American organization, most urban areas in the USA do not meet local or state requirements for open spaces and parks per capita. For instance, in a city like Los Angeles, urban green space per capita varies greatly throughout the metropolitan area. In neighborhoods with 75% or more white residents, the per capita

could reach city requirements, while it is far less in the minority communities. In this context, Los Angeles Forum for Architecture and Urban Design in their study on city parks, they believe that green ratio of 39 m² per person is the average in Los Angeles, 35 m² in Chicago, 50 m² in Boston, and 91 m² in New York city⁽³⁾. It should be noted that this per capita ratio include city parks which are accessible by residents.

Obviously, the quantity of green space available in a city is measured against its population. Vazquez (2011) claims that one of the cities with the greatest green area per capita is Curitiba in Brazil, with 52 m² per person, which is followed by New York, Madrid, and Santiago, Chile. He also assumes that among the cities with the least green space per person are Tokyo and Buenos Aires with 1.90 m².

The availability of green space in the European countries urbanized areas averages 7% of their total built up land, according to a study by the European Environment Agency carried out on 50 urban areas in 1999. One key measure of this study was the percentage of the population living within 15 minutes walking distance to green space as an indicator of urban environmental quality (Pauleit *et al.*, 2005). However, Beatley (2000) argues that in cities like Amsterdam green space per capita is estimated at 14 m² on average. But these spaces are not distributed evenly throughout the city, considering old and new urban parts. This is in fact associated with an issue of leaving dense and populated areas deficient of spaces that appears adequate at the city level. He adds that most of the German and Scandinavian cities have a high green spaces percentage in spite of being highly dense. This can be attributed to the presence of trees and vegetation, green undeveloped land and of course the proximity to natural and/or preserved landscape resources. Therefore, loss of green areas in the case of European cities and the lack of them in arid cities require extensive compensating actions consisting of tree planting and suitable vegetation across the underprovided districts.

Dubai City has one of the highest percentages of green spaces in the Middle East given its built up area. While urbanization comes usually at the expense of green areas, Dubai was on the contrary. Since 1974, when the city's first public park was opened, a network of parks and green spaces have expanded rapidly, putting the city at the top in the United Arab Emirates in terms of number of parks. It has five major parks, 13 residential parks, spread over

(2) See: www.lgc.org

(3) See: www.laforum.org

an area of just over 500 hectares or 8% of the city area (Almusawi, 2008). According to estimates by Dubai Statistics Center in 2011, the population size in Dubai was 2,003,170 inhabitants (DSC, 2011). This puts the green space per capita in the city at 2.49 m². As indicated by Green Line (a Lebanese independent non-governmental environment association founded in 1991) the average green space per capita in Beirut is 0.9 m².

Singh *et al.* (2010) claim that developed countries have ambitious standards of green space provision at 20 m² per capita. They assume that the three major elements of urban green spaces are: Patch (urban local gardens, public parks, gardens, city forest, etc.), Corridor (roadside avenues, walkways etc.), and Network structure (layout of all the patches and the corridors connecting the patches).

Kuchelmeister (1998) argues that the minimum standard suggested by the World Health Organization and adopted by the United Nations Food and Agriculture Organization is a minimum availability of 9 m² green open space per urban area inhabitant.

Demuth and Garske (2011) investigated the way to maintain high quality urban environment by adapting to climate change and mitigating its impacts in the planning stage according to the German standards. They claim that the availability of 7 m² of green space per capita within a 500 meters walking distance is considered sufficient.

It can be said that planning standards play a key role concerning the provision of green services, including gardens, parks, etc. This depends on a large extent on the local conditions of any urban area and the per capita provision of such services which differ depending on the availability of space.

As is commonly known, basic approach to city planning follows a hierarchical system where developed areas are classified into three main levels; city, residential communities, and neighborhoods. Urban green services are normally provided at all these levels taking into account the size, service coverage range (e.g. walking distance) and facilities needed.

It is very important to ensure that the spatial area designated for the purpose of leisure and recreation is appropriate to the population density in the targeted areas. The regulations set by the Deputy Minister for City Planning of the Ministry of Municipal and Rural Affairs (MOMRA) in Saudi Arabia indicate that a garden should be provided for every 2,500 to 5,000 people, and that the area to be allocated for this purpose be determined by a standard ranging between 2-10 m² per person. This of course

depends on which hierarchical level the service provision is intended to meet (MOMRA, 1996).

One of the most important requirements concerning the issue of green services and recreational area provision is taking into account the diversity of land topography such as valleys, tributaries, hills, etc. Essentially this should include all land that is suitable for cultivation as a measure of success in the extremely hot-arid desert areas. In fact, there is an imbalance in the standard referred to above, as it is not appropriately linked to population density, service coverage, or land use patterns at the neighborhood and/or residential community levels, let alone providing services that are easily accessible by all residents. This is evident when this compared with existing population and the existing services as will be discussed in the coming sections.

3. Assessing the Existing Conditions of Green Services in Riyadh

3.1. Riyadh city at a glance

Over nearly half a century, continuous rapid growth has transformed Riyadh (the capital city of Saudi Arabia) from a small walled town of a few thousand inhabitants to the largest metropolitan city in the Arabian peninsula, with a population of nearly five million residents (ADA, 2002b). Formerly, that growth rate was a combination of natural growth and inward migration of working-age people from the region and other countries. The area of the two phases of urban limit policy is about 1,782 km² (ADA, 1997b).

The Riyadh region has very harsh and dry climate, and has extreme temperatures during summer and winter. During the summer maximum temperatures may exceed 45°C. Rainfall is rare and irregular, and ranges from 100-130 ml annually. Because of the high temperatures and low average rainfall, and because the city lacks any permanent surface water, the humidity in Riyadh is one of the lowest in the country and averages 19% during the summer (ADA, 2002a).

The rapid growth has affected the urban form of the city over the past decades. This has encouraged the government to start formal planning to control urban development. In spite of this, the two master plans prepared during the 1970s did not put forward a vision to take advantage of the adjacent main valley (i.e. *Wadi Hanifa*) as a major source of recreation, leisure and open spaces for the city's population in the development plans. The development was rather

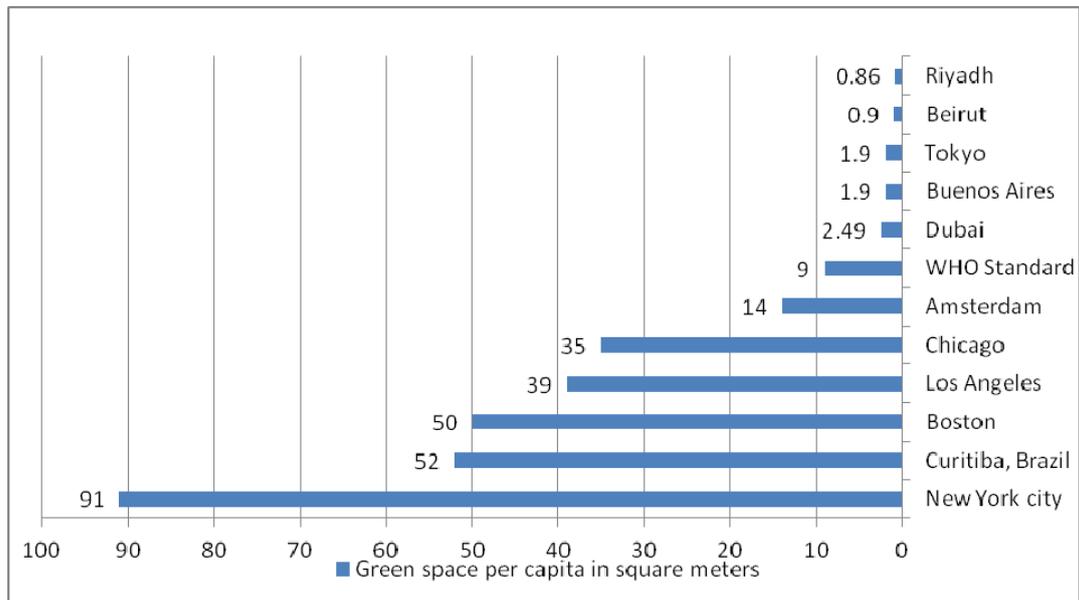


Fig. 1. Green space per capita in selected cities (prepared by the author).

directed to the vast plane land away from the valley. Thus, the valley has continued to be a development barrier instead of being a network of highly attractive and pleasant open spaces. The exclusion of the Wadi⁽⁴⁾ from the urban fabric has left the city inadequately served by urban and yet natural green services.

3.2. Green services in Riyadh

The responsibility for providing this type of service in the city sits with two principal organizations. The first is the Riyadh Municipality which is responsible for executive and oversight of development activities and services in the city in accordance with regulations and rules approved by MOMRA or those set by the High Commission for the Development of Riyadh (HCDR), headed by the Governor of Riyadh Region.

Other green services are provided by another body, Ar-Riyadh Development Authority (ADA), the technical arm of HCDR. ADA is responsible for planning, providing and supervising major projects in the city, and most notably the rehabilitation of *Wadi Hanifa*.

Green services in the city are provided according to three categories, they are firstly, neighborhoods gardens and playgrounds. These are small gardens at the neighborhood and residential district levels which can be easily identified as they located close to local mosques and/or primary schools or in positions serving larger parts of the community (see Fig. 2). The city has 332

gardens according to the General Department of Parks and Landscape Architecture (GDPLA), and the total area of these gardens is 1,074,764 m² (GDPLA, 2010).

Secondly, public parks are provided at the community level. The objective of providing these parks is to make available large areas for community recreation. The locations are chosen according to population density, the spatial significance of the site, the availability of suitable land or all of these reasons. The city has 29 public parks with a total area of approximately 2.188 million m² (GDPLA, 2010).

Thirdly, three major parks at the city level are under development. These will serve the region and the whole country considering their developed area and the expected activities which will accommodate national functions such as the King Abdullah International Gardens and the King Abdullah Park which was formerly the main Equestrian club in the city. The area of these three parks combined is approximately 1.215 million m² (GDPLA, 2010).

The first map in Fig. 3 shows the spatial distribution of green services at the city level that were provided by the relevant departments as indicated above. Obviously, these services are concentrated in the older parts of the built-up areas within the urban limits. The second map shows the spread of privately owned recreational facilities that provide green spaces on the outskirts of the city, in the recently developed areas. Of course, these particular areas cannot be considered as public services because they are private spaces.

(4) This is the Arabic word of valley. Both words will be used interchangeably in this paper.

According to recent studies prepared by HCDR, the built-up area of the city reached approximately 1,219 km² in 2011 (ADA, 2011). Preliminary results of the national General Census carried out by the Department of Statistics in 2010 show that the city's population reached about 5.2 million, making Riyadh the largest metropolitan center of the Arabian Peninsula considering the characteristics of its arid region. On this basis, the city of Riyadh is one of the fastest growing cities in its region, and according to a study prepared by ADA of population estimates during the period 2004-2024, the population growth rate during the first five years is about 4% annually.

It is possible to think that the city of Riyadh, which includes 13 sub-municipalities and 209 residential communities, suffers from significant shortages of green services, or at least inequitable and unbalanced distribution of the available services. As discussed earlier, the approximate total area of green services in the city is 447.78 hectares (4,477,764 m²), which include all the projects under implementation. This puts the green services per capita at about 0.86 m². It is certain that the city Municipality had been trying for many years to intensify its efforts towards achieving an acceptable level of green and recreational services to the city's population through its General Department of Parks and Landscape Architecture.

The Department has a goal to create recreation sites for children and young people to practice their hobbies and engage in activities within their neighborhoods, by creating "partly green" municipal squares and plazas. In this framework, the Department ambitiously endeavors, as the operational arm of the city municipality, to open 100 municipal plazas in various parts of the city (see Fig. 4).

Among the advantages of such squares and plazas is the low cost of implementation since the required infrastructure is not complex and can be built with low-cost materials in a relatively short time and on land zoned for these purposes, thus obviating the need for land acquisition.

In addition to the recreational function that such plazas can provide within the city districts, they also serve a number of ecological and social purposes. On one hand, they can enhance the micro climate as an approach to reducing the effects of urban heat islands if provided with adequate green features and suitable finishing elements.

The availability of these municipal plazas provide venues and paths for walking, sports fields, green spaces and seating areas and other facilities necessary for recreation. It is noteworthy that 32 municipal squares have been opened, and another 18 are under development with the aim of reaching the target number in 2014.



Fig. 2. An example of neighborhood gardens in Rawdah east of Riyadh.



Fig. 3. The spatial distribution of green services at the city level. Source: GIS maps by ADA.



Fig. 4. A recent development of municipal plazas in Doh district west of Riyadh.

4. Can *Wadi Hanifa* Be a Solution?

This idea is based on the assumption that *Wadi Hanifa* can be prescribed as an option to deal with the problem of lagging behind world standards of green per capita. Preserving the scarce environmental resources available in desert cities must be a primary obligation. The preservation of land for city strategic objectives that include nature landscape protection is also important. It is known that most of the desert settlements evolved and developed along wadis which are dry watercourses. Wadis are natural formations that function as water drainage system during rainy season, and comprise various natural resources.

Wadi Hanifa in Riyadh is regarded as a vital resource for the city. It abounds with characteristics of the natural desert environment such as small villages surrounded by palm groves, farms and flood streams. These elements are essential for local tradition and recreational activities. This position of the Wadi could serve as major open and green spaces for the entire city.

Wadi Hanifa makes its way through the western part of the city descending from north to south. The middle part of the Wadi becomes a major component of the city's urban fabric. It is considered one of the most prominent natural features surrounding the city. The valley itself performs a key role as the natural drainage system for surface water of a vast area considering the many tributaries of this huge natural formation.

It should be noted that the total area of *Wadi Hanifa* is approximately 4,400 km², including the main channel of the natural drainage system which is more than 120 km in length and varies in width between 100-1000 m. It is noteworthy that the most

important stage of the rehabilitation process of the Wadi focused first on a phase covers 80 km to speed up its transformation to a natural park and a core to attract investments (ADA, 1997a).

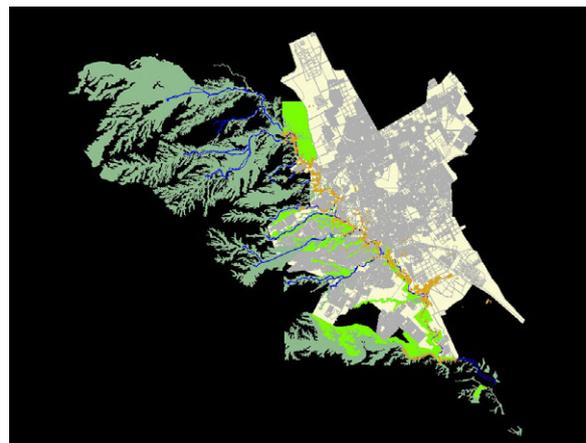


Fig. 5. *Wadi Hanifa* is rich in its landscape and resources. The second figure shows that the Wadi becomes an important element of the city urban fabric. Source: HCDR (2010).

During the past decades, there has been intensive exploitation of the valley resources, which lie within the perimeter of the city in order to keep pace with the rapid pace of development that occurred during that period. This has resulted in an imbalance in the ecological systems of the valley in conjunction with the deterioration of its various resources, such as:

1. **Soil:** Soil transfer activities have created many craters, which have become swamps to collect the mostly polluted waters.
2. **Watercourse:** The conversion and/or interruption of the main watercourse and infringements on its environs by the neighboring properties have ultimately deteriorated the

- quality and quantity of open spaces as well as flora and fauna habitat, plantations, etc.
3. **Space use:** Imbalance in land use distribution and the issue of dumping waste and rubble/debris have limited the chances to best use the Wadi resources for city inhabitants needs.
 4. **Valley image:** Construction practices are inconsistent with the valley environment and its natural aesthetics.

Despite these critical issues, the valley has remained an important natural and agricultural resource. It continues to demonstrate many signs of traditional ways of life in terms of the small villages, palm groves and sprawling farms.

Wadi Hanifa received a great deal of attention by HCDR programs since its establishment. The *Wadi Hanifa* project was the first project conducted by HCDR in the late 1980s. The first phase of this project was data collection and establishing the information system. That was followed by a detailed program to clean the Wadi and put in place all necessary legislations towards the implementation. It can be said that the implementation was relatively slow due to complexity in many associated tasks and of course the delay in arranging the required finance for the project.

5. *Wadi Hanifa* Rehabilitation Strategy, the Motives

Given the many problems that the Wadi has encountered in the past, and in the absence of an effective plan to address them, a decision was made by HCDR in its first meeting in January 1987, to initiate a program of protecting *Wadi Hanifa* as a priority.

HCDR started this process, conducting detailed studies, especially dealing with environmental issues. The framework of these studies was to determine in detail the existing conditions in the valley including; identification of land uses; properties; sites of historic significance; roads, pathways and passages.

In June 1988, after the approval of the study results, HCDR decided to make the entire Wadi an environmentally protected zone with its environs subject to special supervision in terms of development. Also, the approval of all kinds of activities, development projects and new land uses in the entire valley basin and its tributaries became under the authority of HCDR and its administrative powers.

In view of that, many measures have been put in place by ADA aiming to stop the environmental deterioration in the valley, which can be highlighted as follows:

- Clean the valley from waste and rubble, and appoint permanent supervising officers to report any infringements.
- Identify soil transfer activities locations and their legal status. At the same time, proposed alternative sites outside the valley and away from urban areas.
- Perform a survey of land use and properties and coordinate with relevant government agencies in this regard.
- Evaluate the exiting adjacent residential areas that could obstruct the valley course.
- Prepare designs of the Wadi watercourse along its 12 km length, and produce topographic maps of the tributaries and flooding streams.
- Determine the main requirements for building facades and walls that should be compatible with the typical features of the valley and its environment.
- Address the infrastructure and public facilities in the valley such as roads, bridges, power lines, telephone and coordination with the relevant agencies.

In fact, the above mentioned measures were kept in line with a number of policies, regulations and procedures to manage the implementation process. The concentration would be on preventing the environmental deterioration of the valley in order to benefit from its natural resources; subsequently meet the city open spaces needs. This was proceeded by means of:

1. Utilizing the lands previously affected by soil transfer activities.
2. Strictly forbidding the disposal of solid or liquid wastes in the valley, and monitoring the implementation by the agencies concerned of fixed control points for this purpose.
3. Stopping the issuance of new certificates of land ownership in the valley before seeking the approval of HCDR. This is important to ensure no overlap between properties and the main watercourses.
4. Halting the process of permitting the development of buildings or farms, carry out drilling or any other new activities in the valley without getting approval from HCDR.

The success of the efforts referred to above will contribute effectively in offering the city with vast areas that have good potentials to serve as open green spaces. In addition, an appropriate conservation program of natural resources in the Wadi will ensure sustainability.

6. Conclusion

The aim was to strengthen the role of the valley as a natural drainage system and as a traditional agricultural and recreational source for the city's population. At the same time, preserving the natural and geographic characteristics in the valley basin and its tributaries was an important target. The Wadi strategy addresses the land use patterns as well as creating viable investment opportunities for the private sector, which could include different fields of recreational and tourism activities given the need for such services in a city with a population of over five million inhabitants.

The comprehensive rehabilitation project of *Wadi Hanifa* is considered as the fundamental basis on which the rest of the Wadi development projects will be built, whether public or private, in accordance with HCDR plans and strategies. This should lead eventually to a large park surrounding most of the city and its suburbs, representing an attractive and promising investment opportunities.

The provision of adequate basic services to cities' inhabitants presents an important challenge for the future. The philosophy of sustainability justifies the necessity that all potential resources should be better utilized in order to meet the public needs. Many cities have started to initiate distinctive policies

so as to protect the vitality of natural systems at local and regional levels. Promoting urban and natural green services inside cities should create livable, beautiful, and ecologically sustainable places. As Riyadh city has a very harsh and dry climate, and has extreme temperatures, preserving the available and yet scarce environmental resources is an essential task. *Wadi Hanifa* can be utilized as a solution to tackle the issue of being less than the international standards of green per capita.

As discussed earlier, formerly *Wadi Hanifa* suffered many issues that affected its vital functioning over the past few decades. The initiative taken by HCDR to successfully target the restoration of the Wadi as a natural place was crucial to enhancing the city's ecosystems and is evident in the rehabilitation strategies. The rehabilitation program of *Wadi Hanifa* should be the environmental basis on which future developments are implemented. The final outcome of that project would be the reinstating of the valley to its natural position as a wildlife habitat, and an environment free of pollutants and constraints. This will create a massive open space model with high accessibility formed by a pleasant and interconnected system of parks, green zones, footpaths and other supporting services. It will significantly tackle the issue of green spaces per capita at the city level through the introduction of various kinds of green services and natural open spaces.

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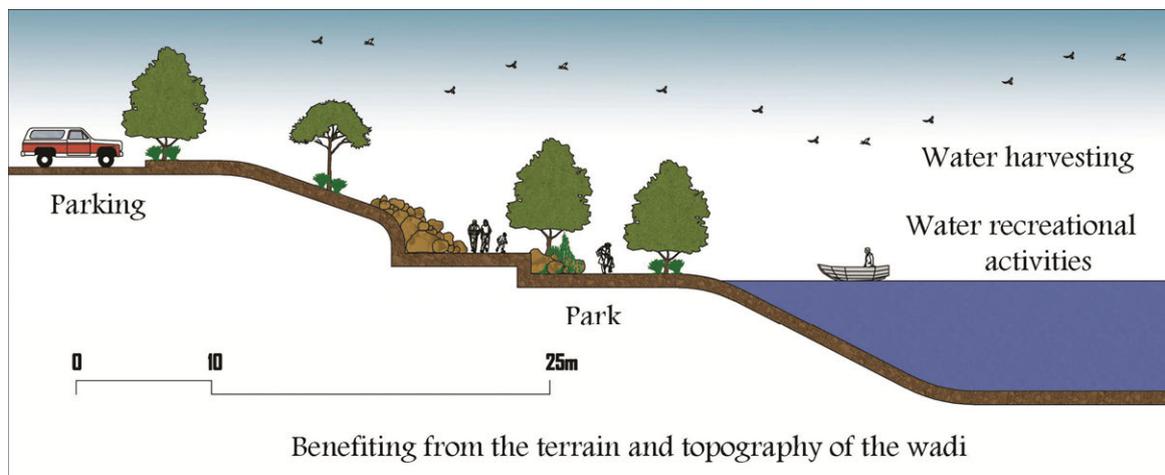


Fig. 6. Large parts of *Wadi Hanifa* can provide recreational green areas for the city's residents.

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المحافظة على المساحات الخضراء في البيئات الصحراوية القاحلة: الرياض، المملكة العربية السعودية حالة دراسية

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ملخص البحث. تعاني معظم المناطق الحضرية الكبرى في مختلف أنحاء العالم من مشكلات عديدة من ضمنها النقص الحاد في المساحات الخضراء. إن تعزيز الخدمات الخضراء في المدن يجب أن يكون هدفاً رئيسياً لجعلها أماكن جميلة وملائمة للعيش وتمتع بمستوى عالٍ من الاستدامة البيئية. عادة، مثل تلك الأماكن تسمح بحماية المساحات الخضراء وممرات مشجرة الجانبين، وقنوات مائية وبيئات تعيش فيها مجموعات متنوعة من الكائنات البرية. وعلاوة على ذلك، فإن الحفاظ على المساحات الخضراء هي علامة جيدة لجودة النظام البيئي الشامل. لذا فتوفير خدمات خضراء مناسبة، خصوصاً في المدن التي تقع في مناخ صحراوي جاف وتفتقر إلى الموارد الطبيعية الكافية، هو أمر بالغ الأهمية. وفي هذا السياق، فإن مدينة الرياض تمتلك واحداً من أقل المعدلات الخاصة بنصيب الفرد من الخدمات الخضراء، بالرغم من الجهود الملحوظة من الجهات المعنية، مما يؤكد أن الحفاظ على الموارد البيئية الشحيحة المتاحة في مدينة صحراوية يمكن أن يساهم بشكل إيجابي نحو تحقيق هدف جودة الخدمات الخضراء. يعتبر وادي حنيفة مورداً حيوياً لمدينة الرياض، حيث إنه يزخر بالعديد من الثروات الطبيعية الهائلة التي يمكن أن تخدم أنشطة بيئية وترفيهية عديدة. لسوء الحظ، خلال العقود القليلة الماضية، تأثر محيط الوادي بالعديد من المشكلات التي أثرت على وظائفه الحيوية. وقد شجع ذلك الحكومة لتنفيذ المبادرات التي تستهدف استعادة وضعه الطبيعي من أجل تعزيز النظم الخضراء في المدينة. ستحاول هذه الورقة تأكيد أهمية المساحات الخضراء، وستسلط الضوء على بعض المعايير الدولية، ومن ثمّ ستصف الوضع الراهن. كما أن الدور الذي يمكن أن يضطلع به الوادي كمصدر رئيسي للمساحات المفتوحة والخضراء في المدينة سيتم تناوله أيضاً، حيث يمكن التعامل مع الوادي كحل للتغلب على مشكلة الانخفاض الحاد في نصيب الفرد من المساحات الخضراء قياساً بالمعايير الدولية. بناء على هذا النهج ستعرض الورقة الملامح الرئيسية لمشروع إعادة تأهيل الوادي بناء على النموذج الوصفي المعتمد على وسائل استكشافية واستنتاجية لجمع البيانات. وستقدم الورقة خاتمة تشير إلى الفرص المستقبلية الممكنة للمدينة.